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BARBADOS

Four Seasons Hotels, Barbados
(BA-L1027)

ENVIRONMENTAL AND SOCIAL MANAGEMENT REPORT
(ESMR)

October 2011

Project Team: Stefan Wright (Team Leader, CFI/CJA); Alejandra Duran Bohme, (SCF/CFI); Hilary Hoagland-Grey (VPS/ESG); and Natasha Ward (VPS/ESG); under the supervision of Warren Weissman (Chief SCF/CFI)

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Environmental and Social Management Report

I. SUMMARY

Transaction Name: Four Seasons Barbados
Country: Barbados
Transaction Type: Loan
Sponsor: Paradise Beach Limited
Total Project Costs: US\$180 million
Proposed IDB Loan: US\$52 million
Project Team: Stefan Wright (Team Leader, CFI/CJA); Alejandra Duran Bohme, (SCF/CFI); Hilary Hoagland-Grey (VPS/ESG); and Natasha Ward (VPS/ESG)
Supervisor: Warren Weissman (SCF/CFI)
EIC: B

II. PROJECT DESCRIPTION

A. Background

- 2.1 The proposed financing is for a Four Seasons Hotel (the Project or the Hotel) at Black Rock in Freshwater Bay, on the West Coast of Barbados (see Figure 1). The Hotel is part of a larger, partially-constructed project, the Four Seasons Resort and Private Residences (the Resort), development of which stalled during the recent financial and economic crisis. Given the large size, location (northwest of Bridgetown on a prime beachfront land) and close identification with the Government of Barbados's (GOB) strategy to raise the luxury profile of the Island's tourism industry, the GOB intervened in 2010 providing a guarantee for interim financing to restart the Resort development. IDB support for the Hotel will enable the overall Resort's completion and avoid further damage to the tourism industry's reputation. The Resort also includes 21 luxury villas, 20 apartments and 12 townhouses on an adjacent site north of the Hotel.



B. Project Description

- 2.2 The Project is located on a 32-acre site in Walmers Lodge, Barbados. The site is one of the last remaining large properties on the west coast where tourism facilities are concentrated. A naturally formed gully separates the site from the recreational area the Batts Rock Park and private residential property to the north, by a naturally



formed gully. The site is bordered by Paradise Drive on the south as well as several derelict buildings. On the east side, the site is bordered by Highway 1, Spring Garden Highway and a former fuel depot and by the beach and ocean on the west. The beach is known as Paradise Beach after the Paradise Beach Hotel, owned by Cunard, which was on the property for many decades. The bay is named Freshwater Bay because of the natural percolation of rain water from Cave Hill into the ocean giving the water a low saline content. There is a public beach at Batts Rock Park adjacent to the site and the public beach access will be maintained through this area and via Paradise Drive, south of the property.

- 2.3 In 2006, the Sponsor purchased the land from the Sandals, which had acquired the former Cunard Paradise Beach Hotel property. In the 1950s, Cunard had assembled eight plots of land to create the 32 acre site. Prior to Cunard's purchase, the site had supported mixed residential and commercial uses, including a rum distillery. There is also a brownfield parcel of land in the central, eastern portion of the site of approximately 2.6 acres, which was formerly a fuel depot and there is evidence of some minor, historical ground contamination on this site (see Section 5.31). The Company has an option to purchase this property but the site is not critical to the development. At the time of analysis no decision had been reached.

- 2.4 The current development plan for the Resort includes a hotel component and a residential component, although the proposed IDB financing is for the hotel only. The hotel component



includes construction of 110 units with a high proportion of luxury suites; a spa; 1 adult and 1 children's swimming pool, ballroom and conference facility, three restaurants, retail outlets, fitness centre, and training facilities. The hotel site fronts approximately 0.26 km of beach. The residential component, not part of the IDB financing, includes the construction of 21 villas each with their own pool, 20 apartments and 10 penthouses, as well as 12 town houses, with a shared swimming pool. The villa area fronts an additional 0.32 km of beach.

- 2.5 The Project design is being guided by LEED New Construction (equivalent to LEED Silver), which includes many design aspects to maximize efficiency and minimize the Project's ecological footprint, particularly related to energy and water. Details are discussed in Section 2.15.
- 2.6 As discussed in Section 4.13, the planned upgrade to the municipal West Coast sewer is on hold indefinitely and therefore hotels are required to install their own wastewater treatment plant (WTP). As such the Project will construct, own and operate a WTP with tertiary treatment. The WTP, capable of treating 144,382 USG/day will be designed to meet international standards for effluent (see Annex 1). Much of this treated water will be used for irrigation and other purposes, and the remainder will be injected into one or more deep wells drilled to approximately 140 feet such that the treated effluent is discharged into a saline aquifer below the drinking water supply. The depth, location and design of the well are based on geotechnical studies and the final proposal will be reviewed by Environmental Protection Department (EPD) prior to the well's

construction This is required in Barbados, and much of the Caribbean, to avoid discharge of wastewater into the sea, risking impacts to near shore water quality.

- 2.7 The Company is evaluating options for heating and cooling and, with the assistance of a technical cooperation grant from the Bank, which involves a comparison of several options and the costs of optimizing the energy and water efficiency of the heating and cooling systems. The base case for cooling is a conventional water-cooled centrifugal chiller plant with an evaporative cooling tower. The TC examined three cooling systems: the base cooling system; a ground source heat pump system using an open ground loop with groundwater extraction and injection wells; and an absorption chiller plant utilizing waste heat from the nearby power station. In addition, the design team has proposed utilizing treated wastewater effluent as the primary source of cooling tower makeup water. For heating, the study examined a base case natural gas fired boiler system and a system that extracts additional waste heat from the BLP power station and conveys it to the hotel site. This technology is quite common in Europe where district heating systems are used in many cities. The Sponsor is committed to this option and is evaluating financing options.
- 2.8 Electricity requirements will be provided via a new sub-station directly connected to the mains supply from Barbados Light and Power. Service interruptions are above normal and can result in prolonged power shortages; therefore an on-site back-up diesel generator will be installed. Gas for the development will be supplied via the main along the highway and will not have a major impact on the national supply.
- 2.9 Potable water will be provided from the main that runs in the highway adjacent to the site. As discussed in Section 4.9, water is subject to rationing during droughts and as a result water supplies may be interrupted. As a contingency, the water supply system has been specifically designed to provide a 3-day supply for guests (150,000 imperial gallons or 50,000 imperial gallons per day) as well as a 40,000 imperial gallon reserve for fire (leaving a surplus contingency of 10,000 imperial gallons). The system will consist of a 200,000 gallon storage tank that will be continually supplied by Barbados Water Supply from the West Coast main. The system will be gravity fed and will not be reliant on power, so in the event of a power loss from a storm or other reason, there will be no loss of water supply.

C. Construction activities

- 2.10 The Resort, including the Project, is being developed by the Paradise Beach Limited (The Company). The Project construction and management consultant is AECOM / Davis Langdon. Construction is due to restart in December 2011 (subject to financing arrangements). After acquisition in 2006, the development team began the demolition and site clearance, and begun a sales and marketing campaign, with pre-sales of several villas. Design and construction commenced and 16 villas were under various stages of construction in February 2009 when, due to the global financial crisis, the project stalled. In October 2009, a new management team was appointed and worked with the GOB on a rescue plan, which included a government guarantee by the GOB enabling construction to resume. In July 2010, the guarantee was executed and in two months later a credit facility was signed with ANSA Macal, a Trinidadian Merchant Bank.

D. Operation Activities

- 2.11 The Resort will be operated partially as a hotel and partially as a residential facility where individuals purchase villas/penthouses from the Company, who then design and construct them. The villas can then be placed into a rental pool and rented to hotel guests. In addition, resort support facilities such as the restaurants, swimming pools, and other facilities will be operated by Four Seasons for use by both owners and guests.

E. Schedule and Workforce

- 2.12 Current plans call for the completion of a re-design of the hotel complex, with concept design completed in October 2011 and construction design by October 2012. Construction of the Hotel (currently focused on the villas) is planned to begin shortly thereafter and the opening of the hotel scheduled for early to middle 2015.
- 2.13 At its peak construction the Project will employ a workforce of between 1,200 and 1,300, and will average approximately 1,000 for a period of two to three years, based on the Company's predictions. The workforce for the construction will initially be supplied by Barbadian registered contractors and sub-contractors. Some special unavailable skills may need to be sourced from the wider Caricom region or further afield. The Company does not intend to need work camps..
- 2.14 The completed Hotel will employ approximately 275 direct full time and 600 indirect workers. Four Seasons will recruit and begin training staff, approximately 6 to 8 months ahead of the hotel opening. Four Seasons have already identified several Barbadian nationals working for Four Seasons overseas, and hope to encourage them to return to Barbados and take up positions. Four Seasons will target Barbadians with no, or limited, hotel experience and train them for the required positions. Four Seasons are a preferred employer and have extremely high staff retention rates. A training program will be undertaken by Four Seasons to ensure high service standards.

F. Project Alternatives Analysis

- 2.15 The Resort is being developed on "brownfield" land, on a site previously used for tourism and other commercial development. No other sites in this area of Barbados were considered as there are no other available sites large enough for this kind of resort. The alternatives analysis has, therefore, focused on aspects of design, construction and operation. A fundamental element is incorporating energy and other low impact elements into the design consistent with LEED New Construction principles, such as energy efficient heating and cooling and construction materials; water efficiency programs and the reuse of gray water for irrigation; as well as other design and operational measures. Solar power is being considered for certain areas. Other energy reduction options are also being considered such as cogeneration using excess energy from the Barbados Light and Power; sea water cooling; and geo-thermal cooling.
- 2.16 Since a resort development had been started but not completed, and the land designated for a resort in the planning process, the "no-project" alternative is not relevant. Leaving the land partially constructed for so long has created an eyesore that has lead to community complaints and to do nothing at this point is not considered as an option by the GOB.

III. INSTITUTIONAL AND REGULATORY CONTEXT

A. Institutional Framework

- 3.1 The following are the key national and local agencies and instruments relevant to the Project
- 3.2 **Environment and Health & Safety:** The Town and Country Development Planning Office (TCDPO) oversees land development. Environmental protection is covered by the Town and Country Planning Act (TCPA), and the Coastal Zone Management Act (CZM). For new developments the TCPA Planning Control stipulates the requirements for, “building, engineering, mining, or other operations.” This includes material changes to land use, or land subdivision. Except for development in the coastal zone management area, planning permission may be granted through a development order for an area of the country by the Chief Town Planner (CTP). Planning permission by a development order may be granted unconditionally or subject to specified conditions and limitations, especially if part or all of the development or use of land is in a coastal zone management area.
- 3.3 The Environmental Protection Department (EPD) is responsible for pollution prevention, sampling, monitoring and control and is responsible for health and safety matters, and is primarily responsible for waste disposal, emissions, air quality, ocean discharges, swimming pools, restaurants and all forms of pollution in general. EPD has direct powers of enforcement while also providing feedback on planning applications. Sanitation Service Authority is responsible for the management of solid waste disposal, and the Drainage Unit is responsible for clearing watercourses and preventing flooding.
- 3.4 The Health Services Act, enforced by the EPD, is responsible for promotion and preservation of physical, mental and social well-being. The Factories Act (soon to be replaced by the Occupational Health and Safety at Work Act) sets standards of workplace safety and health and the Labour Department Act covers employment conditions.
- 3.5 **Coastal Development:** The Coastal Zone Management Unit (CZMU) is responsible for the management and protection of coastal zone. It stipulates policies, strategies and standards for development and maintenance of structures in the coastal zone management areas, as well as the standards for an EIA for development activities that may affect coastal resources. The CZMU also establishes regulations for water quality in coastal and marine areas to affect the maintenance, rehabilitation and enhancement of coastal and marine habitats. Planning applications are referred by the TCDPO to the CZMU when the development falls within the coastal zone management area, and CZMU have direct powers of enforcement control.
- 3.6 The Coastal Zone Management Act, enforced by the EPD, covers the management of coastal resources and activities that could impact them. A key part of the act is the protection of the beaches, beach vegetation and coral reef surrounding Barbados. The Marine Pollution Control Act controls the release of pollutants to the sea and provides the government with the mandate to investigate pollution sources and to require monitoring by the discharger. The Act makes it an offence to release any pollutant in violation of the applicable standards and requirements. End of pipe waste water standards have been developed that include waste water treatment plants.
- 3.7 **Tourism:** The key agencies are the Ministry of Tourism, the Barbados Tourism Authority (BTA), and Barbados Tourism Investment Inc. The Barbados Tourism Authority Act mandates

that the Barbados Tourism Authority (BTA) promote and facilitate the development of tourism through marketing, and also registers and regulates hotels and restaurants in Barbados. The Tourism Development Act is the primary legislation that provides benefits and incentives to investment in the tourism and hospitality sector in Barbados.

3.8 Other key agencies include:

- Barbados Water Authority (BWA) – responsible for supplying potable water in Barbados; The Barbados Water Authority Act gives BWA the power to provide water and sewerage services and jurisdiction to make regulations, educate, advise and operate systems to manage, allocate, and monitor the water resources of Barbados with a view to ensuring their best development, utilization, conservation and protection in the public interest.
- Drainage Division – responsible for averting flooding through proper drainage and maintenance (including watercourses); and
- National Conservation Commission (NCC) – responsible for the provision and maintenance of public parks, open areas and beach services (public facilities, lifeguards, etc).

B. Compliance with National Environmental Assessment and Permitting Requirements

Existing Operations and Facilities

3.9 Two separate town planning applications were permitted by the Minister in June, 2006:

- A planning application to subdivide the site into two parcels (hotel and villa parcels); and
- An application for the construction of the hotel and villas.

3.10 These are the two primary approvals the Project needed to begin construction in 2006 and are still valid. The approvals contain various environmental and social conditions that have to be met by the Company, including, the completion of a geotechnical report, preparation of a comprehensive landscaping plan that includes restoration and replanting following construction, a plan to control dust and runoff, tertiary wastewater treatment, open beach access, a prohibition of waste and of chlorine entering coastal waters, a prohibition of removing strand vegetation within a mandatory 100-foot setback and restrictions on removal of trees and other vegetation.

3.11 The subdivision into two parcels allows the hotel land and villa-related land to be separately owned. However, the hotel facility is still physically and legally linked to the villa development not only because of shared infrastructural components, but also because they share the same planning permission. Thus, non-compliance (or non-performance) of the villa section could impact on the hotel section, and vice versa. Both sections therefore require careful and coordinated management.

3.12 For a tourism project of this scale, it is typical for the CTP to require an environmental impact assessment (EIA). However, as the site was previously used as a hotel, the CTP has relaxed this requirement and full planning permission for the Resort was granted subject to the conditions discussed above. The Project fully intends to meet with all the conditions, but as many pertain to construction and operational phases they will be addressed at the appropriate time. In addition TCDPO required the completion of a Social Impact Assessment (SIA), which was completed in 2006. This assessment included consultations with the local community regarding their current status and their views towards the Resort, and also identified several potential impacts and mitigation measures. These are discussed in Section IV.

- 3.13 Minor unapproved alterations have been carried out on several villas, but this can easily be regularized with TCDPO by the submission of revised plans. Mature trees were removed from the site without permission being sought from the CTP as is required. This matter is not likely to be an issue, and remedial tree planting will help mitigate the loss of vegetation and habitat. A large boulder structure was also built along the northern gully without permission. The TCDPO has written to the developer and is currently awaiting revised plans which reflect a number of relatively minor site changes, which are not significant non-compliances for a number of additional measures, have been requested including:
- An application to attach the fuel depot site (or part of it) onto the Project site if the Company decides to purchase it (as yet undecided) and include it as part of the master plan; and
 - A concrete retaining wall to replace the boulder wall along the northern gully (the Project is planning to construct the wall once construction begins).
- 3.14 The TCDPO had also requested the removal of a wall that had been constructed in the villa area of the property as it potentially affected a pedestrian path used for beach access. The Project had already complied with the request at the time of the site visit. Although there are areas where the project is not in strict compliance, the new development team has communicated their positive intentions of becoming compliant to the TCDPO, and it should be possible to resolve all outstanding matters and become compliant (if required). TCDPO appears to be patient and in full support of the Project.

New/proposed Project Works

- 3.15 As the hotel facility is to be redesigned, revised plans will need to be submitted to TCDPO for review. Whether they will be accepted as revisions or whether a new application will be required is dependent on the degree of variation from the approved scheme. If the changes are significant, then the CTP may require a new application for the hotel facility so that it can be fully evaluated and appropriate conditions attached. To be accepted under the existing application, the developer must be careful not to alter the design more than necessary and should consult with the CTP during the redesign process. Otherwise, a new application for the hotel facility or part thereof could be required. Based on discussions with THE SPONSOR during the site the site visit, the revised plans are actually reducing the footprint of the Hotel; hence it is unlikely that a new application will be required. Once a reasonable revised hotel design is proposed and the required works completed, then full project compliance is anticipated. The time for this approval has been factored into the project schedule
- 3.16 In summary, the Project is in material compliance with all currently applicable requirements of Barbados. Going forward, the Project fully intends to comply with all Barbados requirements during construction and operation.

C. Compliance with IADB Safeguard Requirements

- 3.17 The Project is a medium impact and risk project. It is not a greenfield site as it formerly supported mixed-use commercial developments including a hotel that began operating in the 1960s. The Project is a hotel, a relatively low risk sector, and the Sponsor has committed to construct and operate the Hotel in accordance with all Barbados laws, regulations and conditions of approval, international, best industry practice and as such it is expected that the Project will

comply with the applicable Safeguard policies, directives and World Bank Group Environment, Health, Safety (EHS) Guidelines for the lifetime of the Project.

- 3.18 The key directives of the IDB Safeguards and Compliance Policy (OP-703) that apply to this project are B.4 (Other Risks), B.5 (Environmental Assessment), B.6 (Consultation), B.9 (Natural Habitats and Cultural Sites), B.10 (Hazardous Material), B.11 (Pollution Prevention and Abatement), and B.12 (Project under Construction); as well as the Disaster Risk Management Policy (OP-704), and the Disclosure of Information Policy (OP-102). The Gender Equality in Development Policy (OP-270) is also applicable to the Project, and compliance will be achieved through the Company's ESMP during construction and through the Four Season's human resources practices during operation.
- 3.19 Regarding B.5, IDB requested an Environmental Analysis (EA) for the Hotel focused on specific key environmental and social aspects to augment the SIA completed in 2006. The EA has been completed in accordance with the requirements of OP-703 and posted on the IDB [website](#). The findings of the EA, and other information reviewed during the Environmental and Social Due Diligence (ESDD), conclude that there is the potential for minor to moderate impacts as discussed in Section V; however indications are that these impacts will be limited in nature, and that the Project has planned adequate mitigation and management measures. Based on the results of the ESDD, the team has confirmed the environmental impact classification of "B" for the project in accordance with OP-703.
- 3.20 In terms of B.9 (natural and critical natural habitats and cultural sites), the Project is being constructed on brownfield land that has long since been degraded by human intervention. That said, there are important habitats, including the gullies, the beach (especially for turtle nesting) and the coral reefs that will require careful management to ensure there is no accidental damage (per directive B.4 on "other risks" as well as B.9). The IDB will require implementation of management plans directed at these specific issues, and the ESDD concluded that compliance can be achieved and maintained through these plans. There are measures the Project will undertake that will have a positive impact on biodiversity as well as raise awareness among guests and staff. These include:
- A commitment to implement best practice for safeguarding sea turtle nesting beaches to assure that turtle use of the beach is protected and enhanced by planting and conservation of existing natural vegetation and vegetation islands of native species, and assuring the beach side lighting is designed and operated to minimize adverse impacts on hatching turtles.
 - Retrofit engineering investments to improve water quality of offsite storm-water runoff which crosses the site via the gullies designed to reduce adverse impacts to near shore coastal water quality, benefitting the offshore coral reefs and marine environment.
 - Restoration of gully vegetation with native species of trees and shrubs and an overall commitment to preferentially use native species in the landscape plan for the hotel area.
- 3.21 Compliance with the remaining relevant directives of OP-703 is anticipated for the Project given that the potential impacts are not significant and adequate management systems and plans are being implemented or planned to address the identified impacts and risks. The Project is in compliance with OP-704; although the Project is vulnerable to natural disasters, adequate plans have been established to minimize and manage the risks. The disclosure requirements of OP-102 have been met, and the relevant documents posted on the IDB [website](#).

- 3.22 In addition to the above IDB policies and directives, the Project will be required (as per directive B.11) to comply with the applicable IFC / World Bank Environment, Health and Safety (EHS) Guidelines (i.e. the general EHS guidelines, the IFC Environmental, Health, and Safety Guidelines for Tourism and Hospitality Development, April 2007). In particular, the WTP has been designed to meet IFC standards (see Annex 1).

IV. ENVIRONMENTAL AND SOCIAL SETTING

- 4.1 Information on the environmental and social setting is based on the EA, a Social Impact Assessment prepared at the request of the TCDPO as part of the planning and development approval submission, as well as the ESDD report of the IDB consultant and the ESDD site visit.

A. Environmental Setting

- 4.2 The site property can be divided into three main terrestrial habitats: the 32 acre area to be developed for the resort, the beach area, and two natural drainage gullies that funnel excess surface water to the sea: a “central gully” running directly through the middle of the site, and the “northern gully” that runs along the northern edge of the site. The coastal waters, including the coral reef, are also important as they have the potential to be affected by the Project.
- 4.3 A survey of the current plant life and trees around the entire property was undertaken as part of the EA which identified several mahogany trees and some vegetation in the gullies, but the main land area for the Resort has been heavily degraded from past use as well as during clearing during the previous hotel project construction. The gullies have also been heavily degraded of their vegetation from their past natural condition as important features as they often support distinct communities of native Barbadian flora especially the north gully.
- 4.4 Both the north and central gullies carry storm water originating upstream through the site and to the sea. This water can contain contamination as well as sediments that can have negative impacts on coastal waters and the coral reefs. A storm-water management study was conducted in 2009 for the previous resort development, but is applicable to the current design. This study focused on the central gully, which carries storm-water runoff from a largely developed basin approximately 1 km² in area. The drainage area includes parking areas and buildings of University of the West Indies (UWI) and residential and mixed use commercial areas. The study’s hydrologic modeling indicated that a 50 year recurrence interval storm could generate flows in the central gully of 12 m³/sec. These flows represent a safety risk and could have potential environmental issues (see Section 5.13) and also present issues for construction, especially foundations.
- 4.5 The beach is white sand with deep water close to shore. An existing drainage outlet pipe is slightly unsightly, but acts as a sediment groin, and is critical to prevent beach erosion, especially during high wave events like storms. Additionally, the pipe’s concrete coating provides a substrate on which corals have begun to colonize. The high water mark has shifted considerably in the last five years. The Company is monitoring the levels and has committed to ensuring that strand vegetation, critical to the beach, is retained and possibly increased.

- 4.6 Barbados is home to a healthy population of Hawksbill and Leatherback turtles, which are listed as Critically Endangered¹ by the International Union for Conservation of Nature and Natural Resources (IUCN) and they are now protected and monitored throughout the island. The public beach fronting the Project site is a known turtle nesting site for leatherback and hawksbill turtles, with one or two emergences per night during the peak nesting season based on the University of West Indies turtle monitoring program.
- 4.7 The near shore marine environment features shallow sandy areas interspersed with fringing reefs extending from the beach and a shallow patch reef. The patch reef is one of the few generally healthy examples on the West Coast. However, all the reefs in this area site have been degraded to some extent by incoming fine sediments, the likely sources being the recently developed port facility further south along the coast and sediment runoff from the interior via the two gullies crossing the site, and sediment runoff from the gullies as well. The corals present at the site include some transplanted coral from the construction of the Coast Guard station and dry water dock. Paradise Beach/ Batts Rock was one of two locations selected for reef relocation and has seen great success in take-up rates, which have helped in maximizing the area biodiversity, which is particularly rich in typical fish. The reefs in Barbados are not only an important recreational resource but also as a barrier protecting the shore from storms. The near shore area is subject fairly high levels of boat traffic and even jet skies from Bridgetown, private residences, and various hotels along the coast.
- 4.8 Barbados' primary source of potable water is from rain-fed natural aquifer located within Pleistocene coralline reef formations that overlie the island's oceanic base. Barbados is classified as a water-poor country based on estimated potable resources versus population. The problem is well recognized the GOB, through the BWA has been working proactively to stay ahead of them. For example, the BWA has been augmenting the supply by injecting desalinated water into the system. One of the contributing factors is that about half of all water production is classified as "unaccounted for," meaning that it is lost through leakage of aging pipes and other defective equipment, or through unmetered consumption. The government is planning refurbishments to the water mains as an additional measure. Another option being considered is the expansion of the two existing desalination plants that supply 20% of the potable water. In addition, a recent regulation requires all new residences to install rainwater cisterns to supplement water supply for to irrigation and other non-potable uses.
- 4.9 Despite the efforts of BWA, with growing per capita consumption, a rebound in tourism, and the cyclical nature of rainfall intensity, it is conceivable that water resources will be increasingly strained. Several recent studies on the implications of climate change for water resource management on Caribbean tourism also suggest that Barbados is likely to see the issue of water scarcity exacerbated by climate change. As a result, there remains a risk that in severe conditions the supply of water to the Project could be interrupted. This risk, as discussed in Section 2.9 is being mitigated through maintaining a 3-day supply of potable water and emergency (fire) water.
- 4.10 The geotechnical study indicates that the site is a limestone cap, formed by the folding of the sea bed. Over thousands of years heavy rain fall above the site on Cave Hill has cut through the site forming the two natural water gullies. Additionally there are a number of caves and fissures which are found across the site, which are also highlighted in the geotechnical study. These

¹ Facing an extremely high risk of extinction in the wild in the immediate future

could present challenges for project construction and stability, and remediation work will be completed as recommended in the report. Initially, grouting was considered as a ground stabilization method, however after further consideration the impact on the water flow under the site, and ultimately the risk of water build up was considered too high and an alternative solution was found. The fissures cannot be blocked without impacting groundwater flow under the site and this has been taken into consideration during the geotechnical assessments and recommendations.

- 4.11 Barbados has a limited sewer system and two wastewater treatment plants (WTPs) at Bridgetown and on the South Coast. The two sewer mains are also in Bridgetown and along the South Coast. The GOB is considering installing a municipal West Coast sewer, but discussions have been ongoing for over a decade and have been placed on hold indefinitely. If the West Coast sewer main were ever built, the Project would be required to connect to it. For now, however, coastal developments including hotels are required to have their own tertiary treatment plants.
- 4.12 Noise levels at the eastern side of the property are high due to the close proximity to the highway, but it is generally quieter moving towards the sea and western boundary. Therefore, the master plan has been designed to place any areas of intense activity and higher noise levels to the east of the site. The Company anticipates that the noise levels generated by the Hotel will be low, and that there will be no noise impacts on adjacent residential neighbors.
- 4.13 Natural disasters are a risk for this Project, including those from storm surges, hurricanes, seismic events, and especially land stability and settlement collapse from the fractured ground. As discussed in Section 5.30, a geotechnical study and other engineering reviews have been completed which have identified several geological hazards, mitigation of which has been incorporated into a design that includes provisions to address these issues.

B. Social Setting

- 4.14 The information presented here is based on the Social Impact Assessment (SIA) prepared for the Resort (see Section 3.21), including the Hotel, and information collected during the ESDD.
- 4.15 The surrounding residential properties are mixed in size and value and this represents the varied and mixed social economic dynamics in the area, which is characterized as having predominantly an established, low to middle income population. To the south east of the Resort the housing areas of Black Rock and Deacons are generally middle to low income residents, as is the area to the east, which additionally has a mixture of small commercial properties and the Esso petrol station. The beach is a popular bathing area for residents, students from UWI and tourists. Batts Rock Park has changing facilities and picnic areas adjacent to the beach, which is a popular weekend and public holiday venue. The beach has a number of mature trees at the northern end, which provide shade to beach users.
- 4.16 The site is a 20 minutes drive from the airport and a five minute drive to Bridgetown with direct access to the highway. The power station is less than 1 km from the site and all other utilities are available running along the highway on the eastern side of the property. Landfill facilities are available 10 minutes drive to the north near Lancaster, and recycling facilities are centered north of Bridgetown around Warrens. The beach front properties to the north and south are generally owned and used by average to higher income residents. The area is also close to the UWI and

the beach is frequented by many students. Local commercial enterprises are predominately small with 84% employing between 1-20 employees. 56% have been operating in the area for 11 or more years. 64% believe the proposed development will offer increased business opportunities.

- 4.17 The SIA included interviews of residents in Pile Bay, Walmer Lodge, Freshwater Bay, Batts Rock and Paradise Beach Drive, which provides a good spread of the areas surrounding the project. The age distribution of the residents is generally equal across the age groups; however there is a slight drop in the number of residents in the 46-55 year old range. Other key statistics on the residents in the area include:
- 36% are owner occupiers, with 50% renting.
 - 43% of homes are timber construction, 39% masonry and timber and 15% masonry.
 - 60% have resided in the area for over 20 years and 18% for over 11 years.
 - 46% are employed, 36% full time. 21% are students. Only 10% are unemployed.
- 4.18 One third of the sample do not believe that the proposed development will impact on their lives in any way; 17% felt that it would provide job opportunities and a further 28% either do not know how it will impact or gave no response.
- 4.19 The SIA and interviews undertaken with local residents and business owners showed that the benefits of the Resort were widespread and important in providing economic stability to the area. The risks relating to the development were predominately construction related issues such as noise, dust and safety, all of which require mitigation plans, but in general if managed properly and effectively would pose little impact. Previously the Resort had a low level of interaction with the community; however as part of the resumption of the Project a Social Awareness program was developed as part of good corporate governance.
- 4.20 One concern that was raised in the SIA by the National Conservation Commission, the agency responsible for overseeing Batt's Rock Beach was related to the clearing of vegetation associated with the Resort in 2007, especially given that the area of Batts Rock Park next to the site is the last piece of vegetated park land in the area. They recommended that the Company should revegetate the area. However considerable planting of vegetation and trees, including native species will be part of the Project plans, including a plan to plant approximately 500 trees across the property, this concern has been addressed.

V. ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS

- 5.1 The ESDD for the Project concluded that the potential environmental and social impacts from the activities to be financed by the Project are generally anticipated as being minimal to moderate, given that the development is relatively small and is on land previously used as a hotel and for other commercial activities, and that mitigation and management measures can be used to address them. The key risks are related storm-water runoff, protection of turtle and other sensitive habitats, as well as worker and guest health and safety. There are opportunities for positive biodiversity benefits from the Company's plans to restore native habitats on the site, as well as benefits from maximizing energy and water use efficiency. A summary of the environmental and social risks and impacts from the Project is presented below along with the mitigation measures implemented or planned.

A. Key Potential Environmental and Social Risks and Impacts during Construction

- 5.2 There will be a number of typical construction related impacts as detailed in the ESA, but these are routine can be controlled and managed for the most part with conventional construction management techniques. These include noise and vibration, traffic, soil erosion, emissions/air quality, solid and hazardous wastes, fuel and other hydrocarbon management, equipment servicing and maintenance/potential release of hydrocarbons, and wastewater management. Other key construction aspects include erosion and storm-water management, habitat protection, health and safety risks, labor conditions and community relations. The proposed Environmental and Social Management Plan, (ESMP) as discussed in Section VI, will contain the appropriate mitigation measures, and implementation of this Plan will be a Bank requirement.
- 5.3 **Erosion and Storm-Water.** The major risk during construction (though the issue will also extend into operations as noted below), will be the control of soil erosion, storm-water runoff and discharge of sediment laden and possibly other contaminants (e.g., fuel, oil and grease, hydraulic fluid, etc.), and improper management of solid and hazardous waste. These materials could generate runoff into the sea given the intensity of tropical storms, the steepness of the site, and the proximity of the fragile marine environment, and even in small quantities, and can have an impact on water quality, and potentially cause reef damage. The Project will minimize potential impacts with a well developed site runoff and erosion control plan within the ESMP and strong and rigid enforcement of the plan.
- 5.4 AECOM/Davis Langdon, the construction consultant, has developed a robust Safety Health and Environment (SHE) Management Plan dated January 2011 which will form the basis of the ESMP required by the Bank, as discussed in Section VI. Specifically, there is an erosion and sediment runoff control plan within the SHE which contains several mitigation measures, but will also require some additional measures to ensure proper management of this issue. The Company is also developing a hazardous waste safe handling and management policy based on the Ministry of Works policy on waste management. Additionally a weekly clean-up will be conducted to ensure no debris reaches the beach or waterways. Risks from poor fuel storage and handling practices can be managed through procedures that would require all contractors to adhere to a construction site management plan that would address fuel storage. These were not specifically addressed in the SHE Plan. Therefore, if there is to be an on-site fuel storage and fueling station, appropriate measures including a sealed, bunded and roofed fueling station and a sealed storage tank area must be included in the plan. Similar control and prevention measures also apply to vehicle or equipment servicing areas and the storage and use of lubricants and other hydrocarbon or chemical products. These plans will form part of the ESMP.
- 5.5 **Loss or Damage to Habitats during Construction.** Much of the vegetation on site has been removed during previous activities on the land. During construction, however, there could be additional loss of habitats through damage from construction activities or from removal of habitats for structures. The focus of the efforts by the Company will therefore be on restoring areas after construction is completed. In the case of the beach, losing vegetation, especially the plants such as beach yam, whose root structure protects the beach, could lead to increased erosion of the beach. In addition, as the beach provides potential nesting sites for sea turtles, it is important to protect those areas during construction. To mitigate this impact there will be a process during the master planning phase to look at reducing plant removal as much as possible and if necessary, to carryout relocation. In terms of the beach habitat, there will be active protection and replanting of vegetation. In addition, there will be a program to plant native

vegetation and to protect trees from construction traffic. Monitoring will be undertaken to evaluate the progress of the plans and determine additional needs. The vast majority of the trees and vegetation are outside of the site hoarding, which ensures that they will not be impacted or damaged during the construction phase. Additional long-term potential habitat impacts and risks are discussed under operations

- 5.6 **Health and Safety.** Health and safety risks are standard risks for all construction projects and will be managed through the SHE plan for the development, taking into account the Project specifics, international best practice and local law. The ESDD found the plan to be robust and well suited for managing potential health and safety risks. In addition to traditional health and safety risks, the construction of the Resort, including the Hotel, will be complicated due to the sloped terrain and site's compact nature. However these risks are considered moderate and covered within the scope of the SHE plan.
- 5.7 **Labor and Working Conditions.** At its peak construction the project will employ a workforce of between 1,200 and 1,300, and will average approximately 1,000 for a period of two to three years, based on the Company's predictions. This will make the Project one of the largest employers in Barbados. The work force in the country is highly unionized and this supports good working conditions and practices in general. Significant labor issues are not anticipated, but the Company will be required to include good labor practices within its ESMP.
- 5.8 The Project will use a number of local contractors managed by a management firm on the Company's behalf. The Project intends for the workforce to be provided with worker facilities including changing rooms, washrooms, dining room, canteen, and first aid facilities. By inserting the key requirements for working conditions into the tender and contract documentation, the Company will be able to ensure that contractors maintain the required standards in terms of labor and working conditions. Failure to adhere to these will result in financial penalty for the organization and removal from the approved contractor list for future work elements. In addition, minimum salaries and working conditions will be established in employee contracts as well as within tender documentation for construction contracts. To ensure that workers are able to voice concerns relating to managements dealings with grievances relating to work, a grievance procedure will be established for workers and placed within tender documentation for construction contracts. These proposed procedures will be required to be incorporated into the formal ESMP.
- 5.9 **Community Construction Impacts – Dust Noise and Vibration.** Generally the impacts to the community during construction will be minimal, with some positive impacts created through construction jobs. There could be the usual impacts to nearby residents from noise vibration and dust during construction, and to a lesser extent, during operations. These will be managed through the ESMP, which will be discussed with the community as part of the long-term communications and engagement plan. The Project has had some initial consultations with the community, but this long term community engagement plan is necessary and should start with an update to the community regarding the current status and long-term plans.
- 5.10 Public access to the beach is a right in Barbados, and the Project must ensure that access is kept open. The Project is committed to keeping access open through the entrance in Batts Rock Park and via Paradise Drive.

B. Key Potential Environmental and Social Risks and Impacts during Operations

- 5.11 **Water and Wastewater management.** As previously discussed, water use and water availability are significant issues in Barbados, and must be carefully considered when any new project using water is constructed. The Resort, including the Hotel, during peak maximum demand, will use approximately 54,065 US Gallons of potable water per day supplied by the BWA main supply. For the Hotel, the design standard is $<0.9 \text{ m}^3/\text{Guest Per Night}$, which equates to the excellent range of water consumption for a Luxury Serviced Hotel in a Tropical Climate (IFC 2007, EHS Guidelines for Tourism and Hospitality Development).
- 5.12 Although the Project will connect to the water mains additional water provision solutions are being included to meet the water requirements and efficiency measures. The design of the Project is guided by the Four Seasons Design standards which include the selection water-efficient fixtures and other water efficiency options that are part of the Company's commitment to following international accepted standards such as LEED New Construction; examples of these are discussed in Section 2.15. In addition, some of the treated wastewater (grey water) will be reused for irrigation, and rainwater will be collected and stored in tanks and used for irrigation within the villas and other sensitive areas. Excess rainwater will also be treated and used in swimming pools. Additionally, the pool design will maximize water efficiency using shade to minimize evaporation, ensure splash troughs drain back into the pool and implementing strong maintenance. Even with such water conservation methods, water shortages and scarcity still pose a risk to the Project, and will be carefully monitored.
- 5.13 As noted in Section 4.10, storm water runoff will present an ongoing challenge for the Project as it could affect water quality in the in the Paradise Beach area and is also a safety risk and could lead to erosion and potential undermining of structures. The existing storm flows from the major site areas and impervious surfaces inland from the Project including the University of the West Indies Cave Hill campus and the nearby roads and traffic circle. The Project cannot control these upstream drainages, but can minimize the water quality effects. The Project is taking measures to manage this problem by installing trash racks at the upper end of the culverts passing under the roads, culverting the upper portion of the central gully, and installing a series of infiltration wells in the gullies to capture runoff during smaller storm events (up to a 5-year recurrence interval or approximately $7.2 \text{ m}^3/\text{sec}$). Additional consideration is currently underway for the larger events including a review of the 50-year and 100-year recurrence. The review will include a combination of engineering solutions, some of which have already been implemented and contingency plans for those extreme events that cannot be mitigated through engineering solutions. A final plan discussing the various flood scenarios, solutions and / or contingency measures will be required by the Bank.
- 5.14 As discussed in Section 2.7, the Resort will have a tertiary Waste Treatment Plant (WTP). Barbados requirements will not allow wastewater effluent discharge to coastal waters, and therefore the WTP will inject the treated wastewater into injection wells specifically designed and tested for this purpose. Based on preliminary geotechnical and hydrogeological investigations, the wells will be 140 feet deep and will inject the effluent into a brackish aquifer underlying the shore zone. No significant impacts are anticipated from this disposal of the WTP effluent. Additionally, this alternative removes the need to dispose of effluent to the coastline risking impacting near shore beach water quality. In addition, the Project's WTP effluent will be of substantially better quality than the Barbados requirements and the World Bank Group General EHS Guidelines (See Annex 1).

- 5.15 **Impacts on habitats.** Once the Hotel is in operation, protection of sea turtle use of the beach during the nesting season and coastal water quality and corals in particular are the two main biodiversity aspects that the Project could potentially adversely impact if appropriate measures are not undertaken. The Project plans to take all possible measures to ensure that turtles continue to use the beach, and that water quality is protected. Furthermore, it is in the Project's best interest to do so as both are of general importance to the affluent tourist target market. Regarding turtles, Barbados coastal zone management regulations require that any new, permanent structures be set back 100 feet from mean high water. In addition, no beach chairs, umbrellas, water craft or other objects that might impede turtles can be left on the beach at night.
- 5.16 To enhance the approximately 0.5 km of beach frontage as turtle nesting habitat, the Project has committed to adopt the recommendations of the Manual of Best Practice for Safeguarding Sea Turtle Nesting Beaches (Choi and Eckert, 2009) which includes a series of recommendations ranging from lighting and light shielding through beach maintenance and beach vegetation management. In addition to the above manual, the Project plans to follow the advice of Dr. Julia Horrocks of the University of the West Indies.² Dr. Horrocks developed and leads the Barbados sea turtle conservation program and has recommended a series of measures to enhance beach habitat for turtles. These include use of certain native species and the creation of vegetation islands which it is believed the turtles use as reference points to know when they are on the highest part of the beach, the optimum location for nesting. A formalization of these plans into the ESMP will be required by the Bank and monitored during Project supervision.
- 5.17 **Energy supply and use.** The close proximity of the site to the National Power Station means that provision of the required 11KvA substation and formation of a ring main will provide the required energy supply for the Project. The local power station is oil-fired and with the cost of oil increasing and the environmental impact of burning fossil fuels, reduction of energy consumption is important to the Company. The Company is evaluating several areas for energy efficiency such as lighting, laundry, kitchen and the central plant itself. By following the design guidance of the Four Seasons Design Standards, the Company will be targeting further reductions in energy consumption. The Company is also evaluating options such as the installation of photoelectric cells on the roofs of the back of house buildings to help supplement electrical requirements with solar energy. Other potential energy saving opportunities are also being evaluated as discussed in Section 2.7, but are in the early stages of development. Although there would need to be an additional capital expenditure, there would be considerable annual electricity consumption savings, as well as environmental benefits and improved efficiency.
- 5.18 For air conditioning operations, Intelligent Thermostats will be used to monitor, control and minimize wasteful use of air-conditioning in the Hotel which will reduce the usage when rooms are unoccupied and switch off the system when windows and doors are open.
- 5.19 **Air Emissions.** There will be limited air emissions from the Hotel. The backup generators will operate only in emergency power outages and during semi-annual testing. Emissions, consisting of typical combustion products will be in line with current regulations and, as a minimum, comply with the local regulations for emissions from generators. Transportation around the site will be by rechargeable golf buggies avoiding the emissions created by petrol-powered vehicles. Emissions from the kitchen or laundry will be filtered and treated in line with applicable best

² Professor at University of the West Indies and turtle specialist, Barbados, consulted during the ESDD.

practice and North American regulations. Greenhouse gas (GHG) emissions will be limited to these sources and are not considered significant; however an assessment of total GHG emissions will be prepared for the Project.

- 5.20 **Pesticide use.** The use of pesticides at the Four Seasons Resort Barbados is anticipated to be minimal. Through the use of indigenous planting schemes combined with a high-quality landscape maintenance staff, few pesticides will be required. Mechanical forms of pest control shall be used whenever possible, and if the use of pesticides is deemed absolutely necessary, minimum risk pesticides (as defined by the US EPA) will be deployed in controlled quantities and environments. Turtle nesting habitat conditions are planned to be integrated within the staff education practices within the resort, and their habitat location, breeding periods, and site climatic conditions will be taken into account if and when a pesticide is to be deployed to minimize any possible exposure to the surrounding flora and fauna. Further, the Pesticides Control Act of Barbados will be strictly followed.
- 5.21 **Occupational Health and Safety, Life and Fire Safety, Emergency Response Planning.** During operations there could be accidents to workers and guests that will be managed through the implementation of a Health and Safety Management Plan. The Health and Safety Plan, primarily for occupational health and safety for operations is based on the Four Seasons corporate model which is tailored for each hotel by its senior management prior to opening, based on the specific risks and conditions within the property. These include an incident communication plan, a clear protocol for management of an incident to be shared with all workers and managers, and a disaster recovery contact list created to be distributed. Trained first aiders and a health and safety manager will also be present on-site at all times.
- 5.22 Fires and emergencies can present significant risks to both guests and workers, and may cause damage to property. Mitigation and management have been considered for both prevention (design) and through response plans. All Project buildings will be designed and constructed in line with NFPA (National Fire Protection Act) and the International Building Code. Smoke detection, sprinkler systems and fire suppression systems will be installed throughout the property, along with fire signage, emergency lighting and other fire safety appliances such as extinguishers and fire blankets. The sprinkler system will be charged with harvested rainwater held in storage tanks. Hose reels and hydrants will be installed in conjunction with the codes and with liaison with the Barbados Fire Service. Emergency response procedures will be established between the Hotel operator (Four Seasons) and an appointed Life Safety Consultant. These guidelines will be displayed in every room and communicated to both staff and visitors. Disaster Recovery Planning will also be critical and to that end a response team and the necessary associated procedures will be developed ahead of the Hotel opening. Plans to address all of the above issues will be required by the Bank prior to operations for review, and full implementation will be reviewed regularly during Project supervision.
- 5.23 **Noise.** Noise is not likely to present an issue during operation, or construction. The adjacent Frank Worrell roundabout and Spring Garden Highway generate a great deal of traffic noise throughout the day and night until late at night, and it is unlikely the Project back-of-house operations, even though they will be sited along the outer edges of the property, will generate sufficient noise to be noticeable by any neighbors.
- 5.24 **Security.** Violent crime is not an issue in Barbados and as such the purpose of security will be more to deter petty crime, prevent unauthorized guests from the Hotel property and minimize

the press's ability to harass the better known Hotel guests and villa owners. Security guards will be employed from the local community as a means to reduce confrontation and provide tourists with a friendly authentic interaction experience, while being able to diffuse any potential security threats. The security of the Resort will not carry or use firearms.

- 5.25 **Community Impacts from Operations.** There is a possibility that the lack of social engagement (specifically of the direct community) may result in dissatisfaction among local Residents who could see the development as detrimental to their society, especially if the community feels their concerns are not being addressed. As discussed previously the Project will need to develop a long term community engagement plan. The Company is developing a benefit sharing / community development program, and will giving be priority to hiring locally.

C. Natural Hazards Climate Change and Historical Land Use

- 5.26 The Caribbean is subject to tropical storms and hurricanes throughout the summer months. The Hotel is susceptible to storm surges and also potentially tsunamis. Barbados has been the least impacted island from these storms with the last major hurricane hitting the island in the 1950s. A tropical storm hit Barbados in November 2010, however there was no structural damage to the Resort property or partially constructed villas. Nonetheless, future events such as storm surges, high winds and flooding, all pose a potential risk to the Project. In particular, there is a risk of damage to the beach particularly from storm surges and erosion and damage to vegetation and beach front property.
- 5.27 The assessment of this risk in the EA concludes that while the probability of such events is fairly low, the consequences could be quite high, and therefore it must be mitigated. To some extent the coral reef that runs offshore the beach provides some natural protection, but additional mitigation is required. The planned mitigation measure is to retain and propagate strand vegetation to protect the beach, and to use boulders to protect the beach front retaining walls. To date, much of the strand vegetation has been retained at the back of the beach and the design for boulder protection has been completed. This will use a mixture of 1 to 3 ton boulders wrapped with geotechnical fabric to ensure that waves cannot erode under the retaining wall foundation. Damage to structures, particularly from high winds is a risk during storms. As a result, all buildings are designed to Miami Dade County hurricane standards (considered best international practice) and a Hurricane Plan has been completed and agreed upon with project insurers.
- 5.28 These risks from natural disasters could be exacerbated by climate change, but the risks are still difficult to quantify. In particular, sea level rise and coastal erosion, and potential water scarcity are issues of particular concern. The measures already planned for minimizing natural disasters are then particularly important. Ultimately, however, the Company will still need to implement the comprehensive emergency plans being proposed (see Section 6.9).
- 5.29 A number of geotechnical and environmental investigations have been conducted on the site covering ground stability, drainage and run-off (particularly in the gullies) and potential historical contamination from past land-use, including the fuel depot. The results indicate that there are some caves and fissures that require stabilization works across the site and flooding in the gullies are risks that require management. This can be done through excavation, minor capping of fissures and compacting marlfill which is currently underway and about 80% complete. Flooding in the gullies, as previously discussed is also a risk that is being managed.

- 5.30 Another potential risk is contamination under old fuel storage tanks on the Brownfield site, if that land were to be acquired. Testing, however, of ground conditions revealed that contamination is low level and poses no risk. Nonetheless, the removal of the large storage tanks and top layer of if it were to occur would require a plan to be developed at that time to ensure the health and safety of involved worker, and to ensure necessary remediation and monitoring were properly completed. Preparation of this plan, as necessary, will be a Bank requirement.

D. Positive Impacts

- 5.31 The ESDD concluded that the Project has devoted significant effort in the areas of environmental sustainability, especially in the Project design and in the plans moving forward. Several specific positive impacts were identified including short-term construction and supply based employment; long-term employment, training and career development opportunities in the hospitality sector; increased commerce to adjacent businesses; and improved turnover and secondary employment opportunities. The Project should serve to reaffirm Barbados reputation as high-end resort and increase quality tourism, benefitting the national economy. The proposed native plant restoration and turtle habitat enhancement and management programs will serve to raise public awareness among neighbors and staff and in general in Barbados. The recommended farm to fork program could benefit local farmers and small transport operators.

E. Cumulative Impacts

- 5.32 The key potential cumulative impacts for tourism projects are usually related to the creation of additional stresses on already limited resources, in particular water, power, and landfill space, sensitive habitats such as coral reefs and potential nesting sites for sea turtles as well as the social impact of reducing limited available beachfront property, and the increasing desire of luxury resort guests to have exclusive rights to the beach has the potential to deny access of others. Barbados has laws requiring beach access for all and in the case of this Project, there will actually be an increase in access due to the creation of an additional access point.
- 5.33 In terms of increased stresses on resources and habitats this Project is part of a relatively small resort, located on “brownfield” property which is being redeveloped, rather than a greenfield site that would remove unspoiled land. From a sustainable land use perspective, this is preferable to the alternative of a new site. In addition, the Company is evaluating its use of natural resources, and is taking significant positive steps to minimize its impact on the habitats on and around the Resort and has designed into the Project many high efficiency features that will keep the Project’s footprint low (including the use of LEED criteria). These measures are being extended across the Resort for the most part, and are not limited to the Hotel itself thereby including a sustainability additionality beyond the Project. In terms of habitats, the activities of the Company will have a positive impact through restoring vegetation and creating new habitats in areas where previous actions on the site had led to their destruction.

VI. ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING

- 6.1 Most mitigation and management measures discussed in this section are contained within the various environmental and social management plans created, or under development for the Project. Environmental and social management and monitoring will be under the Company’s control during the construction phase, but once the Hotel goes into operation, this will be based

on the corporate requirements set out by Four Seasons. Many plans however, span the Project's life from construction through operations. The community engagement and development plans, which, as discussed in 7.1 should include an active effort to inform the community regarding the Project's ongoing progress both during construction and operation.

A. Management Through Design

6.2 The Project's and Four Season's (Green) Design Standards call for exploration of all feasible resource conservation measures, especially investing in resource consumption measures that have a long term payback. In this regard, this Project is being designed in accordance with internationally accepted standards such as LEED New Construction, considering various environmental design options. The Project will also buy locally as much as possible in order to have a positive effect on the local economy. Measures to be implemented include:

- Rainwater cisterns will be installed to collect roof top runoff.
- Reuse existing warehouse structure (currently on site) to house mechanical plant.
- Reuse existing sales centre for Administration, Human Resources and Accounting.
- Minimize on-site parking – the Project plans to approach the adjacent University to use the existing soccer pitch parking when hosting large functions.
- Buildings positioned to minimize site works including fill importation and excavation.
- Reduction of structure footprint from the prior design as the concept has shifted to a mid-rise structure for the guestrooms as opposed to two-storey clusters. As a result the natural landscaping area has increased.
- Source local materials including stone and hard landscaping, and the exterior building finishes for which the material of which is provided locally.
- An Inncom - energy management system will be used for all for guestrooms.
- The Project had already established an off-site nursery of plants and native plants will be grown there which will be planted on site. Native species will be labeled as an education program for guests and staff.
- A planting plan to install mature trees to provide natural shade.
- The design standards include operable windows to reduce the use of air conditioning

B. Management During Construction

6.3 The Company has created a Safety, Health and Environment (SHE) Management Plan, which defines in detail how health and safety will be managed during Project construction as well as for the overall Resort. The SHE Plan contains a manual that outlines responsibilities of the designers, construction managers and contractors under each topic heading. There are many specific provisions, and key aspects of the SHE Plan include:

- The site rules must be enforced by Contractor's supervisors.
- The provisions of any statutory noise restriction notice must be strictly observed.
- All fuel oil tanks and drums must be provided with a bund capable of containing the entire contents of the tank + 10%, and be kept free of debris.
- No hazardous waste or containers may be dispersed of in general waste skips. Contractors will be required to remove waste in an approved manner to a licensed disposal facility.
- Tropical hardwoods including plywood are not to be used unless specified in the design. All timber and plywood must be obtained from sustainable sources, wherever possible.

- All plant and equipment must be well maintained to minimize environmental noise, maximize fuel economy and minimize emissions to the atmosphere.
- Standing water is to be prevented in order to mitigate the presence of mosquitoes.
- Vehicles exiting the site are to be inspected to ensure that wheels are clean and loads checked to prevent mud and/or materials spillage on to external roads.
- Surface water drains are to be temporarily bunded or otherwise protected to prevent slurry and other run off during construction entering the surface drainage system.
- All necessary measures are to be taken to prevent waste and contamination including spillage of contaminants into the ground, watercourses, the beach and the sea.
- In the event of a spillage implement emergency contingency plan.
- No materials whatsoever shall be taken from the beach.
- Public access shall be maintained to the beach in a safe and environmentally acceptable manner for the duration of the project. A specific plan is required in this regard.

6.4 The ESDD determined that in addition to the above provisions, the SHE Plan should be strengthened with additional storm-water and erosion control measures.

6.5 The Company will employ a full time Health and Safety Manager to supervise construction activities. Contractors will only be able to bring staff on site with appropriate Personal Protective Equipment and after completing a comprehensive induction course. Each person on site will be issued with a Disaster Recovery Card giving the contact details of key staff and contact information for security, police, fire, ambulance and other emergency services. First aid stations will be set up in various locations on-site, with clear signage to indicate their location. Contractors and the management team will have trained first aiders so that emergency help can be administered as early as possible. The Bank will require that SHE Management Plan be incorporated into an overall Project Environmental and Social Management Plan (ESMP), and that this ESMP be implemented through an Environmental and Social Management System consistent with the principles of the ISO 14001 system. Given how much is already contained within the existing plans, and the Sponsor's evident wiliness and capacity, this should be relatively easy to achieve.

6.6 In addition to defining process and management and monitoring roles, the ESMP further requires the contractors to prepare detailed method statements in a prescribed format for approval before work commences. This is to ensure that the methodology has undergone a proper review and that it provides a robust mitigation against nuisance caused by noise, vibration and dust. The method statements are reviewed by a suitably qualified and experienced person and the work monitored for compliance. Regular monitoring and reporting is also required and any issues are raised in regular site meetings.

6.7 In terms of construction labor requirements, the Project has committed to set high standards in terms of improving labor practices, safety and working conditions on-site, and is planning certain initiatives such as:

- Contractor awards for contractors who have demonstrated good safety practices;
- Employing a full time Health and Safety Manager, independent from the contractors, to ensure that SHE Plan is adhered to and to provide independent reporting;
- Providing tool box talks and Health and Safety training/education to the work force;
- Working with the government Labor Department on educational programs;

- Enforcing PPE as a basic criteria for entering the site and also ensure that new workers have a full site introduction ahead of commencing work;
- Daily inspections and a regime of permits, risk assessment and method statements; and
- Monthly safety audits carried out with the labor department.

6.8 In terms of erosion control, the existing construction erosion and sediment runoff control plan was reviewed during the ESDD and found to have many good elements (e.g., use of silt fences and storm-water runoff/sediment retention basins to capture flows during larger precipitation events). Nonetheless, the Bank will require that the plan be improved. For example, while a perimeter silt fence in the gullies is one measure, these may be overwhelmed in larger rain events. Hence, they would require routine maintenance to clear out accumulations of sediment and trash from small events such that all the accumulation would not be blasted out to sea during a large event. All sediment control measures will require daily inspection to assure they are operational and inspection, clean out, and possibly repair work after every rain event. A final storm-water control plan will be developed to address these issues and ensure that the risks and overall impacts remain minimal.

6.9 In addition, the Company will be required to develop a habitat and landscaping plan to restore and enhance native vegetation as practicable. The plan should be divided into three components, (i) beach (ii) gullies and (iii) hotel and villa landscaping, differentiated as follows. On the back of the beach and in the two gullies use selected native plants in an effort to restore native Barbados habitats to enhance turtle habitat on the beach and offset clearance of the North Gully. It is also recommended that the planting plan for the hotel and villas incorporate some native plants as feasible given landscaping and other considerations. The objectives of this plan will be to set out how Paradise Beach will to enhance and restore native habitats as part of the Project as well as to support raising awareness among guests, staff and the wider public. To achieve this, it is anticipated that a component of the plan would be to develop a native plant nursery to grow plant stock and possibly a partnership with native species specialists in Barbados. While this plan should begin during construction, it is expected to continue through operations.

C. Management during Operations

6.10 Hotel operational management plans and procedures will be based on the Four Seasons corporate plans, which address key operational impacts and risks. Examples include:

- Fire and Life Safety and Emergency Response Procedures, including natural disasters;
- Emergency / Disasters: Flood Policy and Procedure; Hurricane Plan; Disaster Recovery Plan;
- Occupational Health and Safety, including accident reporting and analysis procedures;
- Contractor Compliance Program that details how all hotel contractors will comply with Four Season Health and Safety and other requirements;
- Hazard Communication Program following the U.S. Occupational Safety and Health Administration (OSHA) guidelines, for the evaluation of hazards in the work place;
- Employee training programs, including hazardous materials handling;
- First Aid response procedures, including training on the use of the Automated External Defibrillator (AED); and
- Safe food handling practices, including a Culinary Safety / Health Checklist.

6.11 The Bank will require that these plans procedures be incorporated into the ESMP for operations and implemented through an Environmental and Social Management System consistent with

ISO 14001 principles. In addition, plans initiated during construction such as storm-water management and the habitat plans would be expected to continue through operations and be incorporated into the relevant operations ESMP.

VII. PUBLIC CONSULTATION

- 7.1 As discussed in Section 3.12, public consultation was included in the Social Impact Assessment conducted in 2006. Given the elapsed time, and the lengthy hiatus in the Resort development, the IDB will require that the Project continue its efforts of public engagement through the Company's existing Community Engagement Plan to inform the community that the Project is back on track and to continue a process of dialog.
- 6.7 The Company will also be required to develop a grievance mechanism through which concerned citizens can lodge complaints or queries regarding the Project during construction and operation. The grievance mechanism should be made known to the larger community and at least one dedicated staff person and clear methods for communicating with that person is established.

VIII. RECOMMENDATIONS

- 8.1 Based on the ESDD conclusions, the Bank recommends the conditions described below required for the Project prior to and throughout the life of the loan.

A. Throughout the life of the Loan

- 8.2 The IDB will require within its Loan Agreement that the Sponsor and Project parties, including construction companies and operators, will, at all times during the life of the Loan Agreement, comply with the following requirements:
- Applicable environmental, social, health and safety, and labor regulatory requirements of Barbados.
 - All requirements associated with any environmental, social, health and safety, and labor related permits, authorizations, or licenses that apply to the Project, as it relates to the Project, or any party responsible for executing the Project or its mitigation measures.
 - All environmental, social, health and safety, and labor requirements of the Project contracts and any subsequent modifications.
 - All aspects of the Project's environmental, health and safety, social and labor documents.
 - All relevant IDB policies such as the Environment and Safeguards Compliance Policy (OP-703), the Disaster Risk Management Policy (OP-704) and the Disclosure of Information Policy (OP-102).
 - Applicable IFC Environment, Health and Safety (EHS) Guidelines (such as the general EHS guidelines, and the IFC EHS Guidelines for Tourism and Hospitality Development, 2007).
 - Consult with IDB before approving or implementing any substantive changes to the Project (including its environmental and social plans and systems) or its timetable which could potentially have negative environmental, social, labor, or health and safety effects.

- Send written notice of any and all noncompliance with any environmental, health and safety, social and labor requirement of the Loan Agreement and any significant environmental, social, labor, health and safety accident, impact, event, claim or material complaint.
- Ensure that all Project construction and operation contractors comply with applicable environmental, labor, social and health and safety requirements of the loan agreement.
- Implement ongoing information disclosure and consultation related to environmental, labor, social, and health and safety aspects of the Project, including disclosure of Environmental and Social Compliance Reports and, as applicable, participatory monitoring.
- Implement an environmental, health and safety, social and labor management system that is consistent with the principles of ISO 14001 and OHSAS 18001.

B. Prior to Financial Close

8.3 Prior to the date of Financial Close, the Sponsor must Present to the satisfaction of the Bank the following documentation:

- Evidence of development and implementation of the Company's construction Environmental and Social Management Plan (ESMP) including, but not limited to, the Waste Management Plan, Health and Safety Plan, Emergency Response Plan, the Hazardous Materials Management Plan, Communications and Community Relations Plan, Grievance Mechanism, and the Environmental and Social Monitoring Plan. Additional specific plans to be incorporated into the plans include: habitat and landscaping plan, and the existing and planned Labor and Health and Safety initiatives discussed in Section VI.
- Evidence of development and implementation of the Company's Environmental and Social Management System (ESMS) framework (which will implement first the construction phase ESMP and later provide the framework for the operations management plans).
- Develop a draft Turtle Policy/Beach Management Plan to cover the specific construction related procedures and present the framework for the operations phase management plan to be developed prior to initiation of operations.
- Evidence of development and implementation of a gully management plan, including a review of the flood scenarios for the 50- and 100-year scenarios.
- Evidence of development and implementation of a gully landscaping plan
- Develop a GHG estimation for the Project and a GHG reduction strategy.
- Submit the final wastewater treatment plant designs, including the design for the water injection well demonstrating the integrity of the injection location
- Submit an Environmental, Social, Health and Safety Action Plan (ESHSAP) that sets out the pending plans and activities with their associated milestones, responsibilities, and status

C. Prior to First Disbursement

8.4 Prior to First Disbursement of the Loan, the Sponsor shall fulfill the following conditions:

- Present to the satisfaction of the Bank all agreed upon environmental, social, health and safety, and labor management or mitigation plans not already presented, and which are due for this phase of the Project.

D. Prior to initiation of Operations

- 8.5 No later than 60 days prior to the initiation of Operations, the Sponsor shall submit to IDB the following plans in form and substance satisfactory to IDB:
- An Environmental and Social Management Plan (ESMP) for Project operations. This ESMP should contain as a minimum the procedures discussed in Section 6.10 such as: Fire Safety and Emergency Response Procedures, including natural disasters and Fire and Life Safety; Occupational Health and Safety; Contractor Compliance Program; Hazard Communication Program; Employee training; First Aid response procedures; and Safe food handling practices.
 - Evidence of development and implementation of a Final Environmental and Social Management System (ESMS) which will implement the operations management plans.

E. Prior to Each Disbursement

- 8.6 Prior to each disbursement, the Sponsor shall certify compliance with all environmental social, health and safety and labor requirements in the loan agreement.

F. For Technical Completion

- 8.7 The Sponsor shall as a specific requirement submit to IDB, in form and substance satisfactory to IDB, a final Environmental and Social Compliance Report.

G. Reporting, Monitoring and Supervision

- 8.8 During the life of the Loan, the Sponsor must prepare and submit an Environmental and Social Compliance Report acceptable to IDB (format to be agreed prior to financial closure). These reports will be submitted according to the following schedule: 1) During construction: quarterly (report to be received by the IDB in the subsequent month); 2) during the first 18 months of operation: semiannually (report to be received by the IDB in the subsequent month); 3) From 18 months through the life of the loan: annually (report to be received by the IDB within 60 days of the close of the calendar year).
- 8.9 The Bank will monitor the Project's environmental, health and safety, social and labor aspects via internal Bank supervision (e.g., site visits, review of documentation, etc.) and may contract an external independent environmental consultant to perform more detailed supervision actions during construction and initial operation. This supervision will be conducted by the IDB with the assistance of an external independent environmental and social consultant according to the following schedule: 1) During construction: quarterly; 2) during the first 18 months of operation: semiannually; 3) From 18 months through the life of the loan: annually.
- 8.10 In addition, the Loan Agreement shall also provide for:
- The Bank's right to contract an independent environmental consultant to perform more detailed supervision actions as needed through the life of the loan.
 - The Bank's right to contract for the performance of an independent environmental, social, health and safety, and labor audit, if the Bank deems necessary.

- The Sponsor's agreement to provide access to all relevant documentation, facilities and personnel and cooperate fully with any inspection or audit by the Bank or its designated consultants.
- The Sponsor's agreement to cooperate fully with the IDB's Independent Consultation and Investigation Mechanism (ICIM).

Annex 1

Wastewater Standards applicable to the Project and Planned levels

Parameter	End of Pipe Standard for Discharge into Class 1 waters	World Bank Group Effluent Standards (2007)	Proposed Project Treatment Levels
Biochemical Oxygen Demand (BOD)	30 mg/L	30 mg/l	< 5 mg/L
Chemical Oxygen Demand (COD)	NA	125 mg/l	
Total Suspended Solids	30 mg/L	50 mg/l	< 5 mg/L
Total Nitrogen (organic and inorganic)	5 mg/L	10 mg/l	<5 mg/L
Total Phosphorus (organic and inorganic)	1 mg/L	2 mg/l	< 1 mg/L
pH	6-9	6-9	6-8
Faecal streptococci	Geometric mean of min. 5 samples should not exceed 35 colonies/100 mL in any 30-day period.	NA	
Faecal coliform	Geometric mean of min. 5 samples should not exceed 200 colonies/100 mL in any 30-day period. No more than 10% of samples to exceed 400 colonies/100 mL.	400 MPN 100 ml MPN = Most Probable Number	< 2 cfu/100 mL
Total Residual Chlorine	0.1 mg/L	NA	
Fats, Oils and Grease	15 mg/L	10 mg/l	
Floatables	Not visible	NA	