



PROJECT SUMMARY

**APPLICATION FOR ENVIRONMENTAL AUTHORISATION FOR
THE ESTABLISHMENT OF AN ASPHALT PLANT AND
CONCRETE BATCHING FACILITY**

NAME OF DEVELOPER: CARIBBEAN CONCRETE (GUYANA) INC.

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1.0 Introduction

1.1 Company Background

Caribbean Concrete (Guyana) Inc. is a registered company under the Companies Act of Guyana on the 14th of August, 2020. The company's office is located at Industrial Site, Amelia's Ward, Linden. With the rapid growth of the infrastructural/construction sector, the company has decided to venture into the production of asphalt and cement (medium scale). The company is committed to excelling in this venture and will ensure compliance of all of the Regulations and Laws of Guyana.



2.0 Project Overview and Location

The proposed project site is regarding the establishment of an asphalt and concrete batching facility to be located at Sublot 14D being portion of lot numbered 14 being a portion of Block Lettered "P" being part of Crown Land, West Bank of Demerara. The proposed facility will include designated areas for the asphalt plant, concrete batching plant, warehouse and storage of aggregates and fuel for operational needs. The project is designed to support medium-scale infrastructure activities within the region, all in contributing to the development of the country.

The proposed project site comprises 3 acres of vacant land which was once utilized for agricultural purposes (production of rice). The project site is in an area that was used for agriculture/commercial activities, and it is currently conveniently located away from residents. The proposed site can be accessed by utilizing the Cogland Dam.



Project Site



2.2 Project Description

The project will be executed in two phases construction and operation. The pre-construction phase has already commenced with the clearing and sand filling of the land.

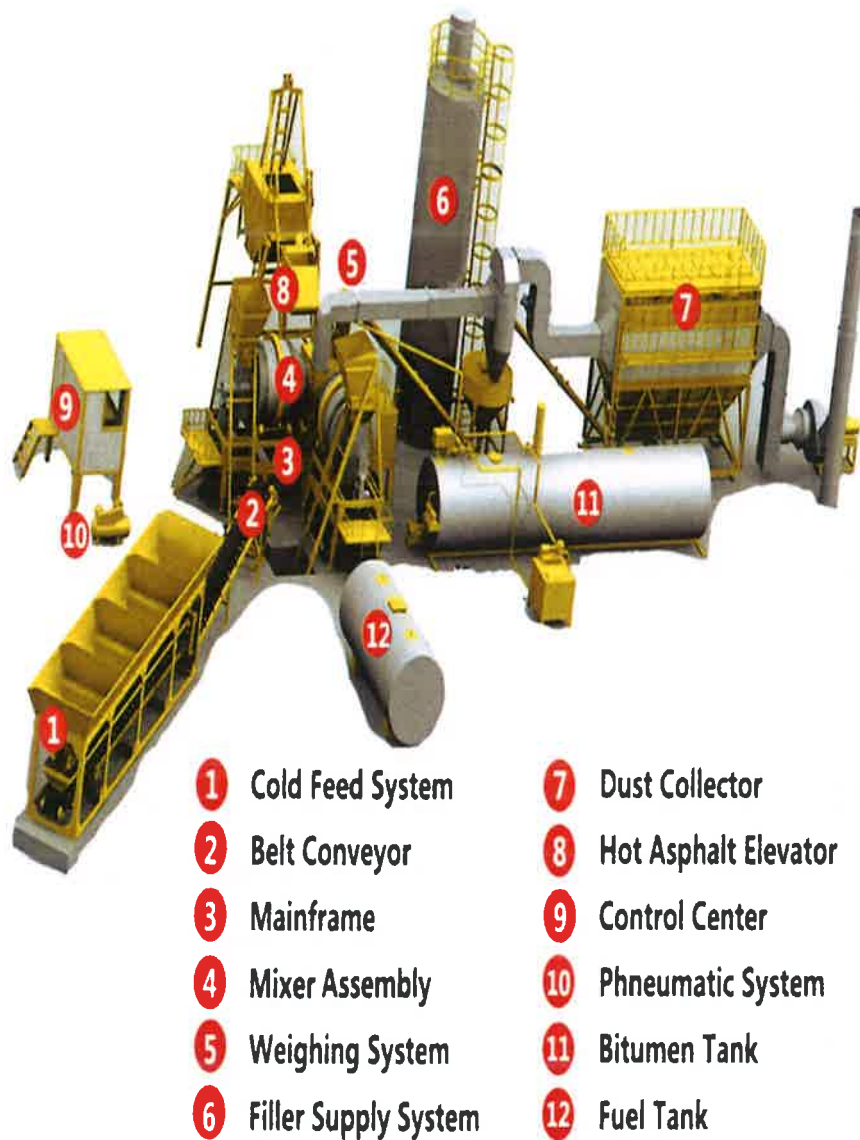
▪ Construction

Minor construction will be required for this project. Foundational structures will be constructed for the installation of asphalt and concrete batching plants. Additionally, a warehouse having a dimension of 20ft² 45ft and a sediment pond will be constructed to support the operation. This phase should take approximately two (2) months to be completed.

▪ Operation

The operation of the asphalt plant and batching plants are expected to occur between 8am and 5pm and will be based on order. The asphalt plant and concrete batching will be retrofitted with air quality abatement such as wet scrubbers and Venturi scrubbers which have an efficiency of 99%.

2.3 Asphalt Plant Specifications



Note: The specification sheet for the plants has been attached.



2.4 Utilities

The main source of electricity will be sourced from the Guyana Power and Light (GPL). Generators will be considered as a backup option. Water will be supplied by the Guyana Water Incorporation and water will also be stored in 500 gallons' black water tanks onsite as reserved in the event of service interruption.

All effluent/grey water deriving from the project site will be directed to the septic tank system designed according to GNBS standards. The volume of waste that is likely to be generated from this project has not been quantified. However, it is anticipated that some quantities of domestic waste would be generated and would be managed according to the best available environmental management system on site. Further, waste (sludge) from the asphalt and concrete plants will be incorporated/reused back into the system.

2.5 Employment

A total of fifteen (15) persons is expected to be employed at the facility. Ten (10) persons will be employed for the developmental phase of the project. However, the project advances to the operational phase, five (5) other individuals will be employed. As much as possible, employment will be created for persons within the neighboring community. Employees will be trained as much as possible on occupational safety practices at the work place so as to ensure that the health and safety of workers are not compromised. Also, adequate safety gear and PPE relevant to the job will be provided to all workers and appropriate warning and safety signs will be installed throughout the construction site.



3.0 Potential Environmental Impacts and Mitigation Measures

3.1 Air Quality Impacts

The project has the potential to generate dust at a medium level which will not significantly impact the air quality within the project area. However, most of these impacts are expected to be short-termed localized and can either be prevented or reduced. Dust emissions can also be generated from construction material stockpiles as a result of wind especially during dry conditions, debris deposits from vehicles exiting the construction zone, vehicles transporting construction materials, loading and off-loading of trucks with excavated materials. Dust generation would be greater during dry periods and will be influenced by construction activities, soil type, moisture content and wind speed.

Particulate matter and gaseous emissions will be generated from the operation of the asphalt and concrete plants. Also, gaseous pollutants are expected to be generated during the operation of heavy powered mechanical equipment during construction, particularly those using diesel fuels and from the treatment of surfaces and paving activities. The primary pollutants that will be generated during construction from the equipment include nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO) and Photochemical Oxidants (generally measured as ozone (O₃)). Combustion emissions will be minimal, short-term and localized to the area of the vicinity of construction activities.

Mitigation Measures

- A bag house filters will be installed on the plants to trap airborne dust which will be reused in the production.



- During dry periods, the access route is to be monitored for dust and periodic soaking using a water truck will be administered if dust pollution arises.
- Stockpiling of materials will be kept to a maximum of 10 feet to reduce wind actions on construction materials.
- Loaded trucks tray are to be covered when transporting material to minimize dust emission.
- Personal Protective Equipment (PPE) will be provided for workers such as goggles, dust mask and respirators for protection against dusty environments.
- Equipment and machinery to be turned off once inactive.
- Maintaining construction equipment following manufacturer's specifications to operate at optimal efficiency to reduce excessive emissions.
- All machines/equipment will be serviced on a weekly basis and maintenance records for equipment/machinery shall be kept to document all maintenance actions that are performed.

3.2 Noise Impacts

Exposure to noise levels above the internationally accepted level of 90 decibels can cause noise-induced hearing loss. Noise levels above the tolerable threshold of 72 decibels can result in fatigue, tiredness, low morale and decreased productivity. Noise will be generated mainly from construction activities during the construction of foundations, vehicles transporting materials within the construction site and beyond the construction boundary and operation powered mechanical equipment during construction. These impacts are unavoidable and expected to be short-term and localized.



Mitigation Measures

- Personal Protective Equipment (PPE) such as ear muffs or ear plugs will be provided for workers on the construction site.
- Arranging transport of materials leaving construction site during non-peak hours in order to minimize traffic noise;
- Efforts will be made to ensure machinery and equipment are working efficiently and have installed the manufacturer's required muffler devices where possible.
- Night works will be avoided, to the most practical extent.
- Noise levels will be kept within the EPA's established limit of 90 decibels during the day and 75 decibels at night.
- Regular maintenance will be conducted on all machines and equipment to mitigate noise.

3.3 Water Quality Impacts

3.3.1 Surface Water

Improper disposal of liquid and solid waste and also mismanagement of hazardous materials (lubricants, waste oil and fuel) can also pose the threat of contamination of surface water which will be avoided. The operational phase may produce high levels of oil and grease from machines, if enters into drainage system may result in pollution of water ways. Discharge of wastewater from construction into the external drainage systems (river) can pose risks to the environment.



Mitigation Measures

- Fuel will be managed and stored properly in an improvised concrete bunded area away from surface waters.
- All oily and greasy substances are to be stored in containers that would be sealed, and kept in an environment until properly disposed.
- Stock-piles and excavated materials will be covered properly in a designated area away from water bodies to prevent excessive soil deposits.
- Discharged of treated wastewater will comply with the discharge limit according to the Guyana National Bureau of Standards and EPA guidelines.
- Wastewater generated from the service areas will be treated on-site before it is safely discharged into surrounding water bodies via drains.

3.3.2 Ground Water

Groundwater resources may be impacted due to contamination during the operation stage from oil spills and leaks or due to improper storage and handling. Improper solid waste and wastewater management can also impact the groundwater resources.

Mitigation Measures

- Adequate sanitary facilities will be provided for workers on-site.
- Frequent collection of waste generated by sanitary facilities will be done by an EPA approved contractor.
- No release of any contaminant will enter the soil or waterways.
- Oil spills, fuel spill and other site contaminants will be rapidly cleaned.



3.4 Impacts to soil

The use of heavy-duty machines may lead to soil compaction and reducing soil quality. Long-term and localized soil compaction may also result in soil erosion and surface water runoff and riverbed silting. Effects can be minimized with adequate mitigation measures. The impact is considered minor, soil contamination will be brief and localized soil contamination due to oil spills or other substances. Effects can be avoided with adequate mitigation measures. The impact is considered minor and mitigable.

Mitigation Measures

- Whenever possible, removed top soil should be conserved and used for remediation of affected areas.
- The movement of heavy-duty machines will be limit to designated pathways to reduce soil compaction.
- Fuel and lubricants shall be stored within a contained impervious bond area and workers shall take care and be made aware of the handling practices to avoid spills during the dissemination of these liquids.
- Hazardous waste in the form of waste oils, lubricants and oily rags will be stored in sealed containers.

3.5 Waste Generation and Management Impacts

3.5.1 Non-Hazardous Waste

- ✓ Solid Waste



Solid waste is expected to be generated at the project site during the operational phase (plastic bottles, residual food in food boxes and packaging materials).

Improper management can result in soil and water contamination which can contribute to ill health and affect the aesthetic of the area.

Mitigation Measures

- Waste will be collected in adequate number of bins that will be provided at strategic locations around the site.
- The Company will ensure that the work area and its immediate surroundings be kept tidy at all times, preventing waste from accumulating and polluting the site.
- Project compound will be cleaned weekly to remove litter or any debris materials.
- Burning of waste on-site will be prohibited.
- Adequate arrangements will be made for the frequent collection of domestic waste by Puran's Disposal Service twice weekly.

✓ **Liquid Waste**

Liquid waste will also be generated including sewage waste and wastewater from washing.

Mitigation Measures

- Adequate toilet facilities with septic tanks to collect liquid waste will be provided and maintained onsite for workers.



- The septic tanks will be equipped with multiple phase faeces process which eliminates the likeliness of solid wastes discharge with effluence (separation of sewage and grey water through a displacement system followed by a soak away system or filter box).
- Waste water from this project will be drained into a soak away system/ filter box.
- All sludge and water deriving from the process will be recycled/reused in the asphalt and batching processes

3.5.2 Hazardous Waste

✓ Fuel, Lubricants and Asphaltic/Cement waste

Fuel and lubricants are to be kept onsite in significant quantity throughout the project life cycle. It is important to prevent fuel and lubricants from contaminating the water table and or aqua culture.

Mitigation Measures

- Hazardous waste in the form of waste oils, lubricants and oily rags will be stored in sealed containers in a designated area until disposal by Kingston Waste Management.
- All waste materials shall be stored in suitable containers until removal from site by the disposal services.
- Therefore, all fuel and lubricants shall be stored within a contained impervious bond area and workers shall take care and be made aware of the handling practices to avoid spills during the dissemination of these liquids.
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- Regular monitoring and inspections will be conducted to identify and promptly manage any signs of spills/ leakage.
- A spill kit will be kept onsite at all times for prompt emergency response.
- All hazardous materials will be labelled before disposal.
- Concrete sludge or asphalt binder waste will be trapped and reused into the materials use to produce asphalt and cement.

3.6 Occupational Health and Safety

The project activity is likely to have impacts on workers and the general public during operation phase. Heavy duty equipment, machines and the operation of the asphalt and batching plants may cause workers to sustain serious accidents resulting in burns, health issues or fatality. However, measures will be implemented as best as possible so as to ensure that the health and safety of workers and other personnel from nearby establishments are not compromised.

Mitigation Measures

- Adequate safety gear and PPE relevant to the job will be provided to all workers.
- Workers will be trained regarding their work, especially those working in hazardous conditions.
- Appropriate warning and safety signs will be installed throughout the construction site.
- An emergency vehicle will be on site at all times, in cases where persons would have encounter accidents.



- Emergency response equipment/measures to respond to emergencies including fire, accidents, spills, etc., will be provided.
- Worker's awareness sessions on health and safety issues will be carried out regularly.
- Awareness campaigns to the population and training to workers to mitigate community health and safety impacts.
- Fire extinguishers and sand buckets will be placed strategically around the compound.
- A fire alarm system will also be installed and fire drills will be conducted periodically.

3.7 Environmental Monitoring and Compliance

Caribbean Concrete Guyana Inc. aims to adhere, achieve and comply with all relevant laws and regulations including those of the Environmental Protection Agency (EPA). We intend to implement our projects with minimal impact to the environment in order to establish stringent monitoring, prevention, response and reporting plans to achieve compliance for the operation of the asphalt and concrete batching plant.

