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## CHAPTER 3

### 3.0 DETAILS OF SERVICES

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#### *3.1 Introduction*

This section of the EIA process describes the services that will be required for the day-to-day operation of the vessel used for the proposed project. These services will be comprised of some essential components for the sustainability of life, namely potable water, food and energy among others in order to make the vessel run smoothly. With this in mind, the following sections summarize the different support that will be required for the project to operate efficiently and effectively.

#### *3.2 Water Resources*

This is one of the services that are essential for the crew of the vessel and at the site on mainland. The provision of potable water to the vessel and work site is an essential component within the overall scheme of the anticipated project and is therefore useful.

During the activities of Stage 1, the water resource will be basically for personal consumption, and that could be sourced from nearby areas, and in the form of bottled water.

In the case of Stage 2, the vessel itself has a holding tank that will be filled with potable water for consumption on the vessel. If by some means the amount of water is not sufficient, water from either San Pedro or Belize City can be ferried to the vessel to replenish the water used from the holding tanks.

Additionally, due to the time frame of the entire project, the quantity of water to be utilized for the project will be minimal, and will have no dire effect on the amount, quality or supply of water in the areas near or abutting the project corridor.

#### **3.2.1 Wastewater Plan for Marine Vessels**

The wastewater generated by the marine vessels involved in the project will consist of wastewater from the boat's holding tank and any bilge water produced by the boat during its travel. It is unlawful for any vessel to discharge sewage or bilge water into the sea as per the MARPOL 73/78 Convention signed between Belize and the International Maritime Organization (IMO). For this purpose the contractor will ensure that the proper and necessary facilities required for the proper disposal and treatment of the vessels bilge and wastewater.

### **3.3 Solid Waste Management**

The term 'solid waste' refers to all the garbage, rubbish and waste materials that are generated in the waste stream as a result of a project's operation. Just as with wastewater management, the proposed project will generate minor solid waste as a result of this process. Several components will be responsible for its generation mainly human activity in the operation phase and the need to satisfy that activity.

#### **3.3.1 Waste Types**

As previously mentioned, the waste stream is comprised of various classifiable wastes that can be separated and thus treated respectively. Therefore, it is important to devise a suitable classification system to sort and categorize the solid waste accordingly. In sorting solid waste the development intends to create a differential system, assigning each class of solid waste to a different treatment category. Due to the nature of the proposed project, the development classified the solid waste into the following two broad categories which include:

1. Construction and Field Waste
2. Domestic Waste

##### **3.4.1.1 Construction and Field Waste**

Two types of waste will be generated during the construction phase. These include the field waste that will be generated as a result of any land clearing process and the installation waste which will be produced during the different stages. The volume of waste associated with this category will be large, especially considering the development concept of the project site. The following sections summarize the field and construction waste that can be produced during the proposed undertaking.

###### *i. Field Waste*

This type of waste will be produced as a result of the land clearing process which will constitute of the under-brushing of the corridor for the overhead FOC from Maskall to Coast off Bomba. Much of this will depend on the stage that the developer intends to carry out.

###### *ii. Construction Waste*

This type of waste will generally be produced during the construction stage of the proposed project. The time frame for this activity is slated to be completed within a 15 week period if everything goes as planned. Waste can at times vary but generally include ferrous products, concrete chippings, cement bags, moldings, casing materials, wires piping materials among others. Beside the usual scraps and discards common to construction sites generally, the development must also get rid of wrappings and packing, which will be considerable, given the amount of FOC imported.

### **3.4.2 Domestic Waste Disposal**

This category is the largest waste category of the general solid waste stream. However, the term “domestic” refers more to origin than to a specific waste category.

The amount of this type of waste produced is anticipated to be the minimal of all due to the scope and magnitude of the proposed project. In considering this, the domestic waste generated must be stored in separate containers depending on whether they are organic, inorganic or toxic and properly labeled so that all conscientious individuals feel comfortable and encouraged in using them.

#### *Primary Disposal Option*

Since minimal solid waste produced during the installation stages of the proposed project will be in this category, finding an environmentally viable disposal option is however still important especially considering the vulnerability of the project site. Therefore, in considering this situation and the magnitude and scope of the operation, the project identified that it would be environmentally and ecologically beneficial to separate the generated domestic waste into organic and inorganic waste so that all conscientious individuals feel comfortable and encouraged in managing the waste in this manner.

In considering the inorganic waste, the project will develop a ferry time table to cart the waste to the nearest dumpsite either daily or depending on the quantity of waste that is produced per day. The frequency of the disposal mechanism will be dependent on the amount of garbage generated on a daily basis.

### **3.4.3 Typical Management Plan**

The proposed project will implement a simple solid waste management plan for the proper collection, storage and final disposal of the waste stream. As described previously, the solid waste generated by the installation activities will all be categorized and disposed of accordingly.

It must be stated again, that due to the nature of the project, the amount of waste that will be produced is minimal; however we still mentioned it in the EIA so as to ensure the relevant parties that we do intend to deal with this matter with great care and urgency.

#### *Solid Waste Collection*

The collection of the solid waste will be divided into two sections, organic and inorganic. Therefore, each waste receptacle area will have two clearly mark distinct bins for the appropriate collection of the waste. The bins will be placed at strategic locations throughout the vessels and on shore.

It is anticipated that either the developer or the contractor will commission a private person to collect and dispose of the waste generated by the proposed project. This endeavor however, will be finalized before the operation begins.

### **3.5 Energy Requirement**

For the purpose of the project, noting the fact that the majority of the operation will take place from a vessel, the energy required for the operation of the necessary equipment will be via the vessels generators that run off the engine block.

During the installation stage, the energy demand for the project will be based on the duration of this phase. It is therefore difficult to calculate the total demand. This temporary demand is necessary to power the equipment such as band saws, drills, chargers, cutters, welding equipment, jetter etc. All of the energy demand will be obtained from the vessels generator that will meet and exceed the projected energy requirement.

As previously stated, the anticipated project will require an unknown demand of energy a day. In order for the demand to be met, several factors need to be incorporated such as amount of fuel required for the amount of equipment required to be running.

In considering these factors and today's technological advances in energy generation, the contractor must consider having on board a generator capable enough to generate the required amount of energy required for the operation of all equipment at the same time. With this in mind, the following section summarizes the energy source that will be utilized.

The proposed development will require fuel for its operational purposes, especially for the powering of the vessels and generators and other miscellaneous uses. The fuel sources required by the operation of the project are readily available from the commercial sector. The fuel demand will be according to the different demands and most importantly the operational hours of the generators. The following sections summarize the different fuel demands along with alternative fuels.

The project will require cooking fuel such as butane and propane for the vessels galley. These fuels will be primarily used for cooking and heating and will be stored using the recommended guidelines as stipulated by DOE. The transportation of butane and propane to the project site will be the responsibility of the contractor, who will follow the recommended guidelines for the transportation of Hazardous Materials. The supplier will also be responsible for the replacement of any faulty or corroded container. It is anticipated that the cylinders will range from 22 lbs to 500 lbs.

The project also will require fuel for the powering of the vessels and generators along with other miscellaneous uses. The primary fuel that will be stored is diesel fuel followed by gasoline fuel and these will be transported to the site by a fuelling barge. The generators will be located on the main vessel (barge) as will all other equipment except the plough which will be towed behind.

For this reason the diesel fuel barge will then take the fuel to the main vessel and discharge the fuel into the respective holding tanks. The handling of fuel will follow the standard protocol for the loading and unloading of fuel on land and near a water body. It is important to note that no fuel for the project will be transported in any protected area.

The fuel supply will be managed by the contractor with the assistance of a designated fuel supplier. The transportation of fuel will be the responsibility of the supplier and contractor, who will follow recommended guidelines for the transportation of Hazardous Materials. The accidental spill of fuel will be avoided as much as possible. An Oil Spill and Fire Contingency Plan will be developed to address all issues pertaining to spills, leaks and fires both on the project site and at sea. The plan will contain mitigation measures (booms, kits); clean up processes as well as the required training for safety and health.