

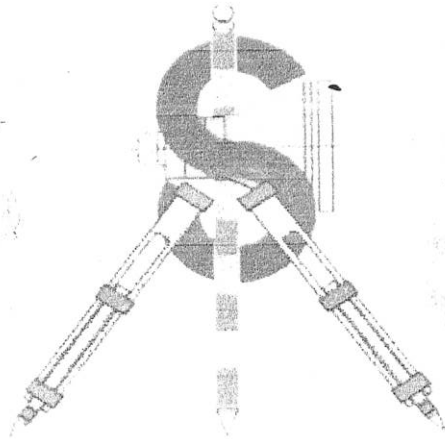
# Ridge Christ Church - Environmental Impact Assessment

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Ridge Development North

Ridge Plantation, Christ Church, Barbados

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INFRASTRUCTURAL SERVICES INC.

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## **1.0 EXECUTIVE SUMMARY**

Ridge Properties Limited is proposing to develop two parcels of land containing 75 and 104 acres respectfully. It is proposed to construct 749 low income houses on the 75 acres and provide 239 residential lots and a five acre commercial lot on the 104 acres. The current EIA is the subject of an application at the Town and Country Planning Development office under reference 0639/04/2014D. An EIA report (volume 1) was already submitted in respect of the 75 acres. This EIA report covers the remaining 104 acres and should be read in conjunction with the first EIA report for the 75 acres alluded to earlier. While this EIA report (Volume2) is specific to the site containing the 104 acres some of the baseline data are still relevant and would not be repeated. For example, the information pertaining to the legal, policy and administrative framework will not be repeated. On the other hand, the social surveys will provide additional information not covered in the first volume of the EIA report. In addition more detail information will be provided in respect of traffic and the cumulative impact it will have once both developments are implemented.

This Environmental Impact Assessment (EIA) will provide information on the potential negative and positive environmental and social impacts of the project. It also aims to make recommendations for the mitigation of the potential negative impacts and enhancement of the positive ones. A field survey of the project site was conducted and potential environmental impacts of project activities were identified, assessed, and

documented. The EIA Team carried out consultations with various stakeholders, particularly lead agencies, local authorities and the affected people.

## **1.1 Project Description**

The project involves the construction of 24,400 square metres of roads and associated drainage to service the 239 residential lots ranging in sizes between 6000 square feet and 1 acre and a commercial lot of approximately 5 acres. The land is situated in the northwestern section of the intersection of Highway R and Highway Q and abuts several residential developments namely, Searles Tenantry to the East, Ridge Development and Lowe Greys to the North, to the South on the opposite of the road by Frere Pilgrim South development and to the West by Ridgeview and Frere Pilgrim developments.

## **1.2 Project Impacts**

The potential ecological impacts identified in the construction phase of the project are: (i) water pollution related to disposal of domestic solid wastes generated by the site personnel and domestic wastewater generated by the site personnel, (ii) water pollution from oil type wastes and/or spills used for the maintenance of equipment (iii) noise pollution resulting from the operation of construction and other equipment (iv) air pollution resulting from the emissions from construction vehicles and equipment and (v) fugitive dust generated from the excavation of the road corridor and drainage works.

During the operational phase of the project it is expected that (i) water pollution relating to the disposal of domestic solid wastes and domestic solid wastes will be generated by the residents, (ii) water pollution from oil type wastes and chemicals from domestic activities such as car washing and household detergents are potential impacts, (iii) air and noise pollution generated by increase volumes in traffic. In addition to the above-mentioned potential physical impacts on the land, water and air and the biological/ecological impacts on flora and fauna there are also potential impacts on the aesthetic and visual environment and the socio-cultural and economic effects on the population; labour and employment; housing and social services; infrastructure and public utilities; health and education and the culture and lifestyle of the people.

### **1.3 Recommendations.**

A number of mitigation measures are recommended against the adverse activities during the construction and operation phases of the project. Measures recommended during the construction phase include control of noise pollutions from heavy equipment and vehicles through proper inspection and maintenance, and use of noise suppressors or mufflers for heavy equipment, control of air pollution from construction works and movement of vehicles through proper inspection and maintenance to reduce exhaust emissions, watering of unpaved roads, control of adverse impacts from construction debris by proper handling and immediate removal, control of water pollution through proper storage and handling of oil wastes and treatment of wastewaters at site, control of solid

wastes through sanitary storage and frequent collection for sanitary disposal. Quality of air will be monitored on a regular basis where noise will be measured periodically. While during the operation phase, emphasis has been on the control of traffic, the maintenance of storm water drainage systems and proper disposal of solid and liquid wastes in accordance with government regulations. In all phases occupational health and safety will be carefully considered and controlled through continuous inspection to prevent disease and accidents, and workers will undergo an environmental and safety briefing on safety, sanitation measures, and emergency rescue procedures before development begins. Adequate sanitary facilities, potable water, and garbage bins will be provided. From the study findings, it has been concluded that the impacts of the proposed project are minor and easily mitigable. The developer is strongly advised to implement the recommendations made by the EIA Team.

## **2.0 PROJECT DESCRIPTION**

The project site is part of the Ridge Plantation in the parish of Christ Church and is currently zoned for agriculture use. The site is surrounded by a mixture of low income, middle and upper middle income residential developments. It is located in zone 4 of the Barbados Water Authority Protection Zone. In the construction phase of the project approximately 25,000 cubic metres of material from road way will be excavated and 24,400 square metres of road will be constructed to service the 239 residential lots and the one commercial lot. The residential lot sizes will range in

sizes from a minimum of 620 square metres to a maximum of 4110 square metres and the large commercial lot will be approximately 20228 square metres.

## 2.1 Construction activities

The construction work for the roads and associated drainage works will be completed in 100 weeks. The lots will be sold to prospective home owners who will construct their houses on an individual basis and it is difficult to estimate the time for the operational phase of the project. It is highly unlikely that all the houses will be constructed together and as a result the area will take a considerable time to be built out. The total number of workers during the construction phase is projected at 18 workers as shown in Table 2.1

Worker	Number
Charge Hand	1
Carpenter	2
Mason	2
Mechanic	1
Steel bender/fixer	1
Labcurer	4
Air compressor operators	2
Excavator operator	1
Grader operator	1

Trencher operator	1
Roller operator	1
Supervisor	1
<b>Total</b>	<b>18</b>

**Table 2.1 showing number of workers during the road construction phase of the project**

## **2.2 Utility Usage**

The project is expected to use electricity and water during both the operational and construction phases. During the construction phase water will be provided from a temporary supply from the Barbados Water Authority and electricity will be provided from portable generators. In the operation phase the electricity will be provided by the Barbados Light and Power Company Ltd and potable water from the Barbados Water Authority. The developer in both cases will provide the installation of the mains.

### **2.2.1 Water Usage**

Gleick (1996) suggests that 50 litres per person per day is the required minimum to satisfy basic human needs. The table 2.1.1 below shows domestic water demand at 58,100 cubic metres per day. Using the 2000 census report from the Barbados Statistical Service (BSS) which shows a population of 268,792 persons this translates to 216 litres per person per day. The Water Resource

Management and Water Study (BWA, 1997) however suggested that by the year 2016 the annual water demand could reach 86.084 M cubic metres of which the domestic consumption including leakage would be 57.207 Mm<sup>3</sup>. The report also suggested that the allowance of 60% was included for leakage. Therefore the true figure for the domestic consumption would be in the vicinity of 22.883 million cubic metres per annum or 62,693 cubic meters per day. If one was to interpolate between the 2000 and the projected 2016 figures and apply to the 2010 figures (the date of

latest Census Report) the domestic demand for water would be 60,971 cubic metres per day .When this is applied to the population in the 2010 Census Report from the BSS the water demand is 219.5 litres per person per day. The 2010 Census Report also suggested that the parish of Christ church had 2.8 persons per house hold. Therefore the projected water demand is 614.6 litres per household per day.

It is therefore projected that the water demand for phase 1 (749 houses) will be 460,335.4 litres per day and for phase 2 (239 lots) will be 146,889.4 litres once all the houses are completed and fully-occupied.

During the construction phase of the project water will be used for dust control, construction equipment washing, vegetation establishment, adding water to backfill material/soil compaction and site clean -up. The water usage in this phase will not put great demand on the existing water resources in the study area.