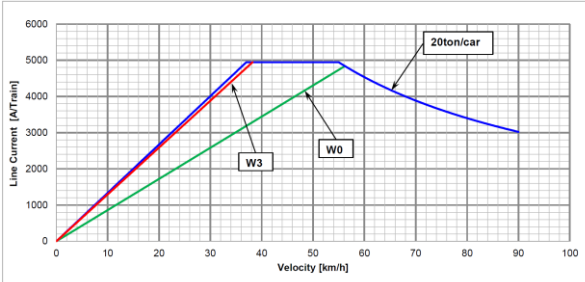
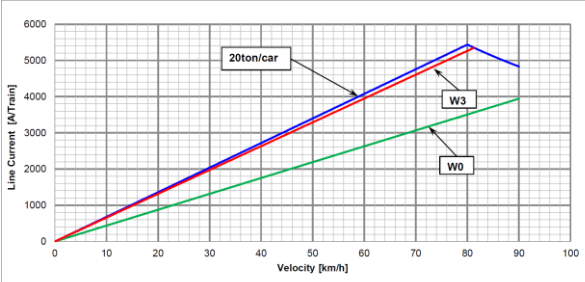
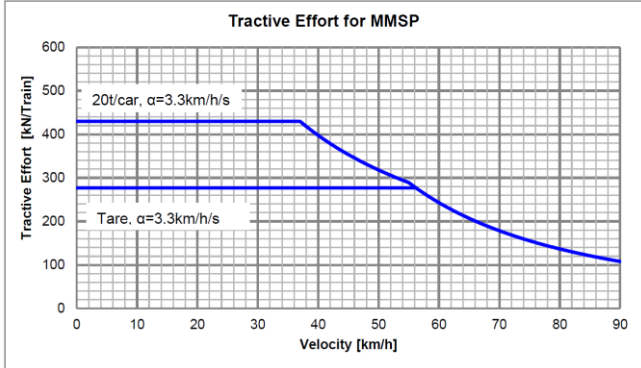
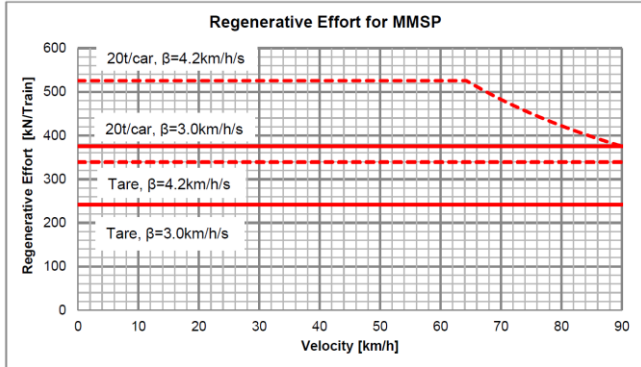


Metro Manila Subway Project Phase 1 Package CP106: E&M Systems and Track Works			
ITEM NO.	REFERENCE/CLAUSE/ SECTION	QUERIES	RESPONSE
<i>General Bid Bulletin</i>			
1.	<p>GBB 17, ANNEX C ERG-App 6-34 Permanent Power Supply</p>	<p>In this clause, it is mentioned that "Once Permanent Power Supply is ON, all electricity cost of Permanent Supply goes to CP106; including stations, systems and Trainset running test etc."</p> <p>However, at this stage, we are unable to estimate the electricity cost because the following data, is not available to allow us to make an estimation</p> <ol style="list-style-type: none"> 1) Trainset power consumption, test running programme, test running frequency etc; 2) No. and type of building equipment in each station, its power consumption and etc. <p>As it is not possible to estimate the power consumption at this stage, we propose the either electricity cost of Permanent Power Supply is excluded from the scope or be considered under Provisional Sum.</p>	<p>The Bidder shall estimate the Electricity cost using the below data: -</p> <ol style="list-style-type: none"> 1) Traction Power: Each Rolling Stock is estimated to draw a maximum current of 5000A at 38km/h and approx. 5500A during regen. Refer to the line current and tractive effort curves diagram below as reference. <p>Four (4) eight car train sets will be operating or tested on the PO section; and the remaining twenty-one (21) eight car train sets shall be operating or tested on the RO sections. The total number of eight car (8) train sets in service for MMSP is 25 trains. Contractor is advised to calculate the traction energy cost based on information provided.</p>

**Metro Manila Subway Project Phase 1
Package CP106: E&M Systems and Track Works**

ITEM NO.	REFERENCE/CLAUSE/SECTION	QUERIES	RESPONSE
			<p>Line Current for MMSP at W0, W3 and 20ton/car condition</p> <p><Tractive></p>  <p><Regenerative></p> 

**Metro Manila Subway Project Phase 1
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ITEM NO.	REFERENCE/CLAUSE/SECTION	QUERIES	RESPONSE
			<div style="text-align: center;">  <p>The graph shows Tractive Effort [kN/Train] on the y-axis (0 to 600) versus Velocity [km/h] on the x-axis (0 to 90). Two blue lines are plotted: a solid line for '20t/car, α=3.3km/h/s' and a dashed line for 'Tare, α=3.3km/h/s'. Both lines are constant at approximately 430 kN/Train until 35 km/h, then decrease to about 100 kN/Train at 90 km/h.</p> </div> <p style="text-align: center;">Fig.1 Tractive Effort for MMSP Line at 820mm (for reference)</p> <div style="text-align: center;">  <p>The graph shows Regenerative Effort [kN/Train] on the y-axis (0 to 600) versus Velocity [km/h] on the x-axis (0 to 90). Four red lines are plotted: a solid line for '20t/car, β=3.0km/h/s', a dashed line for '20t/car, β=4.2km/h/s', a solid line for 'Tare, β=4.2km/h/s', and a dashed line for 'Tare, β=3.0km/h/s'. The solid lines are constant at approximately 380 kN/Train, and the dashed lines are constant at approximately 530 kN/Train until 65 km/h, then decrease to about 380 kN/Train at 90 km/h.</p> </div> <p style="text-align: center;">Fig.2 Regenerative Effort for MMSP Line at 820mm (for reference)</p>

Metro Manila Subway Project Phase 1 Package CP106: E&M Systems and Track Works			
ITEM NO.	REFERENCE/CLAUSE/ SECTION	QUERIES	RESPONSE
			<p>2) Non-Traction Power: The kVA rating (less S&T equipment) installed at each Station is approx. 2000 kVA. The Contractor shall evaluate the kVA rate for the CP 106 E&M Systems power consumption that will be used for E&M. The Contractor to provide the schedule of rate for the total power consumption in the Bid submission.</p> <p>Also note that the Bidder shall comply to the Vol IV, under GC Clause 4.1, Contractor's General Obligations.</p>