

Title : To Supply and install of "Gross Pollution Trap" for

Item	Description	Unit	Quantity	Rate (RM)	Amount (RM)
1	PRELIMINARIES				
1.1	MOBILISATION Allow a sum of meeting all requirements, risks, liabilities and obligation.	L/S			Incl.
1.2	Provide photographs before, during and upon completion of works (at least 30 pcs).	L/S			Incl.
1.3	INSURANCE				
1.3.1	Allow for the provision of all insurances including insurances against injuries to persons and damage to property, insurance of works etc.	L/S			Incl.
1.3.2	Allow for the provision of all insurance for foreign workers, and SOSCO in the Regulation or By Laws	L/S			Incl.
1.4	SURVEYS Allow for all necessary surveys for setting out and construction of the works.	N/A			N/A
1.5	AS-BUILT DRAWINGS Provide and submit to the Engineers the as-built drawings upon completion of works. As-built survey is to be carried out by licensed surveyor.	L/S			Incl.
1.6	TEMPORARY WORKS Provide general mobilization, demobilization and including shoring, cofferdam, bunds, drainage outlet, pumps etc to maintain the works free of water and prevent earth slips and provide safety during the course of construction of works, all framing, platforms, timber supports etc and all other works necessary to form and construct permanent works, including maintenance dismantling, resurface premix, reconstruct flex slabs and clearing away on completion for all works.	N/A			N/A

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2	To design, supply and deliver GPT type non-blocking self cleaning circular screen in accordance to Manual Saliran Mesra Alam "MASMA" inclusive of all necessary structures and accessories such as chamber sumps, access lids, stainless steel screen, poly basket and etc to the following requirements :-	No.																				
2.1	The pollutant capture rates:- <table border="1" data-bbox="483 478 971 709"> <tbody> <tr> <td>a.</td> <td>Gross Pollutants (>5mm)</td> <td>99%</td> </tr> <tr> <td>b.</td> <td>Coarse Sediment (>0.125)</td> <td>95%</td> </tr> <tr> <td>c.</td> <td>Floatable Pollutants</td> <td>99%</td> </tr> <tr> <td>d.</td> <td>Total Solid Suspension (TSS)</td> <td>70%</td> </tr> <tr> <td>e.</td> <td>Free Oils & Grease in Spill Situation</td> <td>95%</td> </tr> <tr> <td>f.</td> <td>Total Phosphate</td> <td>>20%</td> </tr> </tbody> </table> <p>The above pollutant capture rates must be verified by independent parties with Authority in Hydraulic Design.</p>	a.	Gross Pollutants (>5mm)	99%	b.	Coarse Sediment (>0.125)	95%	c.	Floatable Pollutants	99%	d.	Total Solid Suspension (TSS)	70%	e.	Free Oils & Grease in Spill Situation	95%	f.	Total Phosphate	>20%			
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2.2	The GPT shall be able to function for multiple flow events and pollutants captured during previous events shall not be allowed to escape from the GPT under the present event. (Offline devices are preferred to online devices).																					
2.3	The GPT shall not be allowed to be partially or toally blocked/clogged by pollutants.																					
2.4	Pollutants shall not be stored in the screening or treatment zone.																					
2.5	The treatable flow rate at ARI 3 months shall remain constant throughout the storm event and thus, there shall be no reduction on the separation screen area.																					
2.6	The separation screen of the GPT shall be non-blocking throughout the storm event.																					
2.7	The GPT shall have an overflow mechanism or structure to allow stormwater to overflow without causing upstream flooding.																					
2.8	The GPT must present minimum visual impact as typically installed underground.																					
2.9	The GPT unit with submerged screen must also retain oil.																					
2.10	The GPT unit must either present minimal maintenance requirement by lift basket, vacuum suction or grab																					
2.11	The pollutant must be stored in a separate sump. It is preferred to have this submerged, to minimize pollutants contact with the air (creating odors) and to prevent crows, rats, vermin and insects from reaching the pollution which can present a health hazard.																					
2.12	The GPT must be supplied and delivered on site in precast concrete form where installation on site can be carried quickly with and where concrete has already achieved its functional strength or in pre-assembled FRP.																					
2.13	The screen material must be made out of 316 stainless steel which can withstand heavily polluted stormwater from causing corrosion. Plastic is not acceptable.																					

Tajuk: To Supply and install of "Gross Pollution Trap" for

Item	Description	Unit	Quantity	Rate (RM)	Amount (RM)
3	To install and construct & complete GPT type ' main and supplementary structures and accessories including all temporary strutting, excavation and removal of access excavated earth, backfill and aggregate, insitu reinforced concrete where necessary and join to existing drain section to manufacturer's specification and reinstatement of existing landscape to original condition.	no.			
4.	To undertake monthly monitoring and maintenance of GPT for 2 year period either using Lift Basket Method or Vacuum Eduction.				
Total (RM)					

For Declaration of Compliance

I hereby certify that these works have been designed by me in accordance with sound engineering practice and I take full responsibility for the design and proper performance of the same

.....
Signature of Professional Engineer
submitting

For As Built Drawing

We hereby certify that the work had been constructed under my/ our supervision and to the best of my / our knowledge the work has been constructed in accordance with the regulation's and any condition or direction's imposed by the Director General of Drainage and Irrigation Department and that I/We accept full responsibility for these portions for which I/We am/are respectively concerned.

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