

TERMS OF REFERENCE

for an

ENVIRONMENTAL IMPACT ASSESSMENT

for a

PROPOSED RESORT DEVELOPMENT

at

**BIG AND LITTLE PELICAN CAY
PORTLAND BIGHT, ST. CATHERINE,
JAMAICA**

February 2011

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BACKGROUND

Pelican Island Resorts Limited (PIRL) has expressed a desire to establish a resort development on Big Pelican Cay and Little Pelican Cay in Portland Bight, St Catherine.

Further to a field inspection in September 2010 by a multidisciplinary team from the National Environment and Planning Agency (NEPA) a consultative meeting was held on 26 October 2010 with the proponents and officers of NEPA at the Development Assistance Centre (DAC), NEPA. At that meeting it was agreed that given that the Portland Bight area is a protected area and subject to conservation legislation, regulations, and guidelines and given the environmental sensitivity and the unique biodiversity of the area, and given that the proposed development is new and still unproven in Jamaica, an Environmental Impact Assessment (EIA) will be required to support any decision regarding the proposed development.



The purpose of this document therefore is to establish the Terms of Reference (TOR) for the EIA. The TOR was agreed upon by NEPA and the proponents of the development.

The EIA report must be produced in accordance with this TOR.

Where the need arises to modify the TOR, the proponent shall inform the Agency of the need and obtain the approval for the modification of the TOR from the Agency before the final EIA report is submitted.

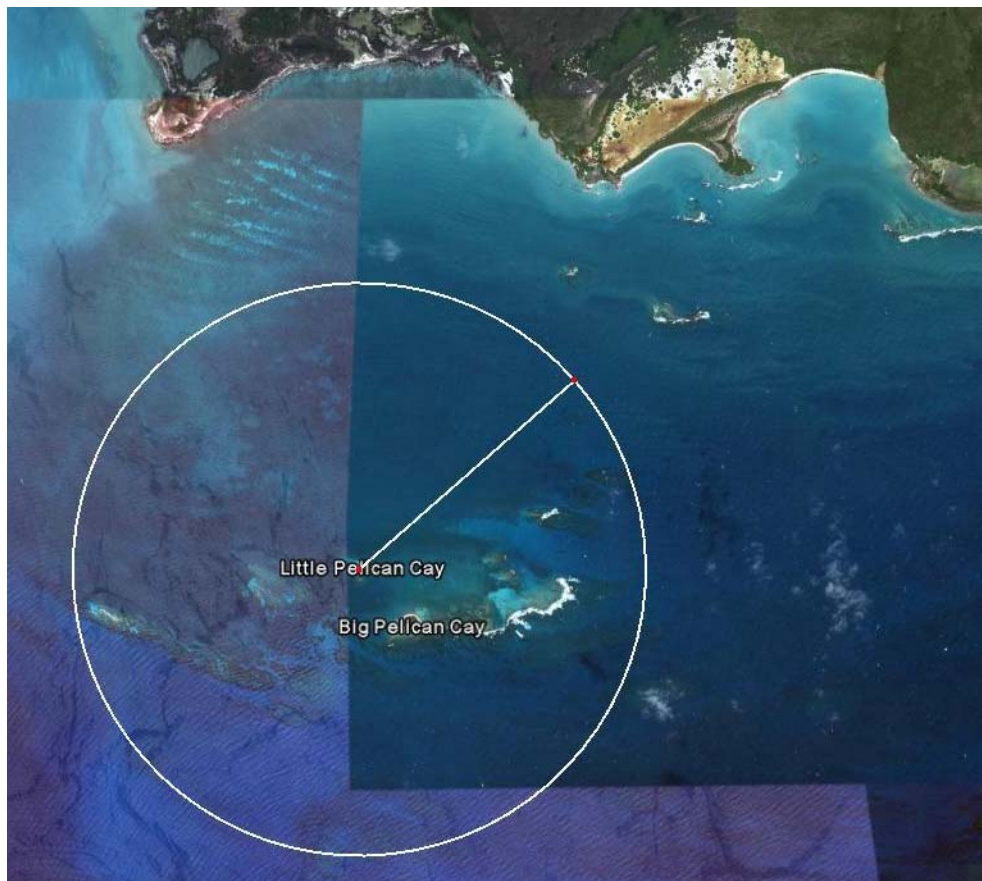
1. Executive Summary

This section should allow for a clear understanding of the project proposal and summarize the significant results of the EIA study, e.g. positive and negative environmental, social and economic impacts, options considered, reasons for selection of the proposed option and the measures to be implemented to prevent or mitigate negative impacts or capitalize on positive impacts.

2. Introduction

Provide the context of the project and the EIA, the delineation and justification of the boundary of the study area, general methodology, assumptions and constraints of the study.

The study area shall include at least the area within 3 km radius of Little Pelican Cay, and the transport corridor from the staging area on the mainland to Big Pelican Cay and Little Pelican Cay.



3. Policy, Legal and Administrative Framework

- Outline the pertinent legislation, regulations, policies and standards governing environmental quality, safety and health, protection of sensitive areas, protection of endangered species, siting and land use control at the national and local levels. The examination of the legislation should include the relevant international conventions, protocols and treaties where applicable (*inter alia* the Convention on Wetlands of International Importance and the Convention on Biological Diversity).
- All applicable legislation, regulations, policies and standards in relation to the construction and operation of the development should be highlighted, including but not be limited to the other development permits such as Planning and Building.
- Describe traditional land use and prescriptive rights including public access rights.
- Discuss issues relating to provisions for law enforcement and security as it relates to this development.

4. Public Participation and Consultation

The proponent should consult with relevant entities and the public throughout the EIA process. Document the public participation. Describe the public participation methods, timing, type of information provided and collected from the public and stakeholder target groups consultations. Instruments used to collect the information must be included in the appendix.

Summarise the issues identified during the public participation process and discuss the public input that has been incorporated or addressed in the TOR and EIA. Concerns that were raised by the public but not considered in the EIA must be justified.

Public Meetings shall be held in accordance with the Guidelines for Public Presentation at a time and location signed off by the National Environment and Planning Agency (NEPA).

Public meetings shall be held to present:

1. The conceptual design of the project and the TOR before the EIA starts. Feedback received will be used to further refine the TOR.
2. The findings of the EIA when it is completed.

5. Comprehensive Description of the Proposed Project

This should include but not be limited to the following:

5.1. The Proponent

This section should provide a description/profile of the company proposing to carry out the development project, profile of principals of the company, and business alliances of the company.

5.2. Project Concept & Description

This section should provide detailed description of the project including but not limited to:

- History and background of the project,
- Site location, site layout,
- Expected project components and alternatives that may be considered by the developer,
- Schematic plans,
- Estimated cost of the proposed development,
- Proposed project milestones,
- If the project is to be done on a phased basis, all phases should be clearly defined and the relevant time schedules provided, supported by maps, diagrams or any other appropriate visual aids,
- Proposed times of operation of the facilities,
- Construction methods and equipment,
- Construction materials.

5.3. Project Infrastructure

Overview of the proposed infrastructure and structural components on the Cays and on the mainland, including but not limited to the conceptual/preliminary design for :

- water storage and supply,
- drainage,
- sewage disposal,
- solid waste disposal,
- transportation systems (on land and water),
- electrical power (fossil energy, wind, sun, wave and tidal),
- communications and other utility requirements,
- supporting infrastructure on the mainland,
- any beach modification or works on the foreshore and the floor of the sea; including but not limited to any seagrass or coral removal and replanting.

5.4. Project Operations & Maintenance

Proposed operations and maintenance activities including but not limited to:

- equipment and machinery to be involved, and how these will be mobilized,
- areas to be used for storage of machinery and material should be clearly indicated,
- transportation systems or arrangement pre-, during- and post – construction,
- workforce requirements, including proposals for mobilization and accommodation,
- health, safety and security systems.

6. Description of the Existing Environment

An inventory and assessment of the natural resources in the study area should be conducted for a period equivalent to at least one (1) calendar year adequately representing seasonal, diurnal and nocturnal variations.

Secondary data can be used in the assessment as long as it is representative and relevant. The source of all data (existing or collected for the study) must be disclosed; who collected the information, when and where. All limitations and assumption made must be clearly stated.

The proponent shall submit an inventory of existing data and a statement on the data gaps for review by NEPA before starting the EIA. The following aspects must be described in this section:

6.1. Physical

- Morphology and morphological processes (Topography & coastal features including bathymetry of surrounding waters). In light of the transient nature of cays a historical review of the evolution of the cays should be included going back at least 30 years.
- Soils & geology of the area, including but not limited to:
 - geological structure
 - faults on the Cays and offshore in surrounding waters
 - bearing capacity
 - permeability
 - mineral resource potential
- Existing Infrastructure

- Climate (wind and precipitation), run-off and drainage
- Data to support the use of alternative energy sources (wind solar, wave)
- Air quality
- Water quality
- Identify source of freshwater, including drinking water supply

6.2. Natural Hazards

Wave and marine currents
Hurricanes and storm surges
Earthquakes and tsunamis

6.3. Biological

Flora and fauna survey of the cays and surrounding environment, detailed qualitative and quantitative assessment of the offshore cays, including inventory (list) and distribution (map) of species. Detailed description and qualitative and quantitative assessment of marine habitats and communities including but not limited to sea grass, coral reef and their associated biota; commentary on the ecological health and functions, threats and conservation significance of terrestrial and marine habitats. Species inter-dependence, habitats/niche specificity and community structure and diversity must also be considered.

The field data collected shall include, but is not limited to:

- Species lists and distribution for each community (ecosystem)
Migratory species, insects and micro-organisms should also be considered,
- A habitat map of the area,
- Coral cover (percentage and health),
- Sea grass (percentage cover and health),
- Other benthic features of the proposed development areas as well as the areas of potential impact,
- Fish and other marine species,
- Vegetation profile of the cays,
- Assessment of seabirds (including but not limited to Bridled Terns)

6.4. Heritage

Archaeological assessment - land and marine (shipwrecks, etc.)

6.5. Human/Social

- Demography, regional setting, location assessment and current and potential land-use

- Description of existing infrastructure such as transportation, electricity, solid waste disposal; water and telecommunications, and public health and safety
- Identify all existing resource users (including traditional users) ranging from subsistence utilization of the natural resources to commercial activities
- Public perception of the proposed project inclusive of potential impacts on social, aesthetic, historical and cultural values and any prescriptive rights for usage of the cays.

7. Identification and Assessment of Potential Direct and Indirect Impacts

A detailed analysis of the various project components shall be done in order to identify the potential environmental impacts, both negative and positive, of the project at all stages. The identified impacts must be profiled to assess the magnitude and importance of the impacts. The extent and quality of the available data shall be characterized, explaining significant information deficiencies and any uncertainties associated with the predictions of impacts. The impact must take in account the number and magnitude of mitigation strategies which need to be employed to reduce the risk(s) introduced to the environment. Where possible, impacts must be quantified.

Each project activity or impact is to be assessed and ranked for both the magnitude and importance of the impact and presented in a weighted matrix for all the phases of the project (i.e. preconstruction, construction and occupation and operational).

The impacts to be assessed shall include but not be limited to the following:

7.1. Physical

The impact of physical activities and elements on the environment are to be addressed:

- Impacts of construction activities such as site clearance, earthworks and spoil disposal.
- Impacts of operation and maintenance activities
- Impacts of accidental oil and chemical spills
- Impacts of solid waste, trade and sewage effluent
- Impacts on Air Quality
- Impacts on Water Quality

- Impacts of the supporting infrastructure on the mainland
- Impacts of access routes and transportation infrastructure
- Impacts on visual aesthetics and landscape

Demands/requirements of the following shall not only be described but also quantified:

- Water supply
- Drainage
- Sewage disposal; empirical data must be provided to show that the sewage treatment facility has the capacity to remove the nutrients to meet the National Sewage Effluent Standards;
- Solid Waste Disposal
- Transport systems (on land and water)
- Energy demands(fossil fuels, wind, sun, wave and tidal)
- Communications and other utility requirements
- Transport systems and supporting infrastructure required (cays and mainland (anchoring and docking facilities)

7.2. Natural Hazards

- Impact of Natural Hazards: hurricanes, storm surges, earthquakes and tsunamis, etc, are to be analysed. The natural hazard risk assessments must take into account climate change projections.
- Storm surge analysis should be conducted to inform coastal setbacks from the high water mark, the elevation of buildings above sea level and any other impact mitigation measures.
- Analysis of sedimentation dynamics - erosion and deposition – should be carried out.

7.3. Manmade Hazards

Impact of manmade hazards, e.g. major maritime accident, in the shipping lane or in the harbour facilities of Portland Bight, on the operations of a resort development on the Cays.

The impact of the exploration for and the extraction of mineral resources on or around the cays should also be considered

7.4. Biological

Direct and indirect impact on ecology and on the terrestrial and

marine habitats with emphasis on any rare, endangered, and endemic species found. This should include habitat loss, loss of special and natural features.

Impact of noise and vibration especially on marine mammals and sea turtles.

Impact of light pollution.

7.5. Heritage

Impact of the development on any archaeological site identified in the assessment. Explore how salvaging works and archaeological recovery would affect or can be integrated with the proposed development

7.6. Human/Social

- Effects on socio-economic status such as changes to public access and recreational use, impacts on existing and potential economic activities, contribution of development to national economy and development of surrounding communities.
- Safety and security arrangement.
- Support staff needs.

7.7. Carrying capacity of Big Pelican Cay

The carrying capacity of Big Pelican Cay is to be determined.

7.8. Carrying capacity of Little Pelican Cay

The carrying capacity of Little Pelican Cay is to be determined.

8. Cumulative Environmental Impacts

The cumulative environmental impact shall take in account the carrying capacity of Big and Little Pelican Cays the potential impact of related coastal zone management issues e.g. the planned expansions of the port facilities in Rocky Point, Port Esquivel and Old Harbour Bay and the increase of shipping traffic as a result of the expansion of these port facilities.

In assessing the cumulative impacts of the development the EIA should examine possible impacts of development of these cays on the surrounding cays, i.e., physical, biological, social, etc.

9. Recommended Mitigation

Mitigation and abatement measures shall be formulated for each potential negative impact identified. This will also include recommendations for the maximization and enhancement of beneficial impacts, energy conservation and the use of green building technology

10. Residual Impacts

Identify any residual negative impacts for which no solution for mitigation has been proposed

11. Natural Resource Valuation (NRV)

- A Natural Resource Valuation of the study area shall be carried out using an established and appropriate method for obtaining a value for the ecosystems services. Survey instruments are to be submitted to NEPA for sign off.
- A cost benefits analysis of the use-change as per the proposed project and the existing use must be included. The cost benefit analysis is to compare the annual value of lost welfare associated with the impacts from the project with the net social gain from the project.
- All data and survey instruments must be included in the appendices.

12. Cost Benefit Analysis

The EIA should examine the potential life span of the development proposed in light of the transient nature of some cays and undertake an investment risk assessment/cost benefit analysis to determine the viability of the development especially in light of the objectives of the vision 2030 Jamaica - National Development Plan.

13. Identification and Analysis of Alternatives

Alternatives to the site location (on other cays or islands), project design, scale, conditions of operation and technology shall be analysed including the "no-action" alternative. The examination of project alternatives should incorporate the use history of the overall area in which the site is located and previous uses of the site itself. These alternatives must be assessed based on the physical, ecological and socio-economic parameters of the proposed site.

Justification for the selection of the chosen alternative(s) shall be included.

14. Environmental Management of the Project

14.1. Draft Environmental Monitoring and Management Plans

A draft environmental monitoring and management plan must be developed which will detail the monitoring requirements for pre-, during- and post- construction and during the operational phases of the project. This will include recommendations to ensure the documented implementation of mitigation measures and long term minimization of negative impacts and maximization of positive impacts.

At a minimum the draft monitoring plan should include:

- Introduction outlining the need for a monitoring programme
- The activity being monitored and the parameters chosen to effectively carry out the exercise
- The methodology to be employed and the frequency of monitoring
- Frequency of reporting to NEPA
- The sites being monitored. These should incorporate a control site where no impact from the development is expected
- Raw data to be collected and relevant Tables and graphs to be used

14.2. Training for construction staff

14.3. Training for operation staff

14.4. Evacuation Plan

14.5. Closure plan

15. References

16. Appendices:

16.1. EIA Terms of Reference

16.2. Glossary of Technical Terms

16.3. Reference Documents

16.4. Specific Technical Studies / Reports

16.5. Data Tables

16.6. Photographs & Maps

16.7. Composition of the Research Team

List members of the team that undertakes the assessment, including name, qualification and roles.

The team required to successfully complete this EIA is expected to include but not limited to the following professionals:

- Socio-economist or economic geographer
- Environmental Economist
- Environmental Chemist or chemical engineer
- Marine biologist
- Quaternary Geologist or Geomorphologist
- Engineering geologist

16.8. Notes of Public Consultation sessions

16.9. Instruments used in Community Surveys