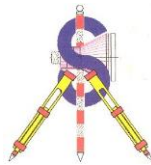


ENVIRONMENTAL IMPACT ASSESSMENT



INFRASTRUCTURAL SERVICES INC

FOR

VISION DEVELOPMENT INC

NOVEMBER 2019

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GLOSSARY, LIST OF ACRONYMS/ ABBREVIATIONS

EIA	Environmental Impact Assessment
TOR	Term of Reference
WHO	World Health Organisation
BWA.....	Barbados Water Authority
BSSA.....	Barbados Sanitation Service Authority
CITES.....	Convention on international Trade in Endangered Species
NPDP.....	National Physical Development Plan
BSS.....	Barbados Statistical Service
ISWM.....	Integrated Solid Waste Management
EPA.....	Environmental Protection Agency
ITE	Institute of Transportation Engineers
TIA.....	Traffic Impact Study
SPM.....	Suspended Particulate Matter
EIS	Environmental Impact Statement
GDP.....	Gross Domestic Product
UNESCO.....	United Nations Education, Scientific and Cultural Organisation
OUV.....	Outstanding Universal Value
SDGs.....	Sustainable Development Goals
HWW	High Water Mark
TPD.....	Tons Per Day

MSW.....Municipal Solid Waste

NAAQS.....National Ambient Air Quality Standards

PPM.....Parts Per Million

CO.....Carbon Monoxide

NO₂.....Nitrogen Dioxide

PM.....Particle Matter

SO₂.....Sulphur Dioxide

CPCB.....Central Pollution Control Board

SPL.....Sound Pressure Level

AAQSRN.....Ambient Air Quality Standards in Respect of Noise

CMI.....Coastal and Marine Infrastructures

HCM.....Highway Capacity Manual

LOS.....Level Of Service

V/C.....Volume to Capacity Ratio

PHF.....Peak Hour Flow

ACGIH.....American Conference on Government of Industrial Hygienists

SPV.....Solar Photovoltaic

ESIA.....Environmental and Social Impact assessment

EPD.....Environmental Protection Department

ECC.....Emergency Control Centre

EMG.....Emergency Management Group

SMC.....Site Main Controller

WIC.....Work Incident Controller

MO.....Medical Officer

PPE.....Personal Protector Equipment

COP.....Code of Practice

NGO.....Non Governmental Organization

DEM.....Department of Emergency Management

UNDP.....United Nations Development Program

VAT.....Value Added Tax

HIA.....Heritage Impact Study

CHA.....Cultural Heritage Asset

CHCA.....Cultural Heritage Conservation Area

ER.....Electrical Resistivity

HFR.....Hourly Flow Rate

PHV.....Percentage of Heavy Vehicles

TDM.....Transfer Demand Management

TCDPO.....Town and Country Planning Development Office

ADT.....Average Daily Traffic

Veh/h.....Vehicle Per Hour

TRB.....Transport Research Board

WB.....West Bound

SB.....South Bound

EB.....East Bound

NB.....North Bound

MTW.....Ministry of Transport and Works

DG.....Diesel Generators

1.0 EXECUTIVE SUMMARY

This document acts as a catalyst to facilitate the proposed development of the Hyatt Ziva Hotel at Bay Street in the capital city of Bridgetown, Barbados to ensure that the project takes place in an orderly and sustainable matter. The study does not neglect the importance of economic development but believes that development must take place with environmental protection at the forefront that will redound to the benefits of future generations to ensure inter-generational equity.

This EIA will help community members and local officials take a leadership role in ensuring that this development reflects environmental protection as well as fiscal, social, and economic goals. It will ensure that the community is knowledgeable about its resources, so that development decisions reflect the range of community values, not just economic values and will facilitate community planning by assisting government officials, community leaders, and citizens to:

- Identify valuable environmental resources in the study area that may be affected by a proposed development;
- Evaluate the community's capacity for additional development given environmental protection priorities;
- Identify the deficiencies or trade-offs between possible development alternatives or courses of action and the environmental impacts associated with each alternative;

Determine which groups in the study area may be directly or indirectly affected by the project or action.

- The analysis provided by this document will:
- Ensure communication among local officials, developers, community leaders and citizens about the nature of the proposal and potential impacts on the local environment;
- Ensure compliance with all relevant and appropriate environmental laws and regulations during construction and operation of the new development;
- Ensure consistent and fair review of development proposals by applying a systematic review process that includes environmental assessment; and

- Provide a forum for exploring alternatives to the proposed development or strategies to mitigate impacts, if necessary.

1.1 BACKGROUND

The development will comprise four (4) buildings, all including a basement level, of 18, 16, 12 and 11 storeys respectively comprising:

- Four hundred (380) rooms and forty (40) residences
- Over water restaurant and six (6) premier rooms
- Facilities for vendors
- Ancillary facilities

The site is made up of three parcels of land totalling 17,920 square metres of beachfront property in the Carlisle Bay area on Bay Street in Bridgetown, St. Michael.

This study took into consideration the Draft Environmental and Social Impact Assessment previously submitted in May 2019 for the previous site for the Hyatt Centric and use gap analysis where necessary to update the existing information provided in this report.

The Scoping study has identified certain key issues and potential impacts for the development that informed the preparation of this Environmental Impact Assessment (EIA) process and environmental impact statement (EIS) preparation.

1.2 REPORT SECTIONS

This report is made up of twelve (12) sections. The other sections of the report deals with the following;

Section 2 provides an introduction to the project proposal and the benefits that expected to accrue to the general community and the country as a whole. The project is expected to bring new development in the country and make a significant contribution to its GDP. Its contribution to GDP will be met by both direct and indirect employment and a major foreign exchange contributor. Its main objective is to increase the room capacity of the tourism industry in the island and the upgrade of Bridgetown and its environs by improving the general amenities in the area.

Site selection was a significant factor in the selection of the site, not only was it zoned for hotel accommodation in the past but the current land uses are compatible with the project proposal. This report has put forward sound environmental management schemes that will ensure that the development takes place in a sustainable manner that will protect the fragile Carlisle Bay area ecosystems.

Section 3 discusses the legal, policy and legal framework that will ensure that the project proceeds under sound management procedures and in keeping with international environmental standards. This section outlines the relevant government policies, guidelines, laws and multilateral environmental agreements that apply to the development. There are several pieces of legislation and policies that in for orderly development in Barbados. There are also several acts that offer environmental protection in Barbados.

The Town and Country Planning Act is the main piece of legislation which is responsible of the development of new or expanded sites. The chief Town Planner consults with the other agencies that are governed by the several Acts that offer environmental protection. The main policy document that guides the Chief Town Planner is the Physical Development Plan. The Draft Physical Development Plan (1988) spoke to a “vision for the future growth and development of the Nation by setting out policies to guide relationships among land uses, community facilities and physical infrastructure. It is also intended to coordinate public and private initiatives in Barbados to the year 2010, within a framework of sustainable development”. The Draft Physical Development Plan (2017) also speaks to the issue of sustainable development. It states that, “Sustainable Development: is about ensuring long term environmental, economic, and community health and wellbeing. Sustainable development is about finding more efficient ways to use land and scarce resources, clustering and connecting the places people live, work, shop and play, ensuring efficient use of infrastructure and protecting the core assets that are the heart of Barbados’ capacity to support a prosperous population”.

Barbados has also enacted legislation to enforce several policy decisions. There now several Acts that protects both human and natural resources of the island. The Health Services Act is perhaps the earliest piece of legislation that attempts to protect the environment. The Act makes the Minister “responsible for the promotion and preservation of health of the inhabitants of Barbados.” The main functions of the Act are to:

- Promote preservation, treatment, limitation and suppression of disease, including the conduct of investigations and enquires thereof; and

- The abatement of nuisances and the removal or correction of any condition that may be injurious to public health.

Section 4 offers a justification for the project. It looks at the project. It looks at the project site as well as the area of influence. It has its northern boundary as the careenage and river road as it intersects with Jemmotts Lane, along Collymore Rock onto Henry's Lane, along Corday Lane and Lawrence Gap as it intersects with Beckles Road onto Bay Street to include the Police Sports Club then westward to include Bay shore beach and an area 110 metres west of the HWM to its starting point at the careenage.

In order to justify the project the projected economic gains had to be matched to the environmental and social environment in which the project had to exist to ensure that the development took place in an environmentally sustainable manner while bringing economic justification for the project. It covered such areas as projected material requirements for the construction and operational phases of the project, employment generation in both the construction and operational phases of the project, the capacity to manage its solid and liquid wastes and other environmental concerns through a thorough investigation of the baseline settings and the bearing capacity of the study area to undertake the project from an environmental, social and economic perspective.

The baseline conditions were determined using both primary and secondary methodologies. These studies were conducted in the study area and encompassed an area of approximate 90 hectares extending from the careenage in the north, to the west by 110 metres to the south by the Police Sports Club and to east by an area that includes the adjoining residential districts to the east of Bay Street up to Bayville Housing area The houses on the eastern boundary of Lawrence Avenue was the eastern boundary limits. The study looked at:

- Land Environment
- Air Environmental
- Noise Environment
- Geology
- Ecology
- Drainage
- Heritage

- Social Environment and the
- Economic Environment

Section 5 provided detailed information on various studies namely;

- The Heritage study
- Ecology study
- Drainage study
- Air Quality Study
- Noise Quality Study
- Geotechnical Study
- Economic Impact Study

This section looked at the potential impacts for all the various components of the project during its various phases. Impacts are identified and mitigation methods are proposed for the potential impacts according to their level of severity. In this regard the impacts were classified as either negative or positive and whether there are; immediate, short term and long term, or unavoidable or irreversible.

In conducting the impact assessment consideration was duly given to all relevant aspects of the environment as described in the baseline setting of the study area and how they are likely to be changed or affected by the project; the type of changes or affects; over what area, or on what scale, the changes or affects are likely to take place; and when the changes or affects will occur, such as during project construction or operation.

The studies were therefore conducted and the impacts were identified, classified and mitigation methods were proposed to eradicate or minimised the impacts with adequate mitigation techniques.

This section also focussed on the main impacts of the proposals, both in the project area and in the study area, that is, the 'area of influence'.

In specifying impacts, critical relevant information is provided outlining the assumptions made to arrive and the conclusions reached. Where applicable, impacts are explained using graphics and illustrations to assist with interpretation.

Key negative impacts that arise from the project were categorised under relevant headings such as environmental and social/economic.

Section 6 identified the pollution sources and their likely environmental impacts. The proposed project has the potential to generate pollution at the site and its environs. Pollutants will be generated during the construction and operation phase of the proposed development will be liquid, solid and gaseous in nature. The generation of pollution may be periodic, continuous or accidental. Potential sources of pollutants and their characteristics during the construction and operation phase are detailed in this section.

The primary function of this environmental impact assessment study is to predict and quantify potential impacts, assess and evaluate the magnitude and their importance in order to develop an environmental management plan to mitigate the impacts. Environmental impacts could be positive or negative, direct or indirect, local or regional and also reversible or irreversible. Baseline environmental conditions at the proposed site for various parameters were provided in Section 5 whereas this section provides the various pollution loads and stressors that could impact the environment. This section also discusses the incremental environmental impacts on the environmental parameters during the construction and operation phases of the project. The potential impacts have been identified in this section. The mitigative measures for the adverse impacts, if any, are discussed in Section 7 of Environmental Management Plan.

Section 7 provides information on the Environmental Management Plan. It looks at the actions that are required to be taken to ensure that the development proceeds in an orderly fashion without any adverse impacts on the environment and the health and well being of the stakeholders in the study area. It outlines the action to be taken in each phase of the project's implementation. The Environmental Management Plan (EMP) is the key to ensure that the environmental quality of the zone under impact does not deteriorate due to the construction and operation of the project. The EMP comprises a set of measures to be taken in different phases of the project such as construction and operation to reduce adverse environmental impacts to an acceptable level. Mitigation plans generally evolve around remediation and offsetting.

Section 8 provides important information on the Environmental Monitoring Plan.

An environmental monitoring plan provides feedback about the actual environmental impacts of a project and helps to judge the adequacy of the mitigation measures in protecting the environment. The purpose of environmental monitoring is to evaluate the effectiveness of implementation of the Environmental Management Plan (EMP) by periodically monitoring the important environmental parameters within the impact area, so that any adverse effects are detected and timely action can be taken.

The key objective of the environment-monitoring program will be as follows:

1. Ensure compliance with the mitigation measures as identified in the EIA;
2. Determine the project's actual environmental impacts so that modifications can be made to the project's mitigation measures;
3. Describe the extent of environmental effects and resource losses;
4. Provide scientific information about the response of an ecosystem to a given set of human activities and mitigation measures;

The environmental monitoring plan for the proposed beach Hotel development has been conceptualised in view of the institutional, scientific and fiscal issues pertaining to the project. The monitoring plan aims to collect data on the environmental indicators to provide information about the environmental impacts. For developing the monitoring plan, appropriate components which are likely to be affected have been identified. For each component, suitable measurable environmental indicators which are appropriate to the impact mechanism and scale of disturbance and which have a low natural variability, broad applicability and an existing data series have been defined. The monitoring plan has been designed for the construction and the operation phase of the project and the details of the plan have been presented in Table 8.1.

A Risk management and Disaster Plan are provided in section 9. It takes into account the actions and remedies that are provided as a result of natural or anthropogenic disasters. It looks at the potential disasters that can occur during the construction and operational phases of the project and put forward sound disaster management plans to remedy their occurrence and in other cases prevent them from happening.

This section also looks at the history of disasters in the Bridgetown area and the likelihood of their occurrence in the future and put forward a set of procedures to effectively manage their occurrence to minimise the damage cause to property and human life.

This section provides an onsite Emergency Management Plan that clearly identifies the personnel and their responsibilities during and after a disaster.

Section 10 of this document provides the conclusions and recommendations that are required to move the project forward and ensures that it is done in an environmentally sustainable manner for unborn generations.

Section 11 provides a list of the consultants and their qualifications that put the EIA report together and section 12 provides references for the literature used in this report and also renditions of the completed project. A map is also provided on the project site location within the UNESCO World Heritage Conservation Area in Bridgetown.

2.0 INTRODUCTION

This section will provide an overview of the project and the proponent, including information such as:

2.1 BACKGROUND AND GENERAL DESCRIPTION

The project site consists of lands formerly of the Barbados Harbour Police and two adjacent properties to the north recently acquired by the Barbados Government. The properties recently acquired are occupied by Liquidation Centre commonly known as the Two Bonds building and Platinum Motors formerly owned and occupied by Tucker Motors. The site plan below illustrates the project site.



The project site is bounded to the north by Shurland Alley, to the east by Bay Street, to the south by the Boat Yard complex and to the west by the Caribbean Sea.

2.2 PROJECT PURPOSE AND OBJECTIVES (INCLUDING ENVIRONMENTAL PERFORMANCE OBJECTIVES)

The tourism industry in Barbados is substantial and vibrant. It has remained the island's greatest contribution to GDP for several years and the country is regarded as a major global destination. The nearest resort is the Hilton in the Aquatic Gap area. The proposed site is closer to the central Bridgetown area and will become a pleasant alternative with its unique location and facilities that it will provide. The proposed project will lead to following benefits.

Tourism is a growing industry; therefore there is need for more hospitality services. The proposed resort aims at fulfilling the need to satisfy the tourism market through provision of quality services and accommodation.

Improvement in local area by providing additional employment opportunities to the skilled as well as unskilled people;

The planned development with modern infrastructure facilities would add-on to the local aesthetics yet maintaining the cultural historical and architectural significance of Bridgetown as a pristine UNESCO site.

The objectives of the proposed development are:

- To increase the room capacity of the tourism sector in Barbados
- To upgrade Bridgetown and its environs and bring back some life to Bridgetown as a city.
- To provide a project that maintains the cultural, historical and architectural integrity of the Bridgetown area as a UNESCO World Heritage Site.
- To improve much needed economic activity in the area and increase the foreign earning capacity of the island.
- To provide jobs for the local community

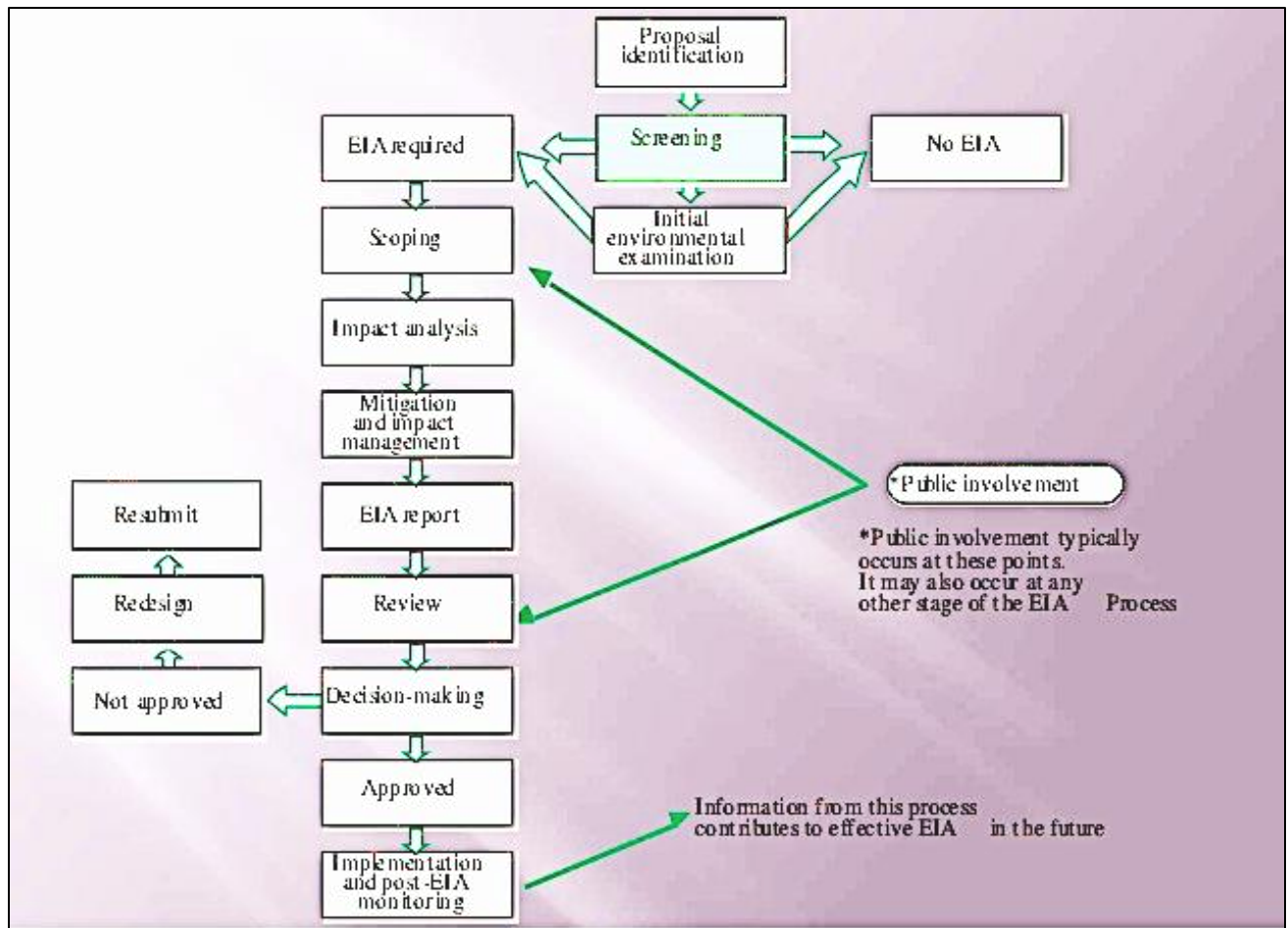
The objectives of the EIA study are;

- To describe the proposed project and associated works together with the requirements for carrying out the proposed development;
- To identify and describe the elements of the local community and environment likely to be affected by the proposed developments;
- To identify, predict and evaluate environmental and social impacts expected to arise during the construction and operation phase of the project in relation to the sensitive receptors;

- To identify the negative impacts and develop mitigation measures so as to minimize pollution, environmental disturbance and nuisance during construction and operations of the proposed development; and
- To design and specify the monitoring requirements necessary to ensure the implementation and the effectiveness of the mitigation measures adopted.

2.3 THE EIA METHODOLOGY

The figure below outlines the methodology to be employed in the EIA process. The initial screening study suggested a need to carry out a comprehensive Environmental Impact study to ensure that orderly development takes place conducive to human health and wellbeing. Important elements of the EIA were the conducting of further scoping studies through various baseline studies to determine the existing conditions of the local environment to determine its carrying capacity of the new proposed development. The project proposal was next analysed to examine and predict impacts of the project proposal in both the construction and operational phases. Once the likely impacts were determined the process of mitigation and impact management was proposed to ensure that the cumulative impacts were managed effectively during the developmental processes. An important element of this process involved public consultation before and during the preparation of this draft EIA report and will continue during the public town hall meetings. Even after the planning process public consultation will be had during implementation and post EIA monitoring.



2.4 PROJECT JUSTIFICATION

The proposed development will have a positive impact on the country. It is in a favourable position to generate and sustain high levels of employment, increase foreign exchange earnings, wage levels, continued improvements in living standards and the quality of life in the study area. During both the construction and operational phases the project will have a potentially positive impact on the local economy both at the micro and macro level. Additionally, the improved tourism product that will be provided will assist in the image building and offerings of our island in general and in particular will bring back some live to the city after working hours. The economic analysis section of this report will indicate the justification for this project for existing and future generations.

2.5 SITE SELECTION CRITERIA

The siting of developmental projects on beach lands is managed by Siting Guidelines for activities and projects delineated by the Town and Country Planning Development Office through the Coastal Zone Management Unit. The overall purpose of the guideline is to aid proponents in judiciously selecting project sites, keeping in mind various environmental sensitivities in the coastal zones and the importance of this ecosystem to Barbadians and tourists alike, especially in the environmental sensitive Carlisle Bay area. However, the site in recent years had an approval for the construction of a hotel and was already zoned for such. The proponents of the project recognise the need implement adequate planning strategies to meet the project strategic goals and objectives. In this regard, the design brief places a strong emphasis on achieving a high level of environmental performance, durability, and healthy indoor air quality through integrated design, best practices and emerging technologies. For the proposed beach resort project, sustainability is integrated into all phases of the design process using an integrated approach which balances social, economic, and environmental factors.

Concerns were expressed in relation to the previous site that was proposed which provided for an over pass on Bay Street onto the lands formerly occupied by the Government Electrical Unit. This it was felt would have had a great impact on the streetscape of the area and would be intrusive to the adjacent residential properties onto Wellington Street. There was also concern expressed in relation to adequate parking and it was felt that there was a need for more local participation in the development of the local community during both the construction and operational phases of the proposed project. The former design only took into consideration the employment of locals but did not allow for the locals to ply their trade as part of the process. In this regard, the acquisition of the additional two parcels created accommodation for vendors to ply their trade and also provided an extending footprint of the property thus created a window to the sea one drives along Probyn Street.