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**Consulting Services for  
Detailed Design for Danang - Quang Ngai Expressway Development Project  
IDA Credit No. 3843-VN**

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Ref. No. : DQEDD-PMU85-07-11

Date : July 13, 2011

**Mr. Nguyen Ngoc Canh**

General Director

Project Management Unit. No. 85 (PMU85)

Fax. No. : +(84) 38-383-4705

**Subject: Technical Specifications for Topo-Survey**

Dear Sir,

Reference is made to your letter No. 867 dated 1 July 2011 received on 8 July 2011.

After due technical discussion with our topo-survey team, the followings are our comments on your letter above:

Center Meridian to be used in the Project

Center Meridian of 108 degree should be used because this value has been used many times in calculation in all relevant documents.

Density of GPS (Primary Control) Points

Required density of GPS points are stipulated in 96TCN43-90. Sub-clause 4.1.16 stipulates maximum number of traverse for longest segment is 15. In the project, such traverse segment varies from 80 ~ 350 m long. For example, selecting average distance as 250m, that is:  $250\text{m} \times 15 = 3,750\text{m}$ . Our updated proposal of the control network is planned on the basis of this technical requirement.

GPS (Primary Control) Points at Larger Bridges

For the location of larger bridges, in our past practices, it was confirmed that two (2) GPS points are enough to control for all survey and construction works of the bridge provided that with guarantee for original azimuth (increasing accuracy for the control network at bridge area).

GPS (Primary Control) Points at Interchanges

For the location of interchange area, the widest survey extent could be not more than 500m away from the line, therefore the secondary control network should be used enough to measure and survey, there is no need to arrange any GPS (Primary Control) Points at the interchange area.



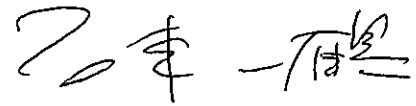
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Thank you for your kind attention.  
Further discussion can be continued at the project office, if necessary.

Sincerely yours,



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Ichizuru ISHIMOTO  
Project Manager

Enclosed: None

c.c. : VEC  
: Office Copy