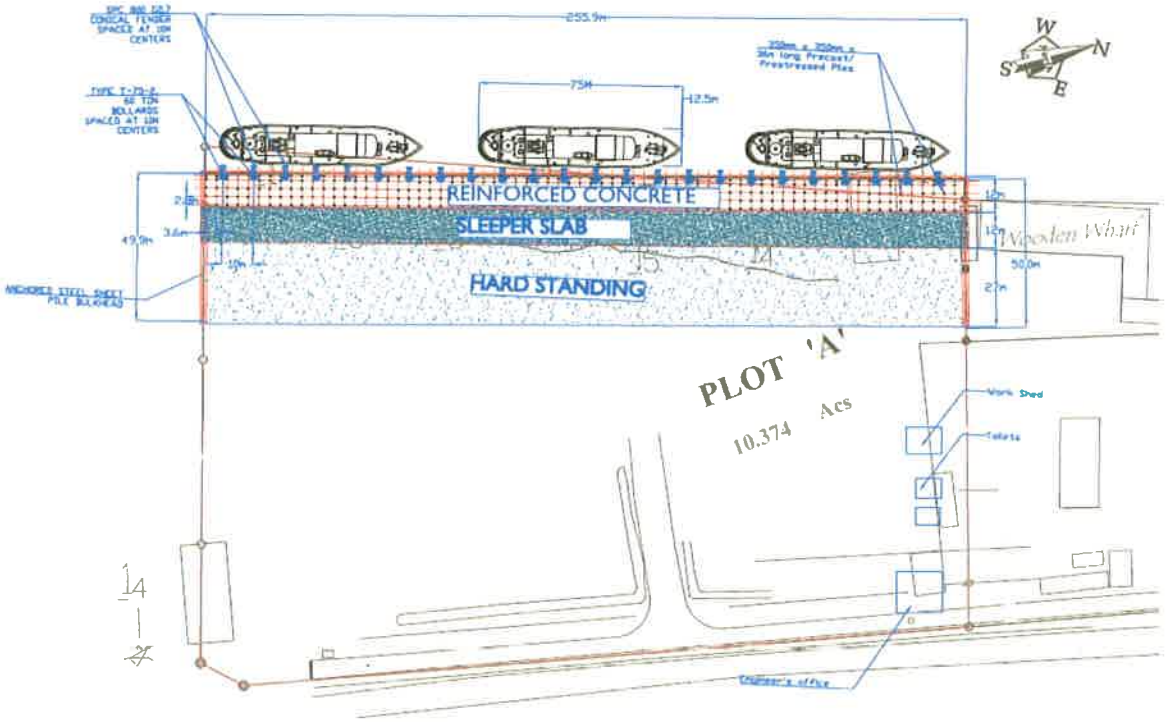
PROJECT SUMMARY
FOR THE CONSTRUCTION OF A
WHARF FACILITY



Project Type:	Construction of Wharf Facility
Project's Address:	Plot A, Block X, Plantation Eccles East Bank Demerara
Name of Developer:	Mr. Timur Mohamed
Developer's Address:	380 Port St Charles, St Peters, Barbados
Tel:	619-9577
email:	

PROJECT SUMMARY

1.0 Introduction

TKK Properties Inc. was incorporated under the Companies Act of Guyana on the May 9th, 2017, baring Company number 8804 (see appendix 1 for a copy of the Certificate of Incorporation). During this period, the Company has been actively involved in negotiations with several foreign companies for the provision of shore base and logistics services for operators in Guyana's newly developing Petroleum Industry. As a result of these negotiations and the willingness to be involved in the development of Guyana's Petroleum Industry, the management of TKK Properties Inc. has decided to invest in a wharf facility, which is critical for the provision of shore base services. In this regard, Mr. Timur Mohamed, (see appendix 2 for a copy of Passport), director of TKK Properties Inc., is preparing to construct a wharf facility along the water front boundary his 9.155 acres Eccles property, east of the Demerara River. A copy of the survey plan can be observed in appendix 3. The wharf will sit directly in the Demerara River, 11 meters from the high water mark along the western boundary of the property. The wharf will be 30 meters wide by 256 meters long, a total area of 8377.547m^2.

All clearances have since been given for the development, however it was advised that the developer also seeks approval from the Environmental Protection Agency (EPA), with regards to the necessary Environmental Authorisations/Permits, prior to the commencement of construction activities. The following therefore provides a synopsis of the proposed project for consideration. Attached also is an application for Environmental Authorisation.

1.1 Location of Project

The project will be located along the water front boundary of a 9.155 acres property owned by the company TKK Properties Inc. (see appendix 4 for a copy of the Transport). The actual location of the property is given as Plot A, Block X, Plantation Eccles East Bank Demerara. A location map depicting the project site can be found in Appendix 5.

1.2 Description of the General Project Site and Land Uses

As noted above, the project will be located on private lands which is currently under secondary vegetation. To the west of the property lies the Demerara River, while to the immediate north is the Nobel House Seafood Limited, followed by Massy Gas Products Limited further north. To the immediate east of the property, lies a cemetery, which is followed by a mixture of residential and large and small businesses which would also describe the land uses to the south of the project area. A land use map is provided in appendix 6.

2.0 Project Description

The project entails the construction of a wharf directly in the Demerara River, along the property described above. The wharf will be constructed 11 meters from the high water marks along the western boundary of the property and will be 30 meters wide by 256 meters long, covering a total area of 8377.547m^2. The structure will consist of prestressed/precast concrete members and will be built at a finished elevation of 18.7m Georgetown Datum (GD), which will mitigate water overtopping of the structure.

River defence works will include the construction of a steel sheet pile bulkhead, with an anchor wall system and rock armour scour protection. Revetments will be constructed to a design level of 18.4 m GD, approximately 1m above the high water level, to provide long term protection against inundation.

Prior to and during the construction phase, several small buildings and work sheds will be constructed for temporary office, workers sheds, toilets, etc. These will all be temporary and will be located at the northeastern corner of the property.

All toilet facilities will be equipped with portable septic systems, which will be emptied by a private company, once filled, and will be located well away from any major water source, as well as neighboring facilities.

Once completed, the wharf is expected to accommodate a total of three vessels of size 75 m. A detailed proposed layout of the facility can be seen in appendix 7.

2.1 Raw Materials

Raw materials will mainly include sand, concrete, stone, timber and concrete piles, prestressed concrete slabs, steel, etc.

2.2 Buildings

No permanent buildings will be constructed at the location during this time, however, there will be temporary work sheds and mobile offices established throughout the construction phase.

2.3 Water Supply

Water will be supplied mainly by the Guyana Water Inc. (GWI), but will be supplemented by the Noble House Seafoods well which is located next-door to the construction site.

2.4 Energy

The main source of power will come directly from the national grid, through the Guyana Power and Light Inc. (GPL). This will be supplemented during periods of power outages by a 10,000 running watts portable generator.

2.5 Project's Capital Investment

The capital investment for the project is expected to reach in excess of USD 25,000,000. Funds for the project will come directly from the Company's accounts and loans form commercial banks. Annual turnovers cannot be stated currently as the Company is yet to strike deals with interested investors/partners. The investment cost breakdown/estimate can be observed in the table1.

Table 1: Investment Cost Breakdown/Estimate

Investment Cost Breakdown (Estimate)		
Item	**Description**	**Cost (USD)**
	PILING	
1.1	Steel Sheet Pile Revetmentt	$4,105,000
1.2	Concrete Piles	$1,620,000
	FENDER SYSTEM AND BOLLARDS	
1.3	Fender System and Installation	$350,000
	SAND AND STONE COMPACTION	
1.4	Crusher run, sand and stone fill materials	$4,100,000
	FABRICS	
1.5	Geocell and geofabric installation	$1,865,000
	WASTE DISPOSAL	
1.6	Waste disposal	$656,000
	DREDGING	
1.7	Dredging	$1,750,000
1.8	**PERIMETER FENCE**	$350,000
1.9	**LAND DEVELOPMENT, ACCESS ROADS AND DRAINAGE**	$2,000,000
1.10	**OFFICES AND BUILDINGS**	$4,700,000
	FEES	
1.11	Insurances and Engineering Support	$400,000
	Sub-total	**$21,896,000**
	Add VAT (14%)	**$3,065,440**
	TOTAL Inc. VAT	**$24,961,440**

2.6 Possible Employment

The project is expected to provide direct employment to a minimum of about fifty (50) persons during the land preparation and construction phases. A larger number of persons is expected to be employed once the project commences operation phase, however this figure is not yet available.

3.0 Possible Environmental Impacts and Mitigation Measures

The table below provides a synopsis of impacts and mitigation measures that can be implemented to minimize negative impacts and also enhancement measures for those impacts which are positive.

3.1 Possible Impacts and Mitigation Measures

Impacts	Mitigation Measures
Increase noise levels	• Avoid night activities. • Ensure noisy equipment have adequate muffler device installed. • Noisy equipment, such as generator, will be enclosed using sound proofing materials, if necessary. • Protective equipment such as ear muffs or plugs will be provided to employees exposed to high noise levels.
Increase in particulate matter and Greenhouse Gas Emissions	• Sand stockpiles for construction will be soaked regularly during dry and windy condisions. • All workers will be provided with dust masks as part of their personal protective equipment (PPE). • Reduce load on generator by using energy efficient fixtures and equipment.
Increase pressure on solid waste system	• Removable septic systems will be for all temporary toilets. • Arrangements will be put in place for regular empting of all septic systems by a private company. • Adequate receptacles will be put in place at strategic areas. • All construction waste and garbage will be collected by a private company for disposal at the Eccles Dumpsite.
Improved aesthetics and infrastructure	• Regular maintenance
Increased employment	• Provide both direct and indirect means of employment. • Regular training. • Nationwide advertisement of employment opportunities through popular mediums. • Work with the University of Guyana to create internship programs.
Increased opportunities for local businesses/suppliers	• Create linkages with service providers e.g. transportation. • Create direct linkages with local construction groups. • Create direct linkages with other such businesses for sharing of technologies.

3.2 Air Quality

- ❖ During Construction phase:
  - Dust emanating from grading of land for infrastructural works, mixing of concrete, sawing of timber and transporting or materials to site.
  - Smoke, soot (particulate matter), CO, CO_2, NO, SO_2 and volatile organic compounds present in the exhaust fumes coming from heavy-duty construction equipment used at the site will affect the quality of the air in the immediate surroundings. This can present potential risks for persons, particularly those with breathing challenges.
  - If combustible construction wastes (cement bags, wood chips, form boards, etc.) are burnt on-site this can also release smoke which will present the same risks caused by bullet 2.
  - On-site generator which will be used in event of blackouts, may release smoke, presenting same risks and impacts as discussed above.

❖ ***Mitigation***

There is the possibility for dust pollution to occur as a result of construction activities. Dust pollution can be a significant health impact, particularly to employees since these impacts will be mostly localised. As such, there is the need to implement measures to prevent and minimize dust levels within the project area. Thus, the following measures will be implemented to reduce the impacts of dust:

- There is a variety of Personal Protective Equipment (PPE) available to combat dust nuisance. Workers will be equipped with the necessary PPE based on the type of work environment they are operating within. Personnel working within dusty environments will be required to use dust masks or respirators;
- During dry periods it will be necessary to soak the construction zone and routes where vehicles and equipment traverse in order to reduce dust pollution;
- Dry materials for land preparation will not be stockpiled for long periods, and will also be covered to prevent particles from becoming airborne;
- All vehicle loads transporting loose materials will be covered to minimize dust emissions; and
- Burning of waste onsite will be disallowed. This would reduce the amount of emissions into the atmosphere from burning;

4.3 Noise

- Heavy duty machinery and equipment will be utilized during the construction phase of the project, this can result in an increase in noise levels. Also, some construction activities are generally noisy. Although the project will result in increased levels of noise, the impacts will be localised and will not pose harm to any nearby community, since there is none within close proximity to the actual project site. It is also important to note that the project sits within an area that is quickly developing into shore base industrial activities and as such, will carry a higher noise level threshold to that of a residential community. Nevertheless, measures will be implemented to reduce noise levels to that recommended by the GNBS Guidelines for Noise Emission into the Environment specific to construction and industrial sites.

❖ ***Mitigation***

As discussed above, the impact of noise from construction activities is not expected to be significant since there is minimal residence within close proximity, particularly downwind of the project. The need still exists to implement measures to prevent and minimize noise, especially as it relates to impacts to workers and other operations within the immediate surroundings. Compliance with the GNBS limits is therefore necessary to ensure the impacts on the environment and human health, particularly for workers, are reduced. The following measures will be implemented to reduce the impacts of noise:

- The provision and monitoring of use of Personal Protective Equipment (PPE) is critical. Workers will be equipped with the necessary PPE to mitigate noise pollution. Hearing protection for employees exposed to high noise levels: ear muffs and earplugs for employees who operate heavy-duty machines/equipment will be provided;
- Control of noise levels at source will be done through installation of mufflers and silencers on exhaust system, particularly for generators;
- Noisy activities will not be conducted during the night or on Sundays and Holidays;
- Noisy equipment such as generators will be sited away from work sites and also be enclosed if needs be. This would reduce the amount of noise escaping into the environment and the impacts to workers;
- Warning signs will be erected in areas of high noise levels instructing employees to wear earmuffs or earplugs as required;
- Machinery and equipment will be serviced regularly with the necessary silencer installed wherever possible.

4.4 Soil

Impacts to soil will be unavoidable but would not cause any impact to the environment, but would rather enhance the area by the prevention of erosion. No mitigation measures will therefore be required.

4.5 Water Resources

- Discharge of waste-water from operations into the external drainage systems can pose risks to the environment.
- Dissolved nutrients in waste-water may cause eutrophication in these water bodies, which can lead to a proliferation of weeds, algal bloom and ultimately depletion of dissolved oxygen in the water and impeded drainage capacity.
- There will be less interception and percolation of rainfall water as a result of the structure and other concrete and bituminous surfaces and therefore increased surface run-off. This will lead to more surface water entering the drainage canals at a higher rate, requiring more rapid discharge capacity.
- The operational phase is likely to produce high levels of oil and grease which, if enters into the main drainage system can cause some amount of degradation.

❖ ***Mitigation***

All waste-water will be collected via internal concrete drains. Oil and grease traps will be installed at each outlet point. Where necessary, soakaway systems will be built to drain both black and gray waters. Other measures to reduce the associated impacts on the water resources will include the following:

- No dumping of solid waste into drainage system. All waste will be managed in an acceptable manner.
- Ensuring that fuel is managed and stored in a recommended manner;
- Ensuring that waste oil, hydraulic fluid and other oil base substances are collected using drip trays and other spill prevention mechanisms so as to prevent spills which can lead to water contamination.
- Ensuring that all oil and grease base substances are stored in sealed containers of which are then kept in an enclosed environment with an impermeable base.

4.6 Fuel, Lubricants and Chemicals Management

Improper handling and management of fuel and lubricants can result in soil and water contamination. Fuel and lubricants are classified as hazardous materials and require special consideration in terms of transportation, storage and handling. In addition to contamination, the improper use, storage and handling of these substances can pose various threats to the workers on site as well as surrounding communities.

Due to the nature of the project, minimal amounts of fuel would be required per day, as such, these will be brought to site on a daily basis as needed. The project is not expected to require the use of lubricants and chemicals. Lubricants which are required for heavy duty machine and equipment will be provided during servicing. Nevertheless, if these are to be stored on site, for any reason, it is important for them to be stored properly, as they can ignite and release

dangerous fumes. All fuel, lubricants and chemicals (if used) will be clearly labelled and easily identified to reduce the chances of misuse. In addition, all workers handling these substances will be required to wear the necessary PPE to prevent any unwanted contact with these hazardous substances.

❖ ***Mitigation***

Fuel, lubricants and chemicals can have serious impacts on the surrounding environment if special consideration is not given to the transportation, handling and storage of these substances. To reduce the risks on the environment and human health, preventative actions will be taken and/or mitigation measures implemented. The contractor and subcontractors will therefore be required to implement the following measures to prevent and or reduce the impacts of these hazardous substances on the environment, in particular, contamination soil and water from accidents and/or spills:

- Efforts will be made to transport fuel to the work area as needed. This would minimize the need to store large quantities of fuel onsite. Small quantities of fuel onsite will minimize the possibility of spillage and also minimize the impacts if spillage do occur;
- If required, the storage of fuel, lubricants and chemicals onsite will be done at a safe distance from drains, offices and work zone and will be placed higher than ground level to detect any leaks. Storage will be also be done within a bunded area with an impervious surface and a secondary containment with the capacity of 110% of the largest storage container. Such measure is important as the containment berm would prevent any spill from getting into the surrounding environment and the elevated storage would allow for easy and early detection of leaks on the storage container;
- Preventative measures such as adequate signage, fire extinguishers and/or sand buckets will be placed in and around the fuel storage area. The type of fuel stored in containers will be indicated and signage will include 'No Smoking' and Highly Flammable'. This would warn persons of the dangers of the substances as well as how they should handle these substances;

4.7 Waste Management

This project will generate a fair amount of construction waste. If such wastes are not managed properly, they can end up into the Demerara River. In addition, waste such as tyres can become breeding grounds for mosquitoes, consequently impacting the health of workers and residents if not disposed properly. The disposal of hazardous substances such as waste oil, hydraulic fluid etc. is also important as these can contaminate the work site and also affect workers health and safety.

❖ ***Mitigation***

As mentioned above, proper waste handling and disposal is important during the project's construction phase. Several waste streams will exist, including domestic garbage which usually consists of a mix of bottles, bags, cans, boxes, plant residues, excess food and packaging material and paper. In addition, liquid waste will also be generated including sewage waste and waste water from sanitary facilities. Finally, hazardous waste may also be present in the project area; these include used batteries, tyres, waste oil, filters, oil containers and contaminated soils.
Outlined below are various techniques that will be implemented to properly dispose waste associated with the project. These measures will be considered in the preparation of a Waste Management Plan which will be developed for the general construction of the facility:

- Liquid Waste
  - As noted, all liquid waste will be collected via PVC pipes and channelled to a series of soakaways so as to prevent direct discharge into the external drainage system or most importantly, the Demerara River.

- Solid Waste
  - All solid waste generate onsite will be disposed of at the Eccles approved landfill site by a waste disposal company.
  - The Company will ensure that the work area is kept tidy at all times, preventing waste from accumulating and polluting the surroundings;
  - Excavated materials will be properly stored and covered where possible.

- Hazardous Waste
  - Waste oil generated from the equipment repairs or servicing will be collected and stored in sealed containers or drums in a designated area and disposed of in a safe and acceptable manner. In some cases, waste oil and other greasy substances would be given to chainsaw operators and farmers to be used on agriculture equipment.

  - Used tyres that are not needed, will be removed from the worksite and disposed of appropriately.

5.0 General Health and Safety Concerns

Like any other undertakings, the project is likely to have several health and safety concerns both during construction and during operation. Related activities can impact on the health and safety of workers and the general public. The operations will involve the use of several pieces of heavy duty equipment. Given this type of operation, health and safety is always a major concern. Workers would be exposed to situations which can result in serious accidents, some of which can be fatal. Risks can involve accidents from the use of heavy duty equipment, exposure to noisy equipment or general improper use of equipment, etc.

5.1 Health and Safety Measures

The following measures will be implemented as best as possible so as to ensure that the health and safety of workers and other personnel or land users are not compromised:

- The Company will comply with industrial and international best practices standards so as to ensure that health and safety issues are prevented.
- An Occupational Health and Safety Officer will be employed to oversee health and safety matters through the construction phase.
- Adequate safety gear and PPE relevant to the job will be provided to all workers.
- Required warning signs will be installed at the facility.
- Workers will be trained regarding their work, especially those working in hazardous conditions.
- Emergency response equipment/measures to respond to emergencies including fire, accidents, spills, etc., will be provided.
- An emergency boat will be provided on site at all times, in case persons accidentally fall into the river while working on the wharf.

6.0 Environmental Compliance

The developer intends to comply with all regulations and guidelines prescribed by the EPA as well as, those prescribed by other governmental entities, in all efforts to ensure that good environmental and industrial practices are maintained throughout the various phases of this operation.