

**Fire Protection System  
Garden of Eden**

**Summary of Bills Lot 1**

<b>Item #</b>	<b>Description</b>	<b>Unit</b>
1	Preliminary and General	
2	Engine Hall	
3	Storage Tank Area	
4	Interconnection line between STA and Engine Hall	
5	Tank Fram Area	
6	Outside Engine Hall	
7	Pump house	
8	Miscellaneous Works	
9	Fire Fighting Equipment	
10	Testing and commission firewater pump	

**Lot 1-Fire Protection System Garden of Eden**

**Bill A: Preliminary and General Lot 1**

<b>Item #</b>	<b>Description</b>	<b>Unit</b>
1	<b><i>Insurances</i></b>	
1.1	Allow for insurance to cover against damage to third party and property caused by acts or omissions by the Contractor.	
1.2	Allow for insurance to cover against damage to third party and property caused by acts or omissions by the Contractor.	
2	<b><i>Site Particulars</i></b>	
2.1	Allow for Performance Bond.	

2.2	Allow for Contractor's Site Facilities	
2.3	Allow for Mobilization and Demobilization	

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**Bill of Quantities Lot 1**

**Bill B: Storage Tank Area**

<b>Item #</b>	<b>Description</b>	<b>Unit</b>
<b>1</b>	<b><i>DN 100 perimeter firewater pipeline STA</i></b>	
1.1	Supply and install DN 100 (schedule 40 steel pipe) perimeter firefighting water pipeline around Storage Tank Area	m
1.2	Supply and install fittings for coupling of DN 100 (schedule 40 steel pipe) pipelines	Sum
1.3	Supply and install fittings for DN 100, 90 <sup>0</sup> bends for (schedule 40 steel pipe) firefighting water pipeline	Sum
1.4	Supply and install fittings for 90 <sup>0</sup> bends	
1.4	Supply and install T reducer (DN 150-100) on DN 100 (schedule 40 steel pipe) firefighting water pipeline	sum
1.5	Supply and install fittings for Ts on 100 (schedule 40 steel pipe) firefighting water pipeline	
1.6	Supply and install DN 100 to DN 65 reducers (schedule 40 steel pipe) firefighting water pipeline	sum
<b>2</b>	<b><i>Supply and install stop valves</i></b>	

2.1	Supply and install stop valves including all fittings, adaptors and gaskets for completeness of the system	sum
<b>3</b>	<b><u>Steel Platform</u></b>	
3.1	Supply and install steel platform for monitor elbow.	Sum
3.2	Supply and install metal grating on platform floor	m <sup>2</sup>
3.3	Supply and install Outdoor monitor elbow /BS336 2 1/2"	sum
<b>4</b>	<b><u>Painting of lines</u></b>	
4.1	Supply and apply one coat primer on all pipes and fittings, paint application shall be in accordance with paint's manufacturer specifications	m <sup>2</sup>
4.2	Supply and apply one coat of red anti corrosion paint on all pipes and fittings, paint application shall be in accordance with paint's manufacturer specifications	m <sup>2</sup>

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**Bill C: Interconnection line and tank farm area**

Item #	Description	Unit
<b>1</b>	<b><i>Interconnection pipeline between Fire pump and Engine Ha</i></b>	
1.1	Supply and install DN 150 (schedule 40 steel pipe) pipes along the pipe spools from STA to the engine hall area.	m
1.2	Supply and install DN 150 (schedule 40 steel pipe) pipes from pump house to pipe spools in STA and Southern firefighting water pipeline	m

1.3	Supply and install fittings and coupling for DN 150 (schedule 40 steel pipe) pipelines	sum
1.4	Supply and install 90 <sup>0</sup> bends for DN 150 (schedule 40 steel pipe) pipeline	sum
	Supply and install fittings for DN 150, 90 <sup>0</sup> bends (schedule 40 steel pipe)	sum
1.5	Supply and install T reducer and fittings from DN 150 - DN 100 (schedule 40 steel pipe) pipeline	sum
1.6	Supply and install outdoor hydrant with PRV /BS336 2 1/2" including all fittings and adaptors for completeness of the system	sum
<b>2 <u>Painting of pipelines</u></b>		
2.1	Supply and apply one coat primer to all pipelines and fittings. Paint application shall be in accordance with paint's manufacturer specifications	m <sup>2</sup>
2.2	Supply and apply one finished coat of red corrosion resistant paint. Paint application shall be in accordance with paint's manufacturer specifications	m <sup>2</sup>

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#### **Bill of Quantities Lot 1**

#### **Bill D: Southern Fire Fighting Water Pipe Line**

<b>Item #</b>	<b>Description</b>	<b>Unit</b>
<b>1</b>	<b><u>Southern Fire Fighting Water Pipe Line</u></b>	
1.1	Supply and install DN 100 (schedule 40 steel pipe) in and around the Day tank area	m
1.2	Supply and install necessary fittings and coupling for DN 100 (schedule 40 steel pipe) pipelines for completeness of the system	sum

1.3	Supply and install T connection including all fittings adaptors and gaskets for DN100 (schedule 40 steel pipe) pipeline	sum
1.4	Supply and install 45 <sup>0</sup> bends for DN 100 (schedule 40 steel pipe) pipeline	Sum
	Supply and install fittings and gaskets for 45 <sup>0</sup> bends for DN 100 (schedule 40 steel pipe) pipeline	Sum
<b>2</b>	<b><u>Outdoor Fire Hydrant</u></b>	
2.1	Supply and install outdoor hydrant with PRV /BS336 2 1/2" including all fittings and adaptors for completeness of the system	sum
<b>3</b>	<b><u>Painting of lines</u></b>	
3.1	Supply and apply one coat primer on all pipes and fittings. Paint application shall be in accordance with paint's manufacturer specifications	m <sup>2</sup>
3.2	Supply and apply one finished coat of red anti corrosion paint on all pipes and fittings. Paint application shall be in accordance with paint's manufacturer specifications	m <sup>2</sup>

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**Bill of Quantities Lot 1**

**Bill E: Outside Engine Hall**

<b>Item #</b>	<b>Description</b>	<b>Unit</b>
<b>1</b>	<b><i>DN 100 perimeter firewater pipeline outside Engine Hall Area</i></b>	
1.1	Supply and install DN 100 (schedule 40 steel pipe) perimeter firefighting water pipeline around Engine Hall Area.	m

1.2	Supply and install fittings and coupling for of DN 100 (schedule 40 steel pipe) pipelines	sum
1.3	Supply and install 90 <sup>0</sup> bends for DN 100 (schedule 40 steel pipe) pipeline	sum
1.4	Supply and install fittings and gaskets for 90 <sup>0</sup> bends for DN 100 (schedule 40 steel pipe) pipeline	
1.5	Supply and install T connections and fittings from DN 100 (schedule 40 steel pipe) pipeline	sum
<b>2</b>	<b><i>Supply and install stop valves</i></b>	
2.1	Supply and install stop valves including all adaptors, fittings and gaskets	sum
<b>3</b>	<b><i>Painting of pipelines</i></b>	
3.1	Supply and apply one coat primer on all pipes and fittings. Paint application shall be in accordance with paint's manufacturer specifications	sum
3.2	Supply and apply one top coat of red anti corrosion paint on all pipes and fittings. Paint application shall be in accordance with paint's manufacturer specifications	sum

**Fire Protection System**  
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**Bill of Quantities Lot 1**

**Bill F: Pump house**

<b>Item #</b>	<b>Description</b>	<b>Unit</b>
<b>1</b>	<b><i>Installation of pump house</i></b>	
1.1	Prepare foundations for 20 feet container to house fire fighting water pump.	sum
<b>2</b>	<b><i>Fire water pump</i></b>	

2.1	Supply and install diesel engine driven firefighting pump to supply 300m <sup>3</sup> per hour at a pressure of 6 bars and a head of 120m including balance of materials (electronic controls, control cabinets, fuel storage for 86 hours of operations, <a href="#">relief valve</a> , trickle charging system to maintain battery voltage at optimum levels, etc.) for completeness of the system	sum
	Supply and install appropriately sized Jockey pump (with all controls) connected to the firefighting system to adequately maintain system pressure (6 to 8 bars)	Sum
2.3	Supply and install nozzle (DN150) on storage water tank to connect fire water pump	Sum

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**Bill of Quantities Lot 1**

**Bill G: Miscellaneous Works**

Item #	Description	Unit
<b>1</b>	<b><u>Civil works</u></b>	
1.1	Grubbing and excavation of pipe support foundations	m <sup>3</sup>
	Supply and install metal supports and U bolts to stabilize pipes onto foundations	Sum
<b>2</b>	<b><u>Sand fill</u></b>	
2.1	Clean white sand well-watered and compacted in layers of 100mm	m <sup>3</sup>
<b>3</b>	<b><u>Provision of concrete</u></b>	
3.1	Supply and place 4000PSi concrete with 20mm course aggregate	m <sup>3</sup>

<b>4</b>	<b><i>Form work</i></b>	
4.1	Supply and prepare form work for pipe support foundations and concrete plinth for 20 feet container base.	m <sup>2</sup>
<b>5</b>	<b><i>Reinforcements (measured provisionally)</i></b>	
5.1	Supply and prepare reinforcement bars for foundati	kg
5.2	Supply and prepare reinforcement bars for foundati	kg

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**Bill of Quantities Lot 1**

**Bill H: Testing and commissioning**

<b>Item #</b>	<b>Description</b>	<b>Unit</b>
<b>1</b>	<b><i>Testing of Fire Water Pumping System</i></b>	
1.1	Test and commission firewater pump including test report	Sum
<b>2</b>	<b><i>Testing and commissioning of Fire Protection system</i></b>	
2.1	Test and commission firefighting system including test report	Sum
2.2	Demobilization from site	Sum

**Repair of Water Storage Tank  
For Fire Protection System**

**Summary of Bills work Lot 2**

<b>Item #</b>	<b>Description</b>	<b>Unit</b>
	<b><i>General Note</i></b>	



	All rates must include for transportation, materials, labour, machinery and equipment, taxes (excluding VAT), overheads and profits.	
1	Preliminary and General	
2	Tank Roof and Rafters	
3	Tank Shell	
4	Tank Internal Inspection	
5	Tank Stairs, Platforms and Rails	

**Lot 2- Repair of Water Storage Tank For Fire Protection System**

**Bill : Preliminary and General work Lot 2**

<b>Item #</b>	<b>Description</b>	<b>Unit</b>
1	<b><u>Insurances</u></b>	
1.1	Allow for insurance to cover against damage to third party and property caused by acts or omissions by the Contractor.	
1.1	Allow for insurance to cover against damage to third party and property caused by acts or omissions by the Contractor.	
2	<b><u>Site Particulars</u></b>	
2.1	Allow for Performance Bond.	
2.2	Allow for Contractor's Site Facilities	
2.3	Allow for Mobilization and Demobilization	
2.4	Provisional sum for unforeseen works.	

**Repair of Water Storage Tank  
For Fire Protection System**

## Bill of Quantities Lot 2

### Bill A: Tank Roof and Rafters

<b>Item #</b>	<b>Description</b>	<b>Unit</b>
<b>1</b>	<b><i>Cutting and Removing</i></b>	
1.1	Cut and remove roof plate (approximately 6mm) on tank. The plates removed shall be stored away at nearby location within 50 meter radius as directed by the company designated engineer or representative.	m <sup>2</sup>
<b>2</b>	<b><i>Replacing of roof plates</i></b>	
2.1	Allow for cleaning of roof rafters. Cleaning shall be done in accordance to relevant surface finish required by the paint manufacturers.	sum
2.2	Cut/trim, form, weld 3/16" thick (6 mm) mild steel plate to the required shape and dimensions to suit existing design parameters for roof.	m <sup>2</sup>
2.3	Allow for cleaning of new roof plates. Cleaning shall be done in accordance to relevant surface finish required by the paint manufacturers.	sum
<b>3</b>	<b><i>Protective Coating</i></b>	
3.1	Apply two coats only of epoxy primer red oxide to roof supports rafters. Paint shall be applied according to the specifications by the paint manufacturers.	sum
3.2	Apply one coat of epoxy primer red oxide to roof plates. Paint shall be applied according to the specifications by the paint manufacturers.	m <sup>2</sup>
3.3	Apply one coat (top coat) epoxy polyamide resin to roof plates. Paint shall be applied according to the specifications by the paint manufacturers.	m <sup>2</sup>
<b>4</b>	<b><i>Roof Appurtenances</i></b>	

4.1	Fabricate and install one manhole attachment 600 mm diameter with all necessary gaskets, bolts, nuts, washers, handles as detailed in <b>drawing # xxx</b> . Manhole shall be cleaned and painted to apply one coat epoxy primer red oxide and top coat epoxy polyamide resin. Vent shall be clean and painted as per paint manufacturer requirement.	item
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**Repair of Water Storage Tank  
For Fire Protection System**

**Bill of Quantities**

**Bill B: Tank Shell Lot 2**

Item #	Description	Unit
<b>1</b>	<b><i>Cleaning of Tank Shell Plates</i></b>	
1.1	Allow for cleaning of shell plates for the application of protective coating. Cleaning of surface shall be done according to paint manufacturer's specification.	m <sup>2</sup>
<b>2</b>	<b><i>Protective Coating</i></b>	
2.1	Apply one coat of epoxy primer red oxide to tank shell and shell appurtenances	m <sup>2</sup>
2.2	Apply one coat (top coat) epoxy polyamide resin to tank shell and shell appurtenances	m <sup>2</sup>

**Repair of Water Storage Tank  
For Fire Protection System**

**Bill of Quantities**

**Bill C: Tank Bottom Plate Lot 2**

Item #	Description	Unit
<b>1</b>	<b><i>Cleaning of Tank Bottom</i></b>	
1.1	Allow for tank to be sufficiently cleaned for adequate and proper inspection of bottom plates.	sum
<b>2</b>	<b><i>Internal Inspection and Repair of Tank Bottom &amp; Repads</i></b>	
2.1	Allow for vacuum box testing of repads welds according to API 650 guidelines. (Provisional quantity)	m
2.2	Allow for gouging and rewelding of repads/bottom plate joints that are found to be defective from vacuum box testing. This sum shall only be payable based on the results of item 3.1 above. Approval must be sought from contractor before proceeding with this item.	m
2.3	Allow for vacuum box testing of repads welds repaired in item 3.2. This sum shall only be payable if item 3.2 is done. Approval must be sought from contractor before proceeding with this item. (Provisional quantity)	m
2.4	Apply one coat coal tar epoxy to top side of tank bottom plate. Surface preparation and application shall be done as per paint manufacturer specifications.	m <sup>2</sup>



<i>Subtotal</i>	\$

<b>Qty</b>	<b>Rate (GYD)</b>	<b>Amount</b>
234		\$ -
235		
4		\$ -
8		
4		\$ -
4		
3		\$ -

6		\$ -
3		\$ -
10		\$ -
3		
73		\$ -
73		\$ -
<i>Subtotal</i>		\$ -

Qty	Rate (GYD)	Amount
<i>ll</i>		
195		\$ -
165		

368		\$ -
14		\$ -
28		\$ -
7		\$ -
6		
		\$ -
175		\$ -
175		\$ -
<i>Subtotal</i>		\$ -

Qty	Rate (GYD)	Amount
170		
171		



5		
14		
28		
5		
55		
55		
<i>Subtotal</i>		\$ -

Qty	Rate (GYD)	Amount
78		

79		
3		
6		
5		
3		
30		
30		
<i>Subtotal</i>		\$ -

Qty	Rate (GYD)	Amount
1		

1		
1		
1		
<i>Subtotal</i>		\$ -

<b>Qty</b>	<b>Rate (GYD)</b>	<b>Amount</b>
28		
110		
12		
18		

15		
160		
160		
<i>Subtotal</i>		\$ -

Qty	Rate (GYD)	Amount
<i>Subtotal</i>		\$ -

Qty	Rate (GYD)	Amount



Qty	Rate (GYD)	Amount
145		
291		
291		
291		

1		
<i>Subtotal</i>		\$ -

Qty	Rate (GYD)	Amount
590		
590		
590		
<i>Subtotal</i>		\$ -

Qty	Rate (GYD)	Amount
10		
10		
10		
145		
	<i>Subtotal</i>	\$ -