

## **5.0 PROJECT DESCRIPTION**

### **5.1 Location**

The project is located at Kawasan Bandar XLVI, District of Melaka Tengah, Melaka. The nearest landmark is Sekolah Henry Gurney, located at the northwest of the site. **Figure 1.1** shows the location of the project site. Yayasan Melaka intends to reclaim 400 acres (161.87 hectares) of the sea at the proposed location. The overall layout is as shown in **Figure 1.2** and is also available in the Appendix section.

The proposed site is accessible from all parts of the State through the existing road network (see **Figure 5.1**). The main access to the project site is via Federal Road Route 5 which connects Melaka City Centre and Muar (Jalan Melaka – Muar). The approximate road distances separating the site from the existing landmarks are;

- 12.0km southeast of Melaka City;
- 20.0km south of Ayer Keroh Toll Plaza;
- 41.0km northwest of Muar town; and
- Immediately to the southeast of Sekolah Henry Gurney.

Based on the *Rancangan Tempatan Daerah Melaka Tengah 2015*, the project site is located in *Blok Perancangan 5 (Tambak Laut)* in the Melaka Tengah District as shown in **Figure 1.3**. As explained in **Chapter 4**, the project site is not located within an area gazetted as Environmental Sensitive Area (ESA). Nevertheless, mangroves are present at the existing coastline at the site.

### **5.2 Project Scope**

The works that will be involved in realising the proposed project includes the following:-



- i. Pre-survey works and site preparation;
- ii. Land acquisition for access;
- iii. Environmental mitigation works;
- iv. Revetment works;
- v. Reclamation works; and
- vi. Post survey works.

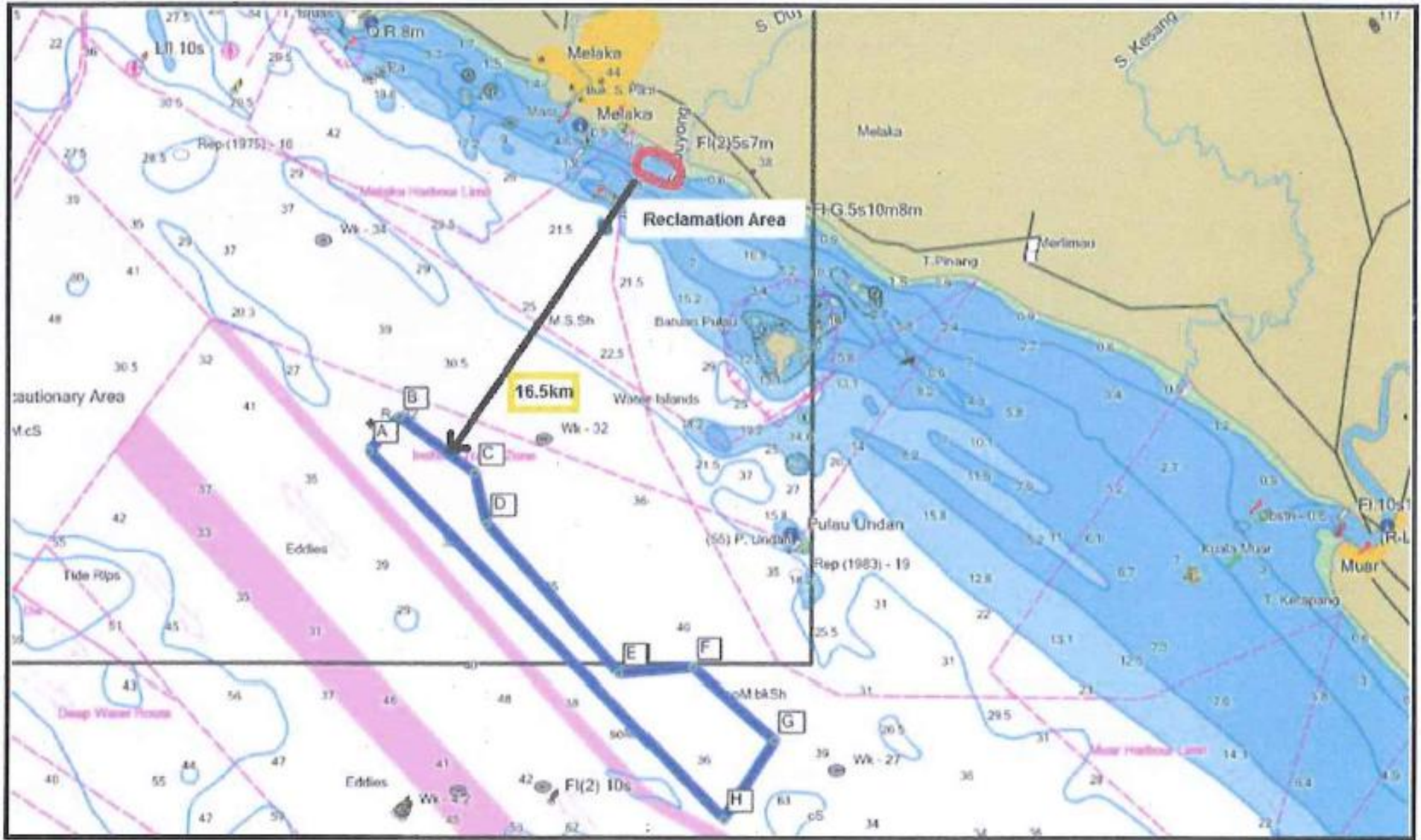
### **5.3 Sand Source**

A total of about 17,000,000m<sup>3</sup> of sand is anticipated to be required for the purpose of reclaiming the 400 acres project. There are a number of marine sand mining areas in Melaka. However, since the quantity of fill material needed for this project is quite huge, it is important to identify suitable fill material supplier that can supply 17,000,000m<sup>3</sup> of sand. In this case, the most suitable borrow area is located approximately 16.5km offshore of the project site, as shown in **Figure 5.2**. Apparently, the sand mining concessionaire for this borrow area is also the project proponent i.e. Yayasan Melaka.

Based on the approval and permit for the sand mining activities at this borrow area (as attached in **Appendix X**), the total volume of sand to be mined at this area is 30,000,000m<sup>3</sup>. This amount is sufficient to cater for the 17,000,000m<sup>3</sup> needed to reclaim the 400 acres project area. Details on the sand mining activity at the proposed sand source area are available in the approved EIA report entitled “*Permohonan Melombong Pasir Di Bawah Seksyen 4 Akta Pelantar Benua 1966 P.U 2009 Oleh Yayasan Melaka*”. Based on the approved EIA, this sand source is capable of providing about 18,000m<sup>3</sup>/day of sand.

### **5.4 Reclamation Works**

The proposed project is expected to require about 17,000,000m<sup>3</sup> of fill material for reclaiming 400 acres of sea. The fill material will come from the sand source as shown in **Figure 5.2**.



**Figure 5.2:** Navigational Route From Sand Mining Area to the Project Site

The following paragraphs provide the method statement for the works involved in realising the proposed project. The method statement is a general one which is mostly extracted from the *Environmental Impact Assessment Guidelines For Land Reclamation and Dredging, 2018* published by the DOE. The final detailed method statement will be provided at a later stage by the appointed contractor.

#### **5.4.1 Reclamation Method Statement**

**Figure 5.3** shows the typical construction sequence for the reclamation works.

##### **5.4.1.1 Site Possession and Site Preparation**

Site possession is defined as occupation of land, particularly by contractor to carry out the works. The contractor will mobilize all machineries, plants and equipment required for reclamation and other associated works after obtaining the Site Possession from the client. Temporary structures and / or facilities (if any) will be constructed after completion of the site clearing. Hoarding and relevant signboards will be installed and site access will be established to control access to and from the project site.

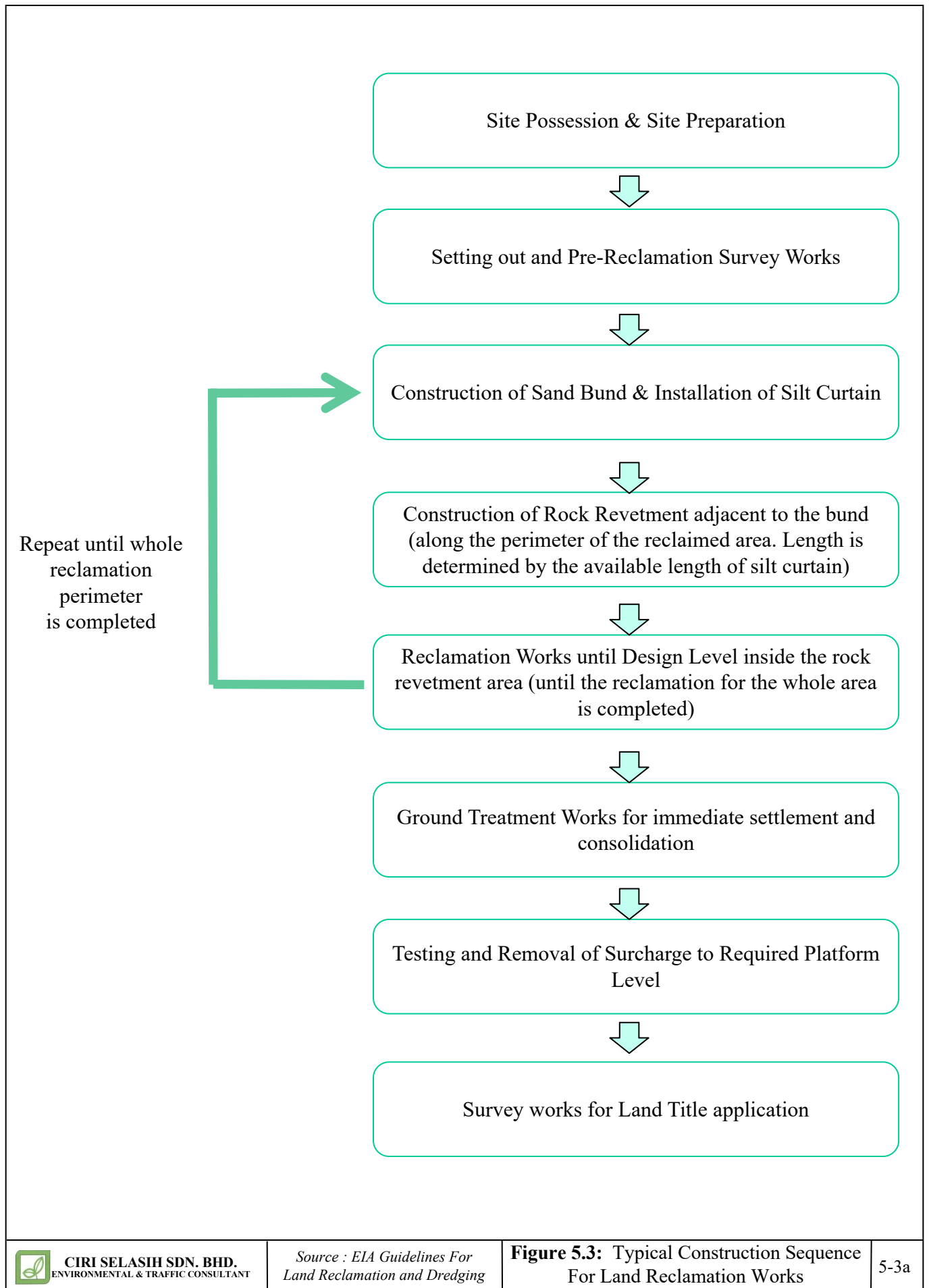
##### **5.4.1.2 Setting Out and Pre-Land Reclamation Survey**

A licensed surveyor appointed by the contractor will conduct a setting out and pre-land reclamation survey to confirm the extent of the project boundary and to determine the current seabed and topography level within the project boundary. Temporary bench marks will be established at or near to the project site for reference during interim and handover survey works.

##### **5.4.1.3 Transportation of Fill Material**

Based on the hydrographic study, a trailing suction hopper dredger (TSHD) with 3,000m<sup>3</sup> hopper capacity would be the best choice as it can work in rough condition and create less upwelling of bottom sediment and less spillage. Upon obtaining License to Operate, the sand dredger will be mobilized to the sand concession site by using Global Positioning System (GPS) to identify the location of the sand dredging area. Lighted





Marker Buoys will be stationed at the intended dredging site to warn other vessels regarding the dredging activities.

The extraction of sand deposits at the concession area using a TSHD with a hopper capacity of 3,000m<sup>3</sup> will take about 1.5 hours. Based on the estimated travel distance of around 9 nautical miles (nm) to the reclamation area at Bandar XLVI, the estimated time of travelling at around 3 knots (3nm/hr) is approximately 3 hours (see **Figure 5.2**). Then the process of unloading the sand at the reclamation site is estimated to be about 1.5 hours, and the return trip for the dredger / vessel will take about 1.5 hours, based on a speed of 6 knots.

Detailed cyclic time for a sand supply along the coast of Melaka is shown in **Table 5.1**, with a total duration of approximately 5 hours per trip.

**Table 5.1: Detailed Cyclic Time for One Trip of TSHD From Sand Mining Area to Sand Filling Area**

<b>No.</b>	<b>Dredging Activities</b>	<b>Duration (hours)</b>
1	Extraction of sand	1.5
2	Transporting at speed of 3 knots	3.0
3	Unloading of sand	1.5
4	Going back to site at speed of 6 knots	1.5
<b>TOTAL</b>		<b>7.5</b>

It is expected that there will be three (3) barges of 3000m<sup>3</sup> capacity that will be involved in transporting the sand with two (2) trips per day. However, the actual number of vessels may be less depending on the amount of sand requirement. This information will be highlighted in the EMP later. Should there be a need to have more vessels, approval from *Jabatan Laut* and DOE will have to be obtained.

#### **5.4.1.4 Environmental Mitigation Works**

One of the most important mitigation measures to be implemented for reclamation / dredging activities is installation of silt curtain. A silt curtain or also known as turbidity curtain, flotation curtain or silt screen, can either be a permeable or impervious structure that sits suspended in the water column to control migrating water borne sediment. The

function of the silt curtain is to contain disturbed sediment about one to two meters from the water surface to allow for the suspended sediment to settle to the bottom. It is, however, not meant to create a filtration media.

There are many important factors to consider when designing and installing a silt curtain which includes flow rates, water depths, conditions and project duration. **Figure 5.4** shows a typical design of a silt curtain with the proposed silt curtain specification. Detail design of the silt curtain which will be used for the proposed project will be provided later in the EMP report.

There are also other mitigation measures that can be applied during the reclamation works such as construction of bund and revetment. This will be further explained in the following section.

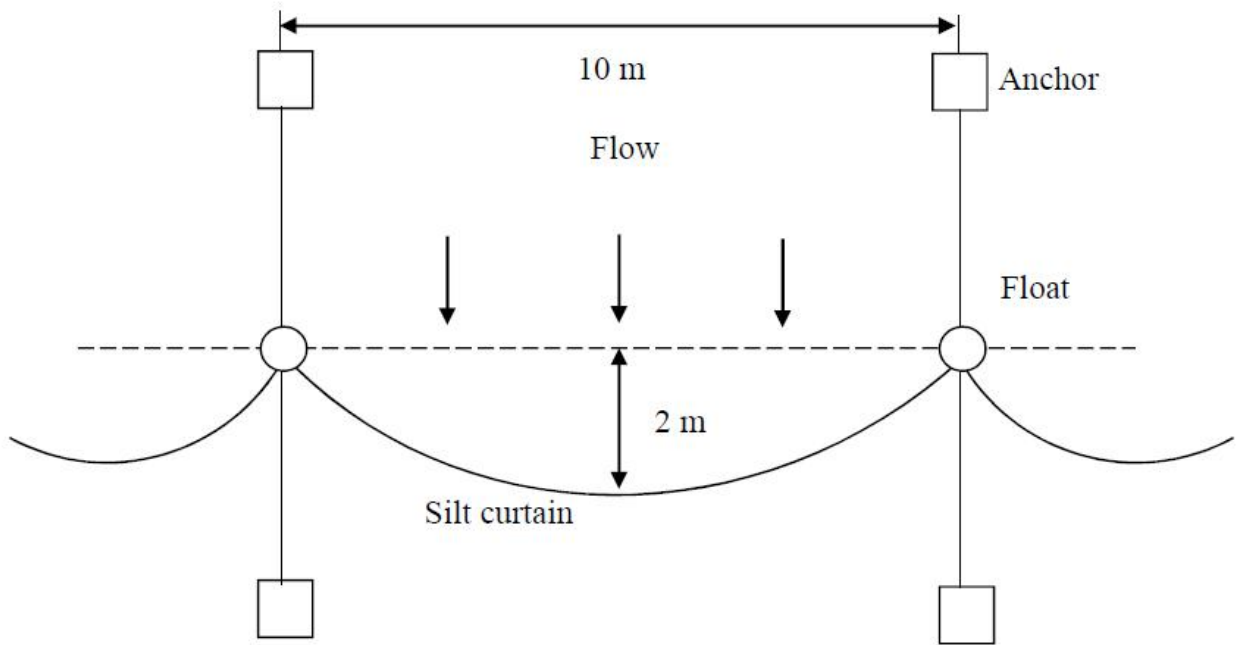
As suggested in the approved Hydraulic Study, the silt curtain is proposed to be installed at the location as per shown in **Figure 5.5** and **Figure 5.6**. Since silt curtain is costly, it is suggested that the reclamation works be done in phases to reduce the length of silt curtain needed at a time hence reduce cost. The final details on the installation of silt curtain will be provided later in the Environmental Management Plan (EMP).

#### **5.4.1.5 Land Reclamation Works and Ground Treatment Works**

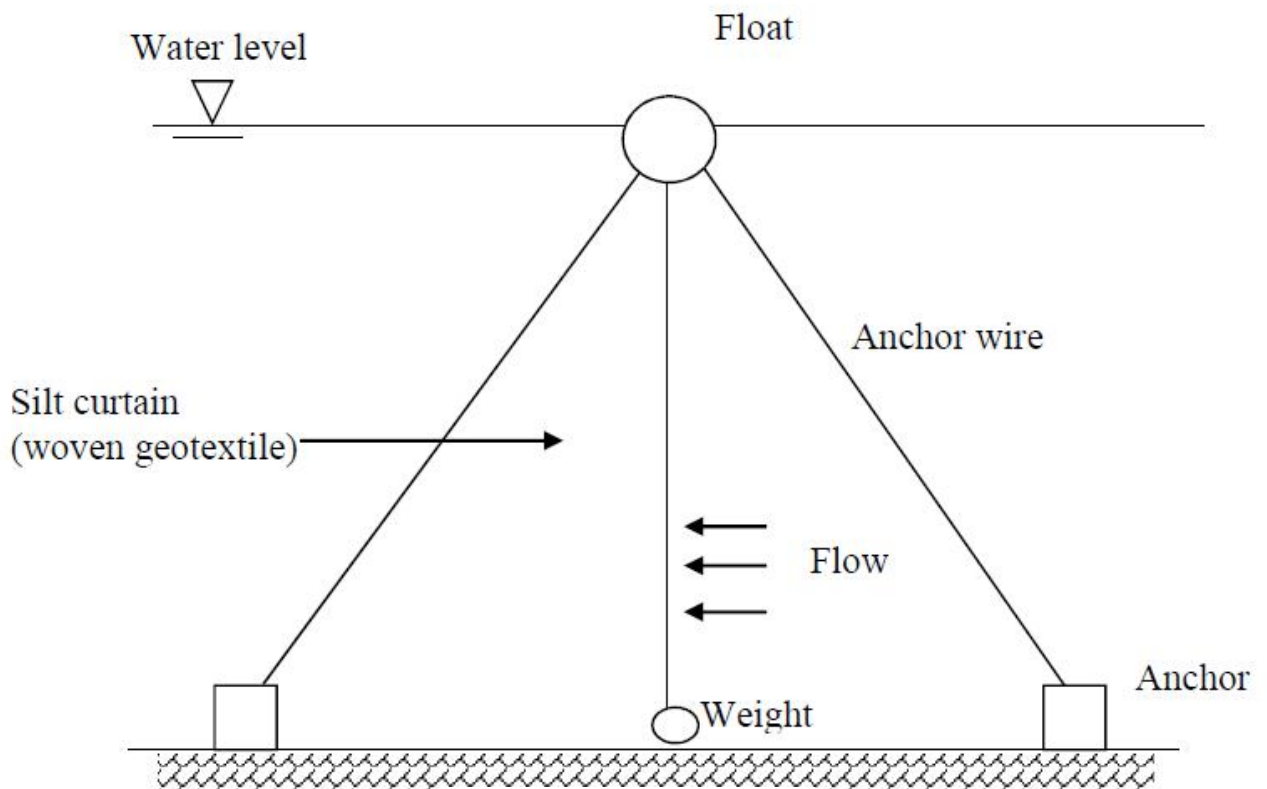
Land reclamation works will be undertaken by first constructing perimeter bunds before offloading fill material. The typical sequence of land reclamation is described as below:

- i) Install silt curtain along the perimeter of proposed land reclamation boundary based on the specification by consultant.
- ii) Construct a temporary containment bund using sand or rock material. The typical construction method of sand containment bund and rock bund are as follows:
  - The construction of sand containment bund is carried out by pumping sand from a Trailing Suction Hopper Dredger (TSHD) to the land reclamation area via conveyor belt, pipeline or excavator positioned in the flat top barge. The bund will be shaped by a long reach excavator operating from a barge.



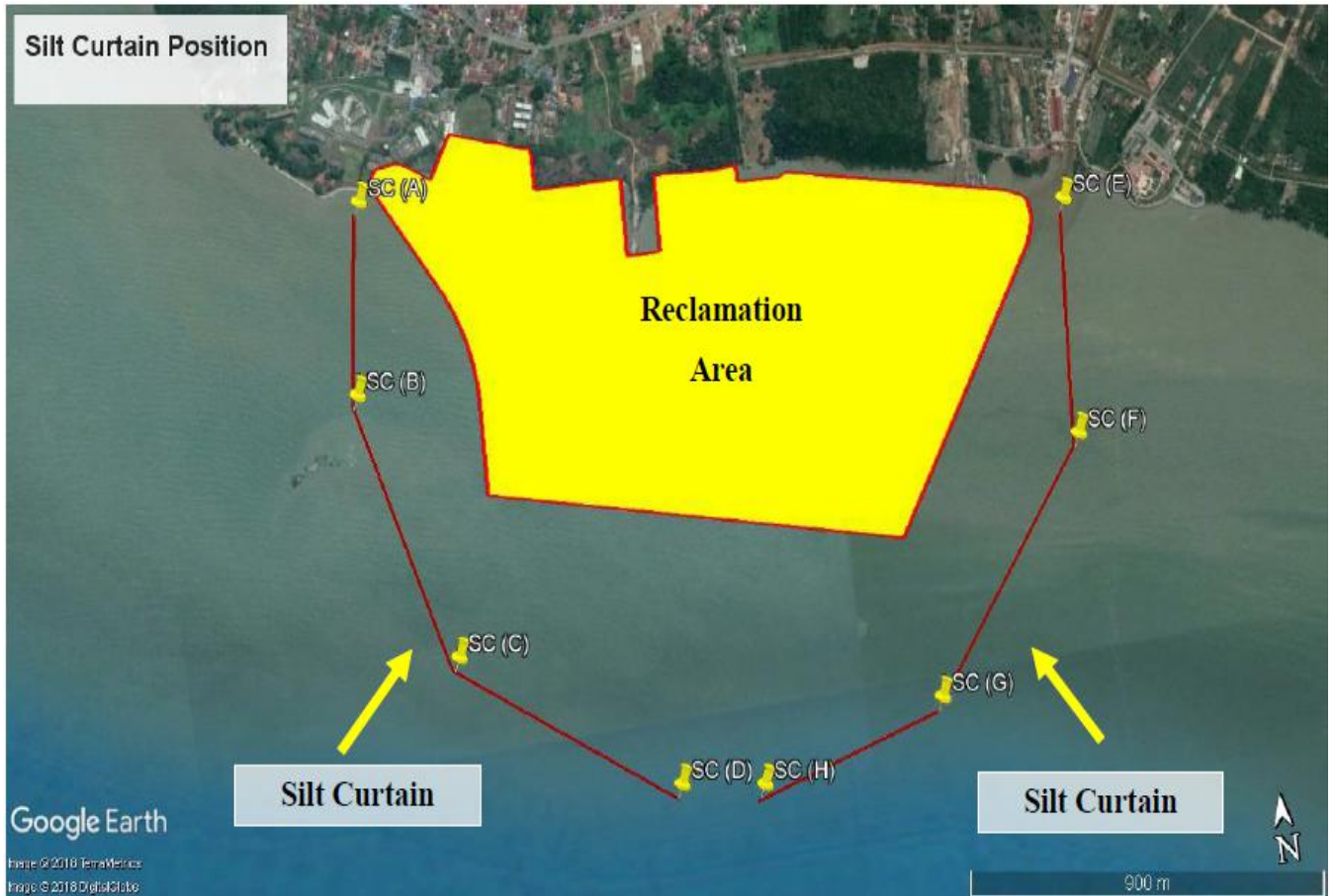


**Plan View**

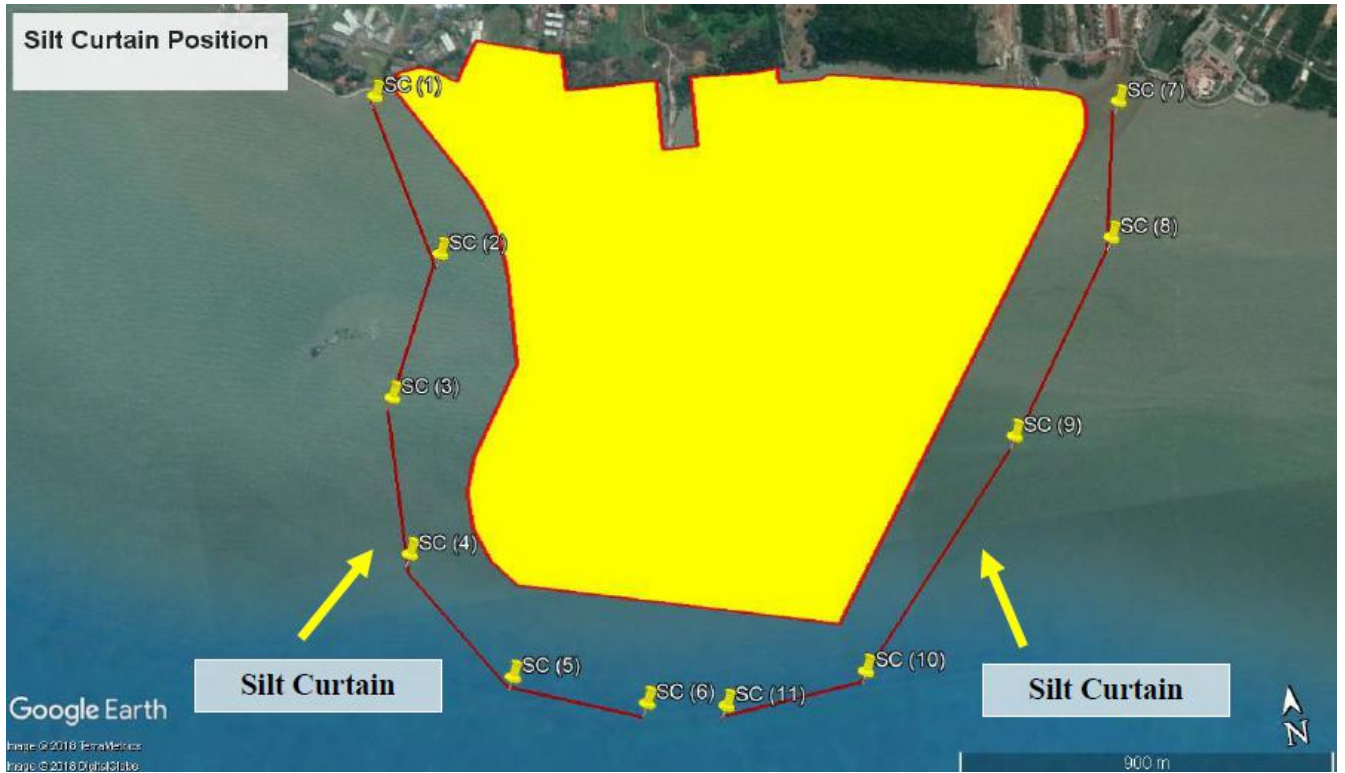


**Section View**





ID	X	Y
<b>SILT CURTAIN (PHASE 1)</b>		
SC (A)	102.319761°	2.156791°
SC (B)	102.319221°	2.152983°
SC (C)	102.320856°	2.147542°
SC (D)	102.325589°	2.144376°
SC (E)	102.335983°	2.154587°
SC (F)	102.335629°	2.149921°
SC (G)	102.331756°	2.145229°
SC (H)	102.327464°	2.144110°



SILT CURTAIN (PHASE 2)		
SC (1)	102.319628°	2.156927°
SC (2)	102.320592°	2.153251°
SC (3)	102.319130°	2.150266°
SC (4)	102.319061°	2.146831°
SC (5)	102.320933°	2.143896°
SC (6)	102.323742°	2.142927°
SC (7)	102.335922°	2.154503°
SC (8)	102.335298°	2.151542°
SC (9)	102.332528°	2.147523°
SC (10)	102.328554°	2.142943°
SC (11)	102.325439°	2.142632°

- Typically, the construction of rock containment bund is done by placing a layer of sand over the footprint of the proposed rock bund alignment. The rock material for the bund will be delivered by barges and placed by a long reach excavator operating from a barge.
- iii) Once the land reclamation area is surrounded by the containment bunds, fill material is pumped to the land reclamation area at the back of temporary containment bunds to the design level determined by the consultant.
- iv) Ground treatment works such as Perforated Vertical Drain System (PVD) and surcharge will be carried out to accelerate the ground consolidation and settlement.
- v) Install instrumentation to ensure that the performance criteria of the land reclamation are met (e.g. degree of consolidation and long-term settlement). Besides, the monitoring results also give good indication on the stability of the reclaimed platform especially during the reclamation period.

#### **5.4.1.6 Testing and Removal of Surcharge to Required Levels**

The surcharge material from ground treatment works will be trimmed after the required settlement and consolidation are met. Handover survey shall be carried out by licensed surveyor to verify that the platform levels have achieved the required levels by the project proponent.

#### **5.4.1.7 Construction of Coastal Protection Structure**

The construction of coastal protection structure can be done simultaneously with the land filling works. In this case, rock revetment will be used as the protection structure.

For the construction of rock revetment, the slope will be trimmed and a layer of geotextile will be placed on the trimmed surface, followed by placement of armour rocks by a long reach excavator / grab dredger operating from a barge or from the crest of the revetment. These typical construction sequences may be repeated continuously for the next subsection of land reclamation until full phase of the land reclamation is completed.

## **5.5 Infrastructure, Utilities and Amenities Requirement**

### **5.5.1 Road Access**

The proposed project can be accessed via Jalan Melaka Muar. The proposed permanent access is as shown in **Figure 5.7**.

### **5.5.2 Drainage**

Due to the location of the site fronting the sea, the runoff from the project site will directly flow into the Straits of Melaka. Permanent drainage system will only be planned and implemented later once there is any proposed development on the reclaimed land.

### **5.5.3 Water Supply, Electricity Supply & Telecommunication Services**

Water and electricity supply as well as telecommunication services will only be estimated later for future development of the reclaimed land.

### **5.5.4 Waste Management**

Waste i.e. solid waste, scheduled waste and wastewater can be expected during the reclamation phase especially if there is any workers camp at site. Further details on this can be found in **Chapters 7** and **8**. No waste is expected to be generated upon completion of the reclamation works.

## **5.6 Implementation Schedule**

The physical works at site is expected to commence at the end of 2019 after all relevant approvals have been obtained. All the physical works at site are planned to be completed within 24 months. A more detailed schedule will be provided later by the appointed contractor.

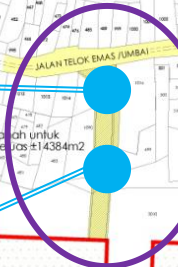




SEK. HENRY GURNEY

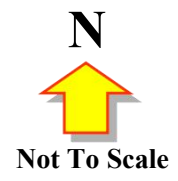


TAMAN SERI TELOK EMAS



Pengambilan baik tanah untuk jalan masuk & ulihli seluas ±14384m<sup>2</sup>

Proposed Permanent Access



TAPAK CADANGAN  
400 ekar  
161.8758 ha.

MUARA SUNGAI

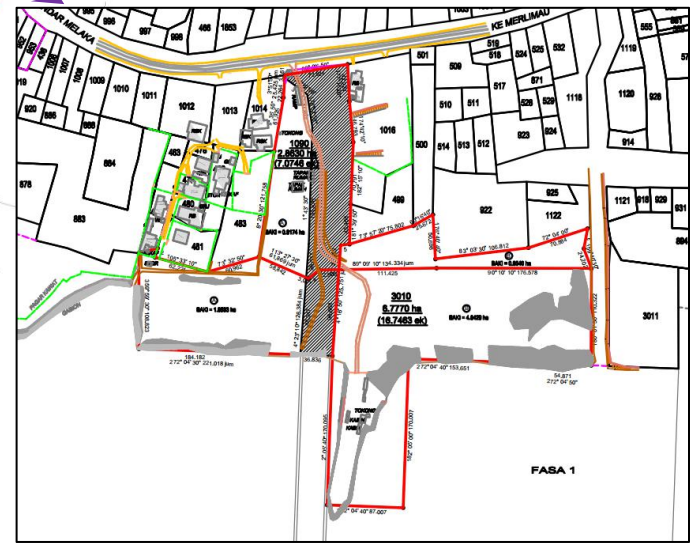


Figure 5.7: Proposed Permanent Access