

Information Paper

Legislative Council Panel on Transport

**Hong Kong – Zhuhai – Macao Bridge Hong Kong Link Road  
Reclamation Works**

This Information Paper provides relevant particulars in response to the questions of the LegCo members regarding situation of the Hong Kong – Zhuhai – Macao Bridge (HZMB) Hong Kong Link Road (HKLR) Project.

**HZMB HKLR Project**

1. Highways Department HZMB Contract No. HY/2011/03 “Hong Kong Link Road – Section between Scenic Hill and Hong Kong Boundary Crossing Facilities” is a design and build contract commencing on 31 May 2012. The contractor is responsible for the detailed design and the construction of works. All submitted design packages have to comply with the contract requirements. Prior to the construction of the Works, the drawings have to be vetted by the consulting engineers engaged by Highways Department (HyD). Resident site staff of the consulting engineers is responsible for supervising the construction works to ensure the works quality and progress.

**Non-dredged Reclamation Method**

2. HyD submitted the Environmental Impact Assessment (EIA) Report of the HKLR Project to the Environmental Protection Department (EPD) on 15 June 2009, which was approved by EPD on 23 October 2009 under EIA Ordinance (Cap. 499). The corresponding works would adopt dredged method for carrying out reclamation works involving 37 ha of low ecological value seabed loss (including 27 ha and 10 ha for permanent and temporary seabed loss respectively). Subsequently, EPD granted the Environmental Permit (EP) to HyD on 4 November 2009.

3. In order to minimize impacts arising from the reclamation works to the environment, HyD subsequently decided to adopt a new non-dredged method which is the first of its kind in Hong Kong to construct the reclamation area with rubble mound seawall for the at-grade road section of HKLR connecting to the HKBCF. In respect of the change from dredged to

non-dredged construction method for the reclamation works, HyD submitted, according to Section 13 of the Ordinance, an application to EPD for the Variation of EP (VEP) which was granted by EPD on 9 November 2011. The main reasons for applying this VEP are to significantly reduce dredging and disposal of marine deposit and in addition, to minimize the impact to the water quality and the environment and to reduce the marine construction traffic by adopting the non-dredged method. The corresponding works involved the construction of a temporary rock fill platform, which would be removed after completion of the seawall.

4. Before the commencement of construction of the HKLR Project, an Environmental Team (ET), which is led by an ET Leader engaged by the Contractor, has been established and an Independent Environmental Checker (IEC) engaged by HyD has been appointed to audit the work implemented by the ET, according to the EP conditions. The ET is responsible for the implementation of the Environmental Monitoring & Audit (EM&A) programme in accordance with the requirements contained in the EM&A Manual<sup>1</sup> approved by EPD. The IEC is responsible for duties defined in the EM&A Manual and auditing the overall EM&A programme, including the implementation of all environmental mitigation measures, making submissions to EPD as required in the EM&A Manual, and any other submissions required under the EP.

5. By adopting the non-dredged method to construct the HKLR reclamation area and the rubble mound seawall, the existing soft and compressible marine mud layer (ranging from about 6 to 14 metres (m) in thickness) underlying the reclamation area were not dredged but left in place. According to the contractor's design, a temporary rock fill platform would be constructed first, followed by installation of band drains and application of surcharge upon the reclaimed land for consolidation of the marine mud layer in order to strengthen the ground. The temporary rock fill platform would be completely removed upon completion of the permanent seawall. Settlement and lateral extension of the reclaimed land formed by non-dredge method are common and anticipated during construction. The extent will be affected by different ground conditions.

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<sup>1</sup> EM&A Manual is a document included in the EIA Report.

## **Seawall Extension in HKLR Reclamation Site**

6. As mentioned in our Press Conference on 20 February 2017, relatively large extensions (5m – 10m towards the sea) at two locations of the seawall (approximately 300m and 250m in length) being constructed were observed by the resident site staff engaged by HyD on 26 October 2014 and 6 November 2014. HyD immediately followed up the incidents. As HY/2011/03 is a design and build contract, the contractor is responsible for investigation at the concerned locations and carrying out corresponding design review. The contractor submitted to HyD a remedial proposal to strengthen the affected sections of seawall. The contractor submitted the initial investigation reports on 15 November 2014 and 5 January 2015 for the incidents at the two locations.

7. The strengthening measures proposed by the contractor included installation of additional steel piles and band drains, which had been reviewed by the consulting engineers and the relevant Government departments, as well as verified in April 2015 by an independent expert employed by HyD to ensure that the performance of seawall as a whole would comply with the contract requirements. The contractor carried out the strengthening measures at their own cost with no adverse impact to the works programme of HKLR. The strengthening measures was consented for commencement in mid 2015 and completed at end 2015.

8. At the same time, prior to the complete consolidation of the reclamation area, the contractor proposed to enlarge the temporary rockfill platform (i.e. toe loading platform) at the location in front of the seawall to strengthen its stability and ensure it could be constructed at the original design location. The approximately 9.8 ha temporary rockfill platform as seen on site is not the “new reclamation area” reported by some of the media. As confirmed in the press release issued by EPD on 22 February 2017, such works do not violate the relevant requirements under the EP.

9. HyD and the consulting engineers have closely monitored the HKLR reclamation works and the consulting engineers increased additional monitoring points for settlement and lateral extension. No abnormalities of settlement and lateral extension have been found since end 2015. Both HyD and the consulting engineers will continue to closely monitor the reclamation works via the installed monitoring points.

### **Appointment of Independent Expert**

10. HyD employed an internationally renowned expert on 9 March 2015 to carry out an independent review of the incident and verify the contractor's strengthening measures which have been reviewed by the consulting engineers and the relevant Government departments to further ensure the overall performance of the seawall in compliance with the contract requirements.

11. The final independent review report prepared by the expert would be finalized upon completion of the permanent seawall and reclamation works at the end of this year, after reviewing and verifying all site investigation and monitoring data. Then, the reasons for the relatively large lateral extension of the seawall during construction can be concluded.

### **Environmental and Safety Assessment**

12. The HKLR reclamation works comply with the EIA Report requirements and have implemented all environmental mitigation measures specified in the EP including installation of silt curtains at works area to prevent silt from dispersion to the adjacent waters. Both the reclamation works and the temporary rockfill platform are constructed within the gazette boundary for the foreshore and/or sea-bed affected by the proposed reclamation works. The reclamation works carried out by the contractor did not exceed the relevant boundary.

13. The approximately 9.8 ha temporary rockfill platform already constructed is a temporary measure of the reclamation works and is within the approximate 10 ha temporary seabed loss mentioned in the EIA report. The temporary rock fill platform in front of the seawall will be removed upon completion of the Works.

14. The EPD has been conducting monthly surprise inspections to the HZMB project to ensure all environmental protection measures required under the EP (including the installation of silt curtains outside the reclamation area) are effectively implemented. The environmental monitoring data in the EM&A reports regularly submitted by HyD shows that the silt curtains work effectively and the water quality near the reclamation area meets the relevant water quality monitoring levels. The EIA Report of HKLR also confirms that the seabed in the vicinity of the reclamation area at the eastern shore of Airport Island is of low ecological value, and the reclamation works will not cause significant ecological impact.

## **Regular Reporting on Works Progress**

15. On the other hand, HyD reported the progress of the reclamation works to the relevant departments including Marine Department (MD) during the monthly Marine Management Liaison Group meetings. The construction progress of the temporary rock fill platform was also contained in the monthly EM&A reports submitted to EPD.

16. THB and HyD have not concealed anything in relation to the reclamation works. In fact, the environmental mitigation measures specified in the EP have all been implemented and the reclamation works including the temporary rockfill platform are constructed within the gazette boundary. Notwithstanding the extensions of the reclamation during construction, no safety incident occurred and no impact to the public safety and the environment was caused. The contractor has already carried out strengthening measures and borne the costs associated with the design review and implementing the measures.

17. Upon completion of the consolidation of reclamation works and the construction of permanent seawall, the temporary rockfill platform will be removed starting from mid 2017. The whole reclamation works, including the removal of the temporary rockfill platform will be completed by end 2017 in accordance with the Contract, to fulfill the completion of all the permanent seawall construction works.

## **Conclusion**

18. HZMB HKLR is a large-scale infrastructure project and unavoidably faces many difficulties and challenges during its construction. For the HKLR reclamation works, HyD, the consulting engineers and the contractor are fully aware of all the challenges involved and have strived to overcome all the difficulties and technical problems encountered in both design and construction stages. We will endeavour to complete the Works safely and in compliance with quality and environmental requirements. HyD has reviewed the progress of HKLR Project, and maintain the target to achieve readiness for commissioning of the HZMB by end 2017 without over-expenditure.

Highways Department  
23 February 2017