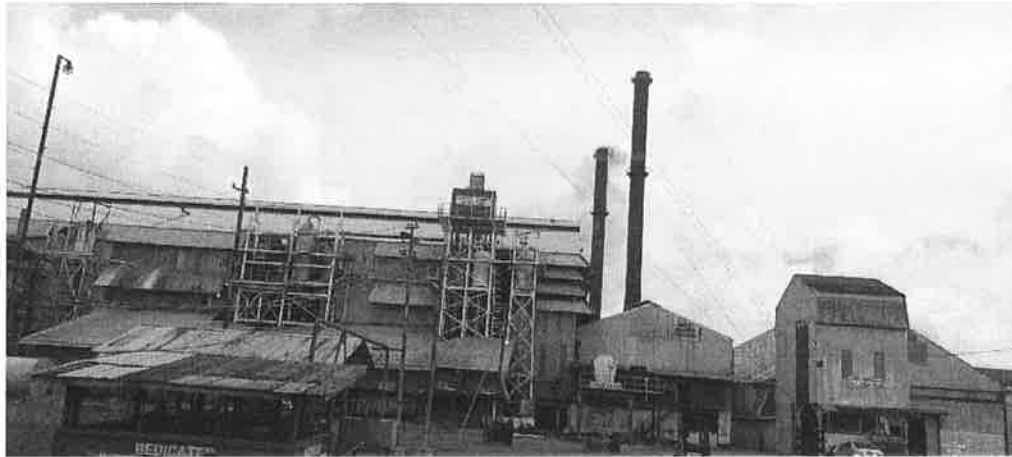


Project Summary of Rose Hall Sugar Estate



NAME OF ESTABLISHMENT: ROSE HALL FACTORY, ROSE HALL ESTATE

ADDRESS: ROSE HALL, CANJE, BERBICE

NAME OF COMPANY: GUYANA SUGAR CORPORATION INCORPORATED

ADDRESS OF COMPANY: La Bonne Intention (LBI) Estate Compound, East Coast Demerara.

CONTACT DETAILS:

- 1) **Mr Randy Fordyce**
LBI Estate Compound
East Coast Demerara
Telephone/Email: 641-6241/ randeyf@guysuco.com
- 2) **Mr Vijay Goberdhan**
Estate Manager

Rose Hall Estate Compound

Rose Hall, Canje.

Telephone/Email: 701-5294/ VijayG@Guysuco.com

3) Muntoy Ali

Production manager

Rose Hall Estate Compound

Rose Hall, Canje, Berbice.

Telephone/Email: 701-5291/ MuntoyA@Guysuco.com

PREPARED BY: Muntoy Ali

DATE PREPARED: 13th May, 2024

DESCRIPTION OF SITE

The Rose Hall Estate Factory is situated in East Canje Berbice, approximately, 4.7 Km from the Town of New Amsterdam and covering an area of 3630.4 Ha. It was a going concern until its closure in 2017. In September 2020, rehabilitation works began and was completed in September, 2023, when grinding operations recommenced.

The cultivation features promising sugar cane varieties with a soil type that is 37 Whittaker clay.

The main source of receiving water is from the Canje Creek, which passes through a well-structured network of trenches and canals for drainage and irrigation. The Estate also has a recirculating System which is utilize to keep a stable water level for the Communities and the Cultivations. The discharge of water is done through sluices and Drainage Pumps.

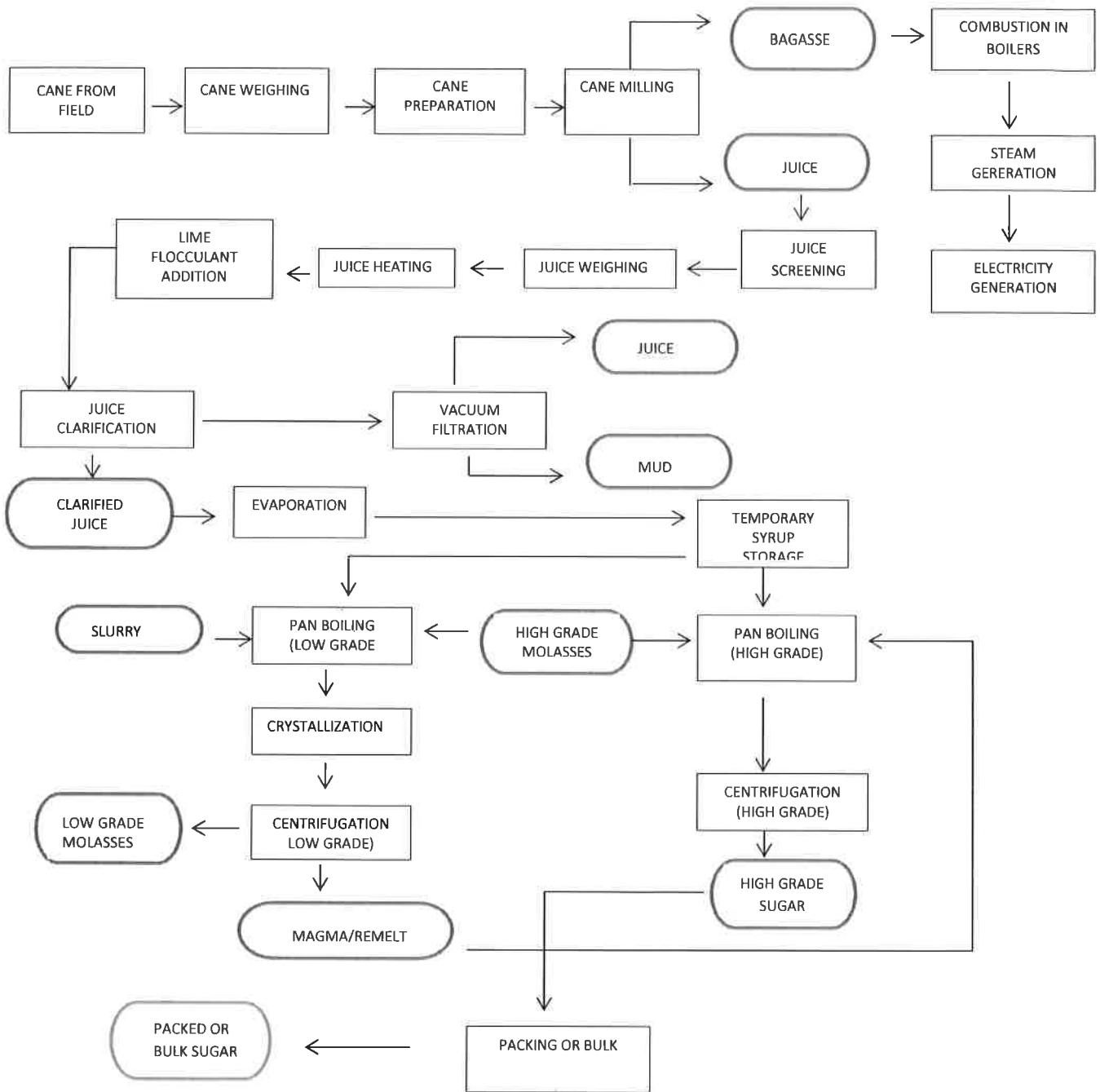
The present land is use for the manufacturing of Raw Sugar. The Estate is situated next to the Communities of Cane Field and Reliance Settlements. There are existing Garbage Dump Sites at New Amsterdam and New Forest.

Maps are attached showing the Cultivation's navigation and Drainage systems. The Factory Production Plan is presented below.

Project Design:

- The Guyana Sugar Corporation is the largest cultivator and producer of pure cane sugar in Guyana.
As stated above, the Rose Hall Estate was closed as a going concern in 2017 and was fully rehabilitated following the exact design which existed before. Outlined below is a diagram which follows this design. The Estate is expected to once again be a going concern.
- Stages of the project from raw materials to the finished product.

FLOW CHART OF ROSE HALL ESTATE FACTORY PROCESS



Production Description:

The most important raw material to the factory is the sugar cane which is grown and harvested in the fields. The canes are transported to the factory via water ways in punts, each having an average weight of six (6) tonnes. Once the cane reaches the factory, it is weighed and washed and is chipped up into fine pieces by heavy duty knives. The chipped up canes then goes to the milling station where it is crushed and squeezed by huge rollers to extract the juice from the fiber. At this stage, the factory is able to isolate the cane juice from the cane husks (bagasse).

The juice is carried up to the Processing House where it is chemically treated with lime (calcium oxide) and flocculant to remove mud and floating debris. After being treated and meeting its quality specifications, the juice is then boiled and concentrated into syrup. The syrup then goes on to the crystallization stage where sugar crystals are produced along with molasses. At Rose Hall Estate the various types of sugar that are produced are bagged and bulk. The molasses is stored in tanks and is sold locally or exported depending on the market demands.

The cane husk (bagasse) that comes off the milling stage is taken via conveyors to the boilers where it is burnt to generate steam. The ash is collected and stored and is used for land building purposes. At this stage, smoke and fumes are ejected into the atmosphere through the long stacks as a result of the combustion process. The steam produced is used to drive two turbines that generate electrical energy to power all machinery, lights, etc. on the estate. In instances where steam is not generated e.g. during the off crop period, there are diesel engines that are used to generate the power to keep lights and necessary equipment on board.

Source of utility services provided by the Estate:

1. **Water Supply** – The present supply of water is from the Guyana Water Inc. and the Adelphi Water Scheme. The Adelphi Water Scheme is maintained by the Estate providing Portable Drinking Water to the Communities. The water is filtered. Also there is a filtration plant at Rose Hall Location. Before any distribution the water is again filtered.
2. **Energy/ Electricity** – During the grinding period electricity are generated by the use of a 2.5MW Peter Brotherhood Steam Turbine, using wood and Bagasse to fire the six Boilers. During the off period electricity are generated using three Diesel Generators. These Machines are maintained by the Estate.
3. **Communications** – There is 24 Hours service available. On a three shift basis. Incoming calls can be made to the Operator and transferred to the Estate Staffs and outgoing calls can be requested and transferred by the operator to the recipient.
4. **Health Care** – there is a Primary Health Care Centre and a Diagnostic Centre. These services are available for any workers and the Communities.

5. **Fuel Station** – There is a designated Fuel Station for all Company Vehicles using diesel and gasoline.
6. **Transportation** – the company provides all means for transportation on land, water and air on the job.
7. **Sports** – the company provides a Centre to host events and for persons to involve in sporting activities.

Waste Management:

1. Oil – Waste oil is stored in a storage tank at the Field Workshop and in barrels in the General Store. These are used to lubricate chains on machineries and treatment of electrical poles from termites and pests.
2. Filters – filters are properly drained in a container and disposed in garbage bins.
3. Batteries – batteries are returned to the General Store and sent back to the Head Office for accountability purposes.
4. Brass Cuttings – these cuttings are reused by melting using a furnace.
5. Garbage's (rags, bottles, food, etc.) – these are placed into bins and dump at the Dump Sites.
6. Bagasse – are used at the Boilers to generate steam during the grinding operations.

PROJECT SIZE:

1. Capital Investment is estimated approximately \$10 Billion Guyana Dollars.
2. Number of Employees for each stage of the project:

Summary of Manpower									
Department	Senior Staff		Junior Staff		Workers		Total		
	Estab.	On Roll	Estab.	On Roll	Estab.	On Roll	Estab.	On Roll	Vacancies
Field	24	17	61	44	1587	507	1672	568	-1104
Factory	12	11	50	47	217	223	279	281	2
Finance	2	2	14	13	8	8	24	23	-1
Human Resource	3	3	9	8	27	29	39	40	1
Security	0	0	22	19	34	39	56	58	2
Admin	1	1	0	0	2	0	3	1	-2
Total	42	34	156	131	1875	806	2073	971	-1102

3. Rate of Production:
 The Estate is expected to till and harvest 3,480 hectares over a period of 4 years. The expected yield will average 72 tons per hectare totaling to 250,000 tons of cane, at TC/TS (Tons Cane per Tons Sugar) of 12.5, the Estate is projected to produce 20,000 tons of sugar annually from 2026 onwards.
 The Factory capacity per hour is 110 tons cane per hour. The Factory operates on a twenty four hour basis during grinding operations. There is planned twelve hour maintenance on Mondays to clean and descale all Juice Heaters and Evaporators. Also to service and carry out any repairs identified during the grinding operations.

4. The purpose of the project is to grow sugar canes and produce bulk sugar for local and foreign use. The Sugar Canes are burnt to remove all trashes. Cut and placed into punts and transported to the Factory via water using a tractor to pull it. Reaching the Factory it is hoist from the punts by the Gantry and placed onto the Cane Scale for recording of weights and to pay the harvesters. The canes are then discharged into Cane Carriers, passing through the #1 & 2 Cane Knives for shredding and preparing the canes. After preparing the canes at the Cane Knives, it passes through the Crusher and #1 – 4 Mills where maximum extraction is done to remove all juice. The Bagasse is sent to the Boilers for steam generations. The juice is then pumped to the Juice Tank for recording. The juice is then pump to the #1 – 4 Juice Heaters to attain the required heat, then to the Flash Tank. The heated juice then goes to the Clarifier to remove all impurities and muds, then to the Clear Juice Tank. Clear Juice is then pumped through the Pre Heater, then to the #1, 2, 3, 4A & 4B Evaporators to remove all water and form the syrup. The syrup is stored in boxes, and then to the Vacuum Pans to form the Masecuite, the Masecuite is then boil to form the crystals. After attaining the required crystal sizes these are stored in crystallizers. Then pumped to the Low Grade and High Grade Curings for separation of the molasses from the crystals. The Low Grade Sugar (Magma) is reused in the process; the molasses from this is shipped for consumptions. The sugar from the High Grade Curing is sent to the Bulk Shipping and the molasses is reused in the process.
5. The production of sugar is done on a twenty four hour period continuous. The Estate has a two grinding periods per year.

Potential effects on the environment:

1. Land – soil quality is affected by erosion and other aspects of agriculture. These include compaction, loss of soil structure, nutrient degradation and soil salinity.
2. Air – Air pollution, this can cause long term health effects such as heart disease, lungs cancer and respiratory diseases.
3. Soil – affects the soil fertility and pose as a risk to human health, through the consumption of contaminated food and drinking water.
4. Water – Water contamination, due to waste products from washing, pesticides and fertilizers.
5. The use of natural resources – result in soil degradation, water shortages and damages to the ecosystem functions.

Proposed plans to mitigate environmental impacts.

1. Relook at energy consumptions.
2. Recycle.
3. Conserve resources.

ROSE HALL ESTATE DRAINAGE MAP AND BOUNDARY AS AT MAY 10TH 2023

