Project Summary

FRIENDSHIP ASHPHALT AND CONCRETE PLANTS

A and S General Contractors Inc.
PLANTATION KLYZENAAR, DE HOOP, MAHAICA
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Contents

1.0 Company Background

A&S General Contractors Inc. a local registered company since 2006. The Company's registered office is Plantation Klynezaar, De Hoop, Mahaica. A&S General Contractors Inc. is a civil engineering contracting company with more than 20 years of experience in the construction of roads, drainage structures, revetment, sea defences, land development and installation of water distribution mains and transmission lines. Recently, the company has ventured out into a new housing schemes development which involves the development and sale of house lots. developed the land and sell house lots.

Over the years the company has been awarded contracts from the Government of Guyana through different ministries such as Ministry of Agriculture, Ministry of Public Infrastructure, Ministry of Housing and Communities and GUYSUCO.

At present the company has a number of different types of equipment, such as excavators, bulldozers, motor graders, motor rollers, pavers, motor lorries, asphalt plants, etc. to carry out works of different natures.

A&S General Contractors Inc. is fully staffed with competent and experienced personnel. The list of employees includes project managers, civil engineers, construction foremen, operators, surveyors, masons, carpenters, plumbers, electricians, welders, skilled, semi-skilled and labourers.

2.0 Project Site Location and Land Use

A&S General Contractors Inc. is in the process of establishing an asphalt plant and a concrete plant at Tract 'X' Plantation Friendship, East Bank Demerara for the manufacturing of asphaltic concrete and rigid concrete. The site is already developed and the plants are installed. The location of the site is shown in Figure 1. The specific location can be observed in Annex A and Annex C.

The project site consists of 2 acres and the land was previously used for industrial purposes as part of the DIDCO's operation. Prior to the acquisition, the site consisted of dilapidated structures and overgrown vegetation. These were all cleared and removed to facilitate the construction of the asphalt and concrete plants.

The surrounding area is mainly utilized for industrial activities, as is shown on the Land Use Map included as Annex B. West of the site is the Demerara River and on the east is the East Bank Demerara Public Road followed by vacant lands. To the north is another section of DIDCO's compound which is occupied by remnants of the operation such as dilapidated structures including buildings, storage silos and plants (see Annex D). To the south is another unutilized compound consisting of a large industrial building and overgrown vegetation (see Annex D).

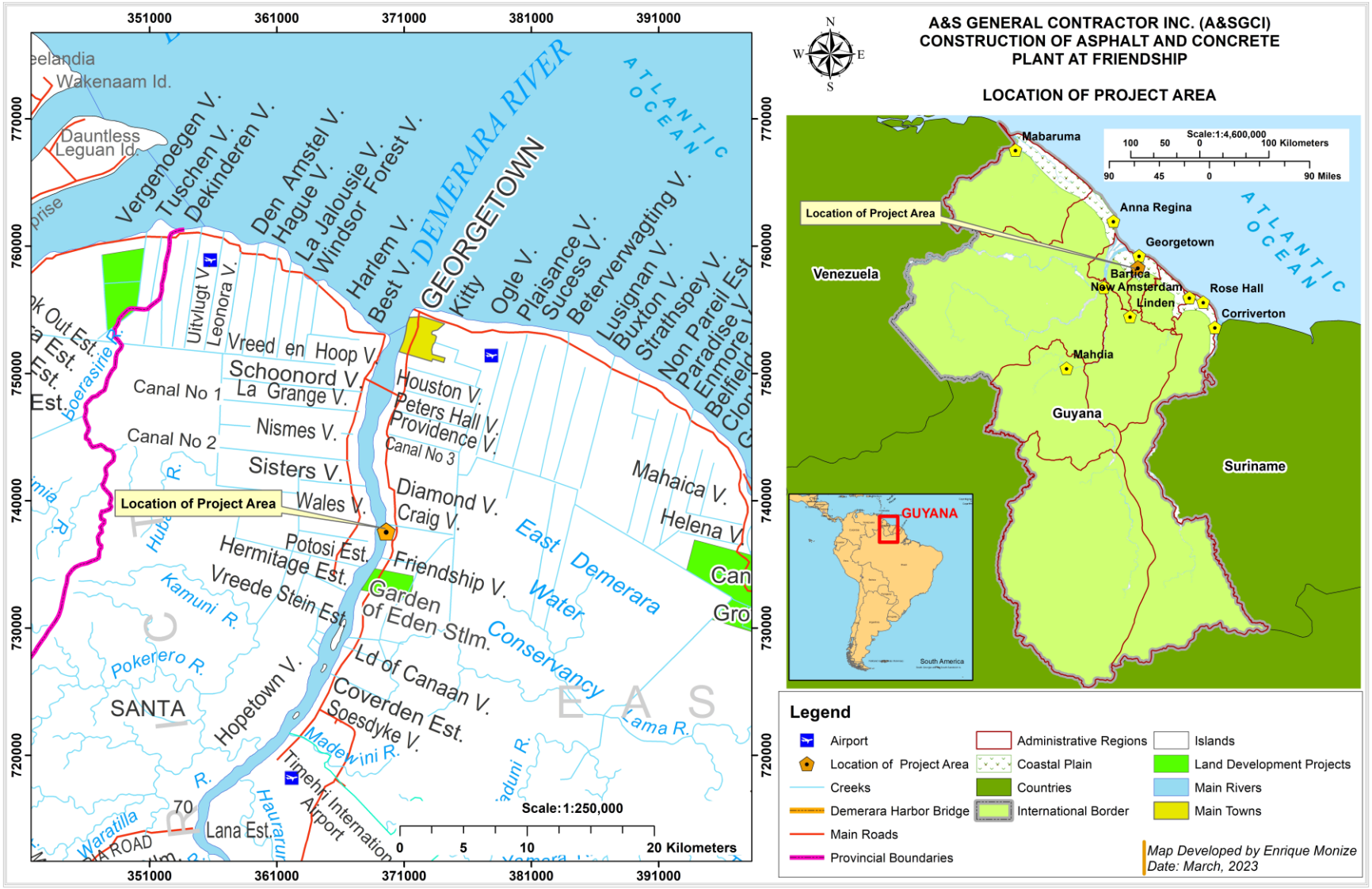


Figure 1: Location of the Friendship Asphalt and Concrete Plants

3.0 Project Description

A&S General Contractors Inc. is pursuing the installation and operation of the asphalt and concrete plants to support the booming construction sector in the country. There is currently a deficit in the supply of asphalt and concrete for construction projects. It is anticipated that this project will benefit from, and contribute to the national infrastructure development which is expected as a result increased revenue nationally from the oil and gas sector and spin off activities. The Government of Guyana has indicated that infrastructure gaps that currently exists will be met with major transformative investment in all regions. As such, it is expected that the demand for asphaltic materials will increase as a result of upgrade and expansion of the road infrastructure across the country. The Government has indicated that major road works will be done along the East Bank Demerara corridor, including the resurfacing of the Soesdyke - Linden Highway and the widening and resurfacing the East Bank Demerara Public Road. Alternative roads along the East Bank Demerara connecting to the Soesdyke - Linden Highway are also being examined. The asphalt and concrete plants are poised to support these projects. Other projects such as community roads will also be supported.

3.1Construction Phase

The construction phase of the project is ongoing and involves repurposing of the site to facilitate the installation of the plants. Activities include site grubbing, land filling and levelling, installation of a drainage system, construction of concrete pads, installation of the asphalt and concrete plants and installation of the auxiliary facilities such as generators, office, washroom, fuel storage, etc. Subsequently, the wharf existing from the previous operation will be rehabilitated to support the operation. The layout of the project site is shown on map included as Annex B. Twenty workers are involved in the construction of the project. The project is expected to have a lifespan of at least 25 years.

3.2 Asphalt Plant Operation

For asphalt product, bitumen, sand, stones and sifting will be used to produce asphaltic concrete. These materials will be received at the site and stored in their respective storage areas. When the wharf is completed these sand and stones will be received via the Demerara River. The plant to be installed is a brand-new state-of-the art VINAYAK Asphalt Plant (ABP 160 Series) capable of production rates of up to 160 tons per hour. VINAYAK is one of the leading Indian companies that provide innovative designs for construction equipment including asphalt plants. The Asphalt Plant has several features which allows the environmentally safe production of asphalt products that meet or exceed the industry standard specification. The Plant produces “hot-mix” asphalt through a process that heats the bitumen and aggregate raw materials to remove moisture and obtain adequate fluidity for proper amalgamation and spreading. The first step of asphalt production involves the transfer of bitumen from the storage containers into tanks in which it is heated. Aggregate raw materials (stone, sifting and sand) are then loaded into the cold feed unit. The quantities of raw materials used during a production cycle depends on the product specifications required by the Client. The heated bitumen and aggregate raw materials are then mixed and dried in the drying drum unit. The finished product is then loaded via a conveyor system into trucks. The operation of the plant is controlled by a based control system housed within a control room. The components and typical layout of the asphalt plant is shown in Annex E.

Approximately 3000 tonnes of asphalt is expected to be produced monthly but production will be dependent on orders received for the material. The asphalt plant capacity is 160 tonnes per hour.

3.3 Concrete Plant Operation

For the manufacturing of concrete, sand, stone, water, and cement will be used to produce the concrete. The aggregates and cement will be received at the site and stored in their respective storage areas. The plant to be installed is a brand-new state-of-the art Vinayak Concrete Plant (CCBP-30 series). The plant is designed for maximum efficiency and reliability for producing all types of high-quality concretes and is capable of producing 30m^3 of concrete per hour. The plant is fixed with a four-compartment chamber aggregate feeder, one 20,000 litre water tank, air compressor, manual loading cement hopper and automated control cabin. Aggregates are manually loaded into the compartment chamber with a front-end loader while the cement is manually loaded into the hopper. The control cabin computes the specified mix design and materials are loaded into the mixing chamber. The concrete is produced and collected in a cement truck for transport. At the end of each production cycle the plant is washed and the discharge in channeled to the settling pond for reuse. The components and typical layout of the concrete plant is shown in Annex E.

The concrete plant has a capacity of 30m^3 of concrete per hour. 500 cubic yards of rigid concrete is expected to be produced monthly. However, production will also be dependent on orders received.

3.4 Auxiliary and Support Services

Ten persons will be required to operate the asphalt and concrete plants.

Water for the facility will be provided by Guyana Water Inc. (GWI).

The facility will be powered by Guyana Power and Light Inc. (GPL). However, generators are installed to power the operation of the plant and to provide back-up power. The power generators (1 x 400 kVA, 1 x 82 kVA, and 1 x 35 kVA) will be used to power the operation.

Approximately 5,000 gallons of bitumen will be stored onsite to support the operation. In addition, 2,500 gallons of diesel will also be stored in above ground storage tanks.

Accommodation in the form of two bed rooms will be provided for supervisory staff. The accommodation will be located upstairs of the office building.

4.0 Potential Environmental Impacts and Management Measures

This section summarises the potential impacts of the project and the mitigation and management measures being implemented.

4.1 Construction Phase

Impacts

The main adverse impacts during the construction phase of the project relate to noise and dust generation, waste management, workers health and safety, and management of hazardous materials (fuel). There are no immediate receptors to be affected by noise and dust generation (see Land Use Map attached as Annex C).

Mitigation

The following measures are being implemented during the construction phase to mitigate possible impacts to the environment:

- The construction works are being done based on construction best practices to ensure these impacts are avoided or minimised.
- Noise levels are kept within the recommended construction limit of 90 dB during the day. There is no construction during the night. Workers operating noisy equipment are required to utilize hearing protection.
- Dust generation is mitigated by reducing the height of construction materials stockpiles and use of dust mask by construction workers. Wetting of the site is also done when necessary.
- Construction waste is sorted. Those that can be salvaged for reuse such as form boards are kept. The remaining waste is transported to the Haags Bosch Landfill for disposal.
- Toilet facilities are provided for construction workers.
- All workers are required to utilized Personal Protective Equipment relevant to their tasks, including dust masks, hearing protection, reflective vests, hard hats and safety boots. Workers are also trained in their respective tasks, and the associated health and safety requirements.

4.2 Waste Generation and Management

Impacts

Garbage will also be generated by routine activities and workers. The only process related solid waste to be generated from the operation will be surplus waste material (from production of asphalt) and material recovered by the dust collection system. There will be no process related effluent. However, upon completion of production the concrete plant will be washed, thus generating wash water. Sewage will be generated from toilet facilities. Minor amount of hazardous waste in the form of waste oil and oily filters and rags will be generated from the servicing of the generators and other machinery. Improper waste management can be unsightly and impact water quality.

Mitigation

The following measures will be implemented to manage waste during the operation:

- Garbage including office waste and waste from small packaging, such as paper, cardboard and plastic and food waste such as boxes, wrappers, tins and bottles and residual food will be collected in bins provided at strategic locations around the site. Garbage will be disposed of at the Haags Bosch Landfill by a contracted waste disposal company.
- Surplus asphalt material will be spread around the project site or donated to the Neighbourhood Democratic Council (NDC) for fixing of streets, etc.
- Material recovered from the dust collection system will be reused in the asphalt manufacturing process.
- The wash water from the concrete plant will be diverted to a settlement pond for settlement and the water will be reused in the process.
- For sewage waste a septic tank is installed to receive and treat waste from the toilets. The septic tank will discharge through a filter bed.
- Waste oil from servicing of generators and machinery will be collected in drip containers and then consolidated in 45-gallon drums. Used batteries will be sold to authorised dealers.

4.3 Air Quality

Impacts

Particulate matter and gaseous emissions will be generated from the operation of the asphalt plant. Dust generation can also result from the stockpiling of dry and loose materials to be used in the processes such as sand and shifting, and from the loading of these material into the receiving bins of both the asphalt and concrete plants. However, there are no immediate receptors to be affected by dust generation.

Mitigation

The following measures will be implemented to prevent impacts relating to dust generation:

- The asphalt plant is equipped with a dual stage pollution control system comprising of twin cyclonic separators and a secondary bag house filter which are designed to ensure all emissions conform to strict environmental requirements. This system allows for the capture any emissions from the process and reduces the emissions of particulate matter and gases released into the environment. The remaining exhaust stream is emitted via a stack situated well above the plant and any surrounding structures and will disperse rapidly in the open air.
- The plant, especially the dust collection system, will be adequately maintained to ensure optimal operating efficiency, thus reducing emissions.
- Material stockpiles will be covered when not in use to prevent dust generation and will be maintained at a minimal height.
- Care will be taken during the loading of materials to feed both the concrete and asphalt plants to prevent dust generation.
- Workers exposed to dust generation or odour will be provided with the recommenced Personal Protective Equipment such as dust masks or respirators.
- Surfaces to be traversed by trucks and other vehicles/machinery are either asphalted or concreted, thus preventing dust generation.
- Trucks transporting materials will be covered.
- Any complaint of a dust nuisance will be promptly addressed.

4.4 Noise

Impacts

The most significant sources of noise are associated with the operation of the plant including the diesel generators which will provide power to support the production process. Given that the plants will be only operational when orders for asphalt or concrete are received there is no major continuous source of noise. Further, there is no immediate/close-by receptors to be affected.

Mitigation

The following measures will be implemented to mitigate noise generation:

- The free- floating screen design of the plant prevents vibration to be transferred to any other part of the asphalt plant or surrounding environment.
- The generators to be utilized are equipped with built on enclosures and mufflers.
- Generators will be sited away from the office and accommodation areas.
- Any personnel working in noisy areas will be provided with and required to use hearing protection.
- Monitoring will be done to ensure noise levels are within the industrial limits of 100 dB during the day and 80 dB at nights.

4.5 Water Quality

Impacts

There is no anticipated impact to water quality from the operational process. However, spills of bitumen or fuel can result in surface water contamination. Untreated discharge from toilets can also impact surface water quality. Runoff from material storage areas can also result in sedimentation.

Mitigation

The following measures will be implemented to prevent any impacts to water quality:

- Fuel kept onsite will be stored in tanks situated within an impervious and bunded area which will capture and contain any spilled or leaked materials. A shed will also be installed to keep out rainfall.
- Bitumen storage tanks will be place on an impervious area.
- All runoff, including those from the materials stockpile areas, will be collected by the installed drains. Drains will be equipped with sediment traps to capture any sediments contained in the runoff.
- Liquid waste from the toilets will be channel to a septic tank which will be equipped with a filter bed. Septic tanks will be well maintained to ensure optimum functionality.
- Wash water from the concrete plant will be collected and channeled to a sediment pond for settlement prior to being reused in the process.
- Sediment traps will be installed in the internal drainage system to capture any sediments from runoff.

4.6 Soil

Impacts

No impact to soil is envisaged from the construction since the site is already disturbed and used for industrial purposes in the past. During the operation phase soil contamination can occur.

Mitigation

The following measures will be implemented to mitigate any potential impacts to the soil at the project site:

- The project site will be compacted and capped in most areas with concrete.
- Adequate drainage will be installed to drain the site.
- The river bank will be stabilized as part of the wharf rehabilitation, which prevent any form of erosion.
- Measures outlined above to prevent water contamination will also contribute to the prevention of soil contamination.

4.7 Occupational Health and Safety

Impacts

Due to the nature of the operations, there are possibilities for negative health and safety impacts from accidents from the use of heavy equipment, fires and burns.

Mitigation

Given the workplace risk, the following measures will be implemented to ensure that employees have a safe, healthy and secure workplace:

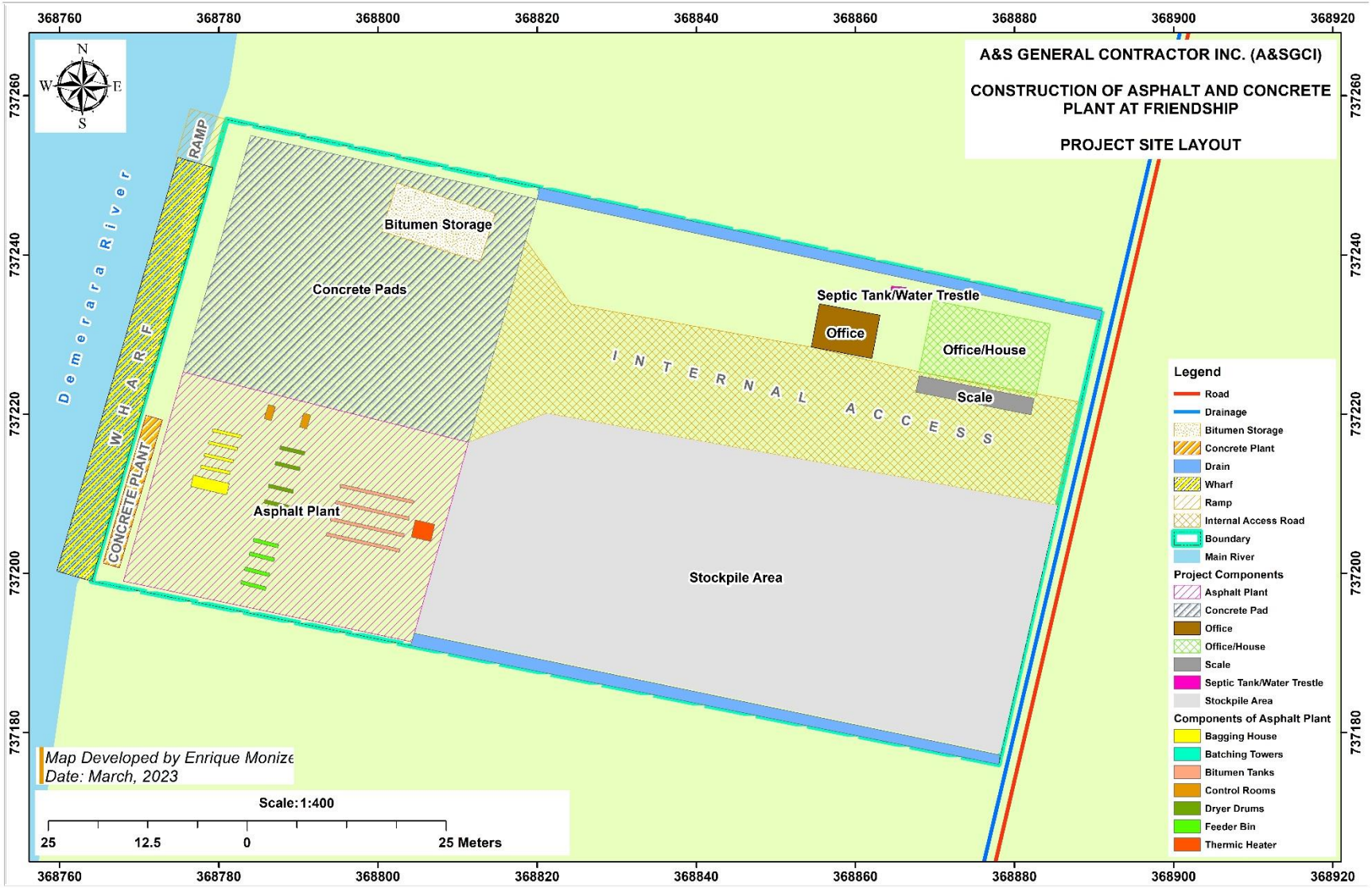
- Employees will be orientated to environment, safety and health practices.
- Providing employees with all Personal Protective Equipment relevant to their job.
- A First Aid Kit will be provided on-site with the requisite drugs, materials and equipment to cater to emergencies.
- Hazardous materials (diesel and bitumen) will be appropriately and safely handled and stored.
- 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.
- Driving routes would be established within the premises.
- Access of vehicles, personnel and visitors will be restricted from operational areas.
- The diesel storage tank will be labelled to identify its contents and other safety signage is installed including “Highly Flammable” and “No Smoking”.
- Warning Signs and Notices will be installed at the entrance to the site.
- Material Safety Data Sheets will be kept onsite for use, if necessary.
- A “Muster Point” will be designated where employees should assemble in the event of a fire or any other emergency.
- Training for selected employees will be provided on the proper use of fire extinguishers and on administering basic first aid.

5.0 Conclusion

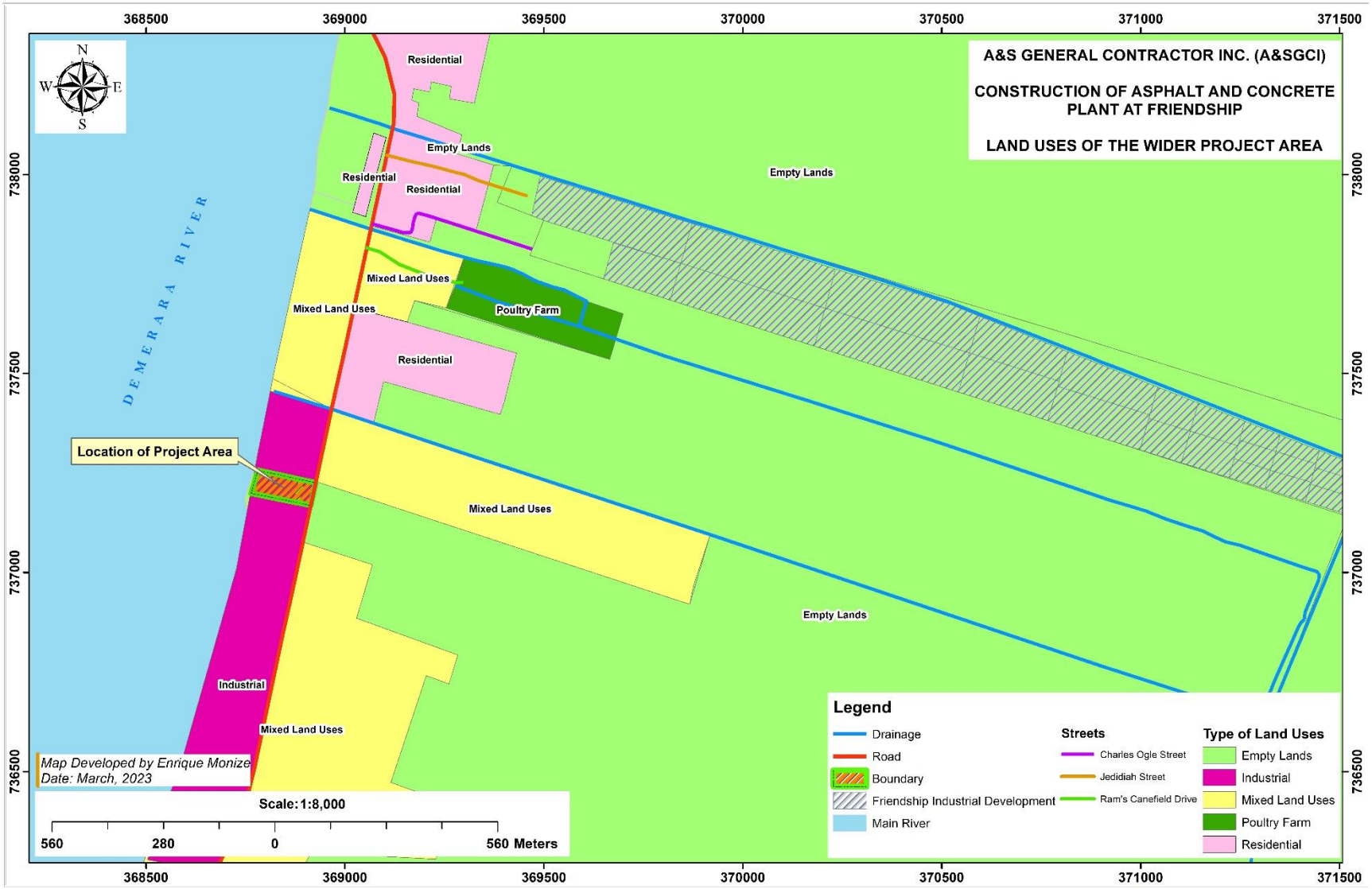
Both the asphalt plant and the concrete plant to be installed are modern plants utilizing current technology and has built in the necessary measures to prevent or reduce pollution and to ensure and a safe working environment. Additional measures were included at the facility to ensure environmental compliance. During operation the facility and operation will be monitored to ensure effectiveness of the mitigation and management measures. Training of personnel will be done to ensure they are aware of their roles and responsibilities. The relevant emergency preparedness and response system will be implemented, including the provision of emergency response equipment and training of personnel in response measures.

Annex A- Specific Layout of the Operation

Annex B- Layout of the Operation



Annex C - Land Use surrounding the Project Site

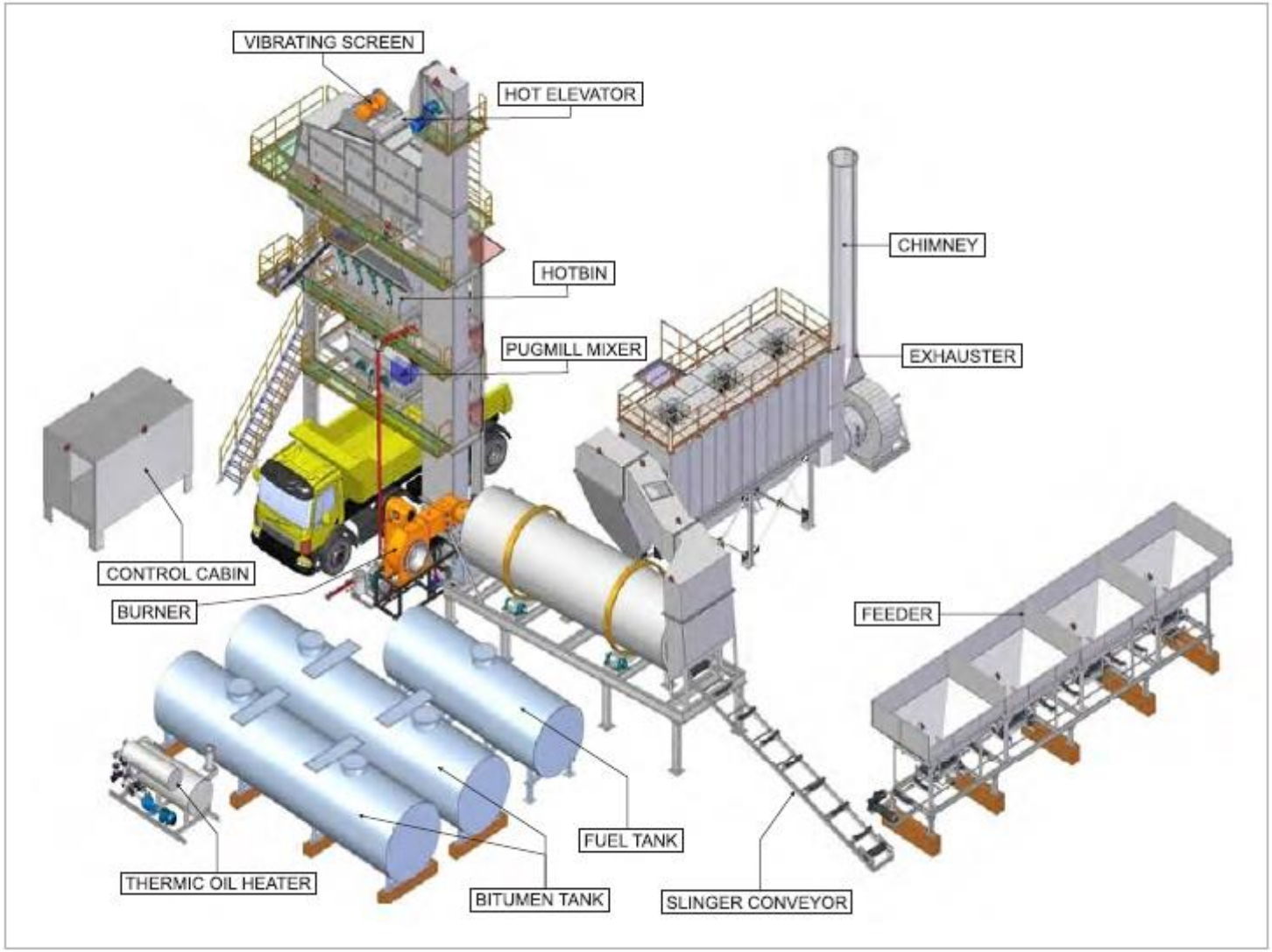


Annex D – Images of Land Use North and South of the Site

Land Use to the North of the Site

Land Use to the South of the Site. Note the Public Road is to the East

Annex E - Components of a Typical Asphalt Plant



Annex F- Components of a Typical Concrete Batching Plant