

24 May 2013

Dragages – China Harbour – JSL Joint Venture  
P.O. Box no. 136, Tung Chung Post Office  
New Territories, Hong Kong  
(Attn: Mr. Chu Chung Sing)

Dear Mr. Chu,

**Hong Kong-Zhuhai Macao Bridge (Contract No. HY/2011/09)**  
**Hong Kong Link Road – Section Between HKSAR Boundary and Scenic Hill**  
**Event and Action Plan for Dolphin Monitoring (Proposed Action and Limit Levels)**

To implement the Event and Action Plan for Dolphin Monitoring under the HKLR09 contract, we reviewed the monitoring results in West Lantau in previous years, and propose the appropriate the Action Level (AL) and Limit Levels) as follow:

	West Lantau
Action Level	STG < 60% of baseline & ANI < 60% of baseline
Limit Level	STG < 45% of baseline & ANI < 45% of baseline

Remarks:

1. STG means quarterly encounter rate of number of dolphin sightings.
2. ANI means quarterly encounter rate of total number of dolphins.

**Derived Value of Action Level (AL) and Limit Level (LL):**

	West Lantau
Action Level	STG < 9.8 & ANI < 36.3
Limit Level	STG < 7.4 & ANI < 27.2

Remarks:

1. STG means quarterly encounter rate of number of dolphin sightings.
2. ANI means quarterly encounter rate of total number of dolphins.
3. Baseline value: 16.4 for ER(STG) and 60.5 for ER(ANI)

**Justifications for proposed AL and LL**

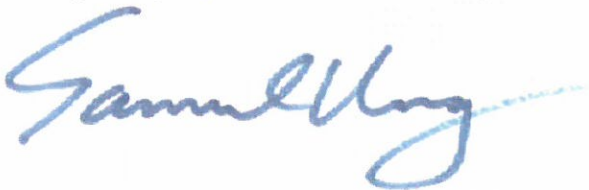
To define the AL and LL in comparison with the baseline dolphin encounter rate (16.4 for ER(STG) and 60.5 for ER(ANI) in West Lantau (WL)), the seasonal fluctuation of dolphin encounter rate in West Lantau should be considered by comparing dolphin encounter rates across the four seasons in order to take the natural fluctuation of dolphin occurrence into account. Notably, the natural fluctuation among different seasons can differ by as much as 20%, and in a few extreme cases up to 40% upon review of dolphin historical data in West Lantau waters in 2009-11. Moreover, a further 25% reduction in annual encounter rate has occurred in 2012 (the year before actual commencement of HKLR09 works but a year after baseline monitoring surveys was conducted) when compared to the one recorded in 2011. Therefore, the annual decline of dolphin encounter rates between 2011 and 2012 should also be taken into account when delineating the AL and LL for the HKLR09 project as the associated construction works only commenced in 2013 but not in 2012. With both the seasonal fluctuation in dolphin encounter rate (20-40%) and a further reduction of dolphin encounter rate (25%) between 2011-12 being considered, we propose to define the AL and LL as 40% and 55% to determine whether the construction activities of HKLR09 project have caused real significant impact on dolphin occurrence in West Lantau, instead of triggering false alarms prematurely.

If you have any further enquiries, please feel free to contact the undersigned at 2866-2652.

Yours faithfully,

For and on behalf of

**Hong Kong Cetacean Research Project**



Samuel K. Hung

Director



### **Event Action Plan for Dolphin Monitoring**

<b>Event</b>	<b>ET Leader</b>	<b>IEC</b>	<b>ER / SOR</b>	<b>Contractor</b>
Action Level	<ol style="list-style-type: none"><li>1. Repeat statistical data analysis to confirm findings.</li><li>2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&amp;A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences.</li><li>3. Identify source(s) of impact.</li><li>4. Inform the IEC, ER/SOR and Contractor,</li><li>5. Check monitoring data.</li><li>6. Review to ensure all the dolphin protective measure are fully and properly implemented and advise on additional measures if necessary.</li></ol>	<ol style="list-style-type: none"><li>1. Check monitoring data submitted by ET and Contractor.</li><li>2. Discuss monitoring results and findings with the ET and the Contractor.</li></ol>	<ol style="list-style-type: none"><li>1. Discuss monitoring data with the IEC and any other measures proposed by the ET.</li><li>2. If ER/SOR is satisfied with the proposal of any other measures, ER/SOR to signify the agreement in writing on the measures to be implemented.</li></ol>	<ol style="list-style-type: none"><li>1. Inform the ER/SOR and confirm notification of the non-compliance in writing.</li><li>2. Discuss with the ET and the IEC to propose measures to the IEC and the ER/SOR.</li><li>3. Implement the agreed measures.</li></ol>



Event	ET Leader	IEC	ER / SOR	Contractor
Limit Level	<ol style="list-style-type: none"><li>1. Repeat statistical data analysis to confirm findings.</li><li>2. Review all available and relevant data, including raw data and statistical analysis results of other parameters covered in the EM&amp;A, to ascertain if differences are as a result of natural variation or previously observed seasonal differences.</li><li>3. Identify source(s) of impact.</li><li>4. Inform the IEC, ER/SOR and Contractor of findings,</li><li>5. Check monitoring data.</li><li>6. Repeat reviewing to ensure all the dolphin protective measure are fully and properly implemented and advise on additional measures if necessary.</li><li>7. If the ET proves that the source of impact is caused by any of the construction activity by the works contract, the ET to arrange a meeting to discuss with IEC, ER/SOR and Contractor for necessity of additional dolphin monitoring, and/or any other potential mitigation measures (eg, consider to modify the perimeter silt curtain or consider to control/temporarily stop relevant construction activities...etc), and submit to the IEC a proposal of additional dolphin monitoring and/or mitigation measures where necessary.</li></ol>	<ol style="list-style-type: none"><li>1. Check monitoring data submitted by ET and Contractor;</li><li>2. Discuss monitoring results and findings with the ET and the Contractor;</li><li>3. Attend the meeting to discuss with ET, ER/SOR and Contractor the necessity of additional dolphin monitoring and other potential mitigation measures.</li><li>4. Review proposals for additional monitoring and any other mitigation measures submitted by ET and Contractor, and advise ER/SOR of the results and findings accordingly.</li><li>5. Supervise / Audit the implementation of additional monitoring and/or any other mitigation measures, and advise ER/SOR of the results and findings accordingly.</li></ol>	<ol style="list-style-type: none"><li>1. Attend the meeting to discuss with ET, IEC and Contractor the necessity of additional dolphin monitoring and any other potential mitigation measures.</li><li>2. If ER/SOR is satisfied with proposals for additional dolphin monitoring and/or any other mitigation measures submitted by the ET and Contractor and verified by the IEC, ER/SOR to signify the agreement in writing on such proposals and any other mitigation measures.</li><li>3. Supervise the implementation of additional monitoring and/or any other mitigation measures.</li></ol>	<ol style="list-style-type: none"><li>1. Inform the ER/SOR and confirm notification of the non-compliance in writing;</li><li>2. Attend the meeting to discuss with ET, IEC and ER/SOR the necessity of additional dolphin monitoring and any other potential mitigation measures.</li><li>3. Jointly submit with ET to IEC a proposal of additional dolphin monitoring and/or any other mitigation measures when necessary.</li><li>4. Implement the agreed additional dolphin monitoring and/or any other mitigation measures.</li></ol>