

For information on
12 April 2017

Legislative Council Panel on Manpower

Occupational Safety Condition of Construction of Hong Kong-Zhuhai-Macao Bridge

This paper is to brief Members on the occupational safety condition concerning the construction of Hong Kong-Zhuhai-Macao Bridge (“HZMB”) local related projects (Hong Kong Link Road (“HKLR”) and Hong Kong Boundary Crossing Facilities (“HKBCF”)) and Tuen Mun – Chek Lap Kok Link (“TM-CLKL”), as well as the work of relevant government departments in this aspect.

HZMB Local Related Projects and TM-CLKL

2. The construction of HZMB local related projects (HKLR and HKBCF) and TM-CLKL commenced in 2011 and 2013 respectively. The projects are managed by Highways Department (“HyD”), while the consultants appointed by HyD are responsible for supervising and implementing the construction works.

Implementation of Safety Management System by HyD

3. HyD accords particular attention to occupational safety at construction sites. The relevant requirements on occupational safety are included in the contract provisions of the public works contracts, including the development of safety plans, implementation of safety management system, and provision and maintenance of safe construction plants and working environment according to statutory requirements. HyD has repeatedly urged the consultants’ resident site staff (“RSS”) to review the overall safety management system and safety measures being implemented, including the safety measures related to marine works. HyD has also required the contractors to strictly implement the safety measures to ensure works are carried out safely. HyD will continue to closely monitor the occupational safety condition at construction sites of the HZMB local related projects and TM-CLKL and review the effectiveness of safety measures with the consultants and contractors.

4. In implementing and monitoring the safety measures, the contractors, the RSS, works departments and law enforcement departments each has the following responsibilities:

- The contractors are required to establish and implement safety management systems in accordance with the contractual and statutory requirements. The contractors shall ensure the workers have received adequate safety training prior to entering the construction sites and commencing construction works with suitable personal protective equipment such as safety helmets, safety shoes, reflective vests, life jackets and lifelines.
- The contractors' supervisors and safety supervisors shall inspect the site daily, while the safety officers shall inspect the sites weekly to ensure site safety. The contractors shall appoint a works supervisor on each construction vessel to supervise the works in accordance with the safety instructions. The contractors' safety managers and safety officers shall conduct an internal safety audit every six months. In addition, the contractor shall appoint a registered safety auditor to conduct safety audit at least once every six months.
- The RSS are responsible for vetting the contractors' planned method statements and risk assessments to ensure that the works are adequately supervised before and during construction. The RSS, together with the contractors, established the Site Safety and Environmental Management Committees ("SSEMC") to develop and implement site safety management systems and monitor the contractors' safety performance. The site supervisors and safety personnel of the RSS and the contractors jointly inspect the site safety provisions weekly and carry out follow-up actions accordingly. The site supervisors and safety personnel of the RSS and the contractors conduct routine inspections and require the contractors to follow up immediately when safety deficiency is observed.
- HyD conducts regular site inspections and attends monthly SSEMC meetings. Other relevant departments, including Labour Department

(“LD”), also attend the meetings and pre-meeting visits. HyD monitors the safety management systems of the consultants and the contractors, and reflect their safety performance in their regular performance reports.

- HyD assesses the contractors’ performance, including site safety, and reflects it in the performance reports quarterly. HyD will record in the performance reports if the contractors have any violation of statutory or contractual requirements during the reporting period. The contractors’ safety performance is one of the factors for consideration in the tender assessment of public works contracts, which may also affect the contractors’ eligibility for tendering in public works contracts.

5. To further enhance site safety, HyD has implemented the following safety measures under the HZMB local related project in addition to the existing contractual and legislative safety requirements:

- HyD has requested five contractors engaged in larger-scale contracts of HKBCF, HKLR and TM-CLKL to employ safety auditors accredited by the Occupational Safety and Health Council (“OSHC”) to conduct audits on safety management systems and safety measures every six months. After reviewing the audit reports by OSHC, the audit reports will be submitted to HyD, the RSS and the contractors for review and follow-up actions. OSHC also conducts a surprise safety inspection between two safety audits to verify the site safety performance.
- The directorate officers of HyD together with the senior management of the contractor also conduct dedicated safety inspection at monthly intervals. During the inspection, they visit the work sites and discuss safety issues with the frontline staff with particular emphasis on site safety and working environment.
- The project engineers of HyD carry out cross-team safety audits on a quarterly basis to review the safety condition of other works contracts and the RSS’ safety performance in implementation of safety

management, enabling exchange of experience and improving effectiveness of safety measures.

- The RSS have also strengthened their site inspection by arranging a monthly surprise site safety check by the consultants' senior management. The consultants have also arranged cross-contract audits by the RSS at half-yearly intervals to share experience on site safety and to improve the site safety measures.

6. Through the implementation of the above-mentioned safety management measures, HyD believes that the HZMB local related projects and TMCLKL will be implemented safely. At the same time, HyD has urged again all RSS to step up their monitoring of the contractors' safety performance and required all contractors to strictly implement the safety management system and safety measures to ensure all operations are carried out safely, and to emphasize that safety must not be compromised due to tight construction programme.

Labour Department's Occupational Safety Promotion Work

7. LD strives to minimize work hazards in the construction industry through inspection and enforcement, publicity and promotion, as well as education and training. In response to the increasing number of mega infrastructure projects in recent years which involve a large number of workers, expansive site areas and extensive use of heavy machinery, LD has formulated a targeted strategy to enhance the occupational safety and health ("OSH") performance of these projects.

8. Targeting these mega infrastructure projects, including the construction of HZMB, LD established a dedicated office in 2011 specifically tasked to inspect these projects and conduct related law enforcement work. The office urged contractors to implement safety management systems at construction sites and to consider OSH elements as early as possible in preparing work method statements through participation in the project preparatory meetings and site safety committees. As the TM-CLKL project involves the use of saturation mode of high pressure compressed air work for its tunnelling work, LD also set up a surveillance team comprising occupational safety officers, occupational

health officer and occupational hygienist in 2015 to ensure the excavation works is conducted in compliance with LD's OSH requirements.

9. Apart from setting up the aforesaid designated teams, LD has also formulated a number of measures to monitor the OSH performance of the HZMB construction, including stepping up inspection and enforcement efforts, focusing on tackling systemic risks and strengthening publicity and training.

10. In respect of inspection and enforcement, apart from routine surprise inspections to various work projects of HZMB, LD has also launched focused enforcement operations targeting at high risk work processes, such as construction work over and near water and the use of lifting frames and launching girders, to deter unsafe work activities. Since the commencement of the works in 2011 till the first quarter of 2017, LD conducted a total of 1 384 inspections and issued 51 suspension notices and 230 improvement notices with 329 prosecutions initiated/taken. The number of days of works suspension resulted from the issuance of the suspension notices was 712 days. Since the commencement of the HZMB project in 2011, LD has recorded 275 industrial accidents¹ (up to 2016) and nine fatal accidents (up to March 2017). Two of the fatal accidents involved workers on vessels.

11. As regards work safety of sea-based construction work, LD has conducted 28 joint enforcement operations with the Marine Department ("MD") since 2014. During these operations, LD will examine whether the contractors have assessed the risk of workers falling into water and drowning while conducting construction work near or over water, and whether secure fences and life-saving equipment are installed/provided at workplaces with such risks. LD also requires the contractors to ensure workers at risk of drowning to wear life jackets at work. In addition, LD and MD also established a notification mechanism to ensure timely follow-up on unsafe works near or over water of the HZMB construction. In view of the remoteness of the HZMB construction, LD has assessed the efficiency of the contractors in implementing the contingency plans in case of major incidents and adverse weather conditions through a number of drills so as to ensure their capability in handling such emergencies.

¹ The number does not include accidents that happened at marine construction works, which is under the supervision of the Marine Department.

12. With regard to safety promotion, LD has briefed the Development Bureau and HyD on the law enforcement situation and work risk assessment concerning the construction of HZMB and other large-scale public works projects through high-level meetings with them, and urged the contractors concerned to enhance their safety management systems and safety supervision at work so as to eliminate the potential work hazards.

13. LD has also organised safety promotional activities targeting the professional resident staff and frontline workers. LD and MD have held a thematic safety talk, focusing on work activities over or near water for duty holders of the HZMB project such as RSS and contractors etc. LD also organised eight safety seminars for workers of relevant works in 2015 and 2016. LD will continue to arrange such promotional activities in 2017.

MD's work on marine industrial safety

14. The Marine Industrial Safety Section of MD is mainly responsible for monitoring the works (including marine construction works) being carried out on board all vessels within the waters of Hong Kong.

15. MD is highly concerned about marine industrial safety and conducts monthly inspection of the works carried out by the main contractors and sub-contractors of the HZMB projects. Follow up meetings will also be arranged upon the completion of each inspection to highlight the areas found in the inspection that require further improvement as well as remind the main contractors and sub-contractors about the legislative requirements and issues for attention. In accordance with the records, MD conducted 98 inspections for the project in 2016.

16. With regard to the joint inspections mentioned in paragraph 11 above, MD will check workers' safety training certificates, personal protection gear and safety of the relevant equipment. Prosecution actions will be taken by MD if any violation of the requirements of the Merchant Shipping (Local Vessels) Ordinance is found.

17. In addition to the meetings held with the main contractors and sub-contractors after inspections, MD also organizes marine industrial safety seminars from time to time. Between 2014 and 2016, it held a total of 17 safety seminars. Further to this, MD together with LD issued a guideline on “Marine/Shoreside Construction Works Safety Instructions” in 2015 to the trade in order to improve marine industrial safety. In 2017, MD will step up promotion activities by distributing safety posters, code of practice, safety booklets and organizing at least 10 marine industrial safety seminars to relevant stakeholders in order to enhance their safety awareness.

Follow-up actions on the fatal accident on 29 March

18. HyD set up an Independent Investigation Task Force (“the Task Force”) led by Deputy Director of Highways on 30 March, to investigate the possible causes of the accident to prevent recurrence of similar accidents and to develop improvement measures on site safety. Members of the Task Force have no connection with the HZMB local related projects. The Task Force will submit a report to the Director of Highways in three months. HyD will publish the findings of the report at an opportune time and take appropriate follow-up actions. At present, some initial investigation findings have been reported to relevant law enforcement departments for follow-up. In addition to the immediate suspension of the concerned dismantling operation, all major construction activities of the concerned works contract have also been stopped. A comprehensive safety assessment is being conducted on these major construction activities. These works will not be resumed until the safety situation on site has become satisfactory.

19. LD is highly concerned about the accident. Upon being notified of the accident, LD commenced immediate investigation and issued suspension notices to the contractors/employers concerned to suspend the associated work processes. The contractors/employers cannot resume the work process until LD is satisfied that measures to abate the relevant risks have been taken. LD is conducting investigation in full gear to identify the cause of the accident, ascertain the liability of the duty holders and recommend improvement measures. LD will take actions pursuant to the law if there is any violation of the OSH legislation. Also, LD has issued Work Safety Alerts, reminding the industry to

take suitable safety precautionary measures to prevent recurrence of similar accidents. LD has also stepped up inspections to sea-based construction sites to deter unsafe works near or over water. LD will organise safety talks/seminars for marine industrial safety responsible personnel, RSS and frontline workers of HZMB projects in conjunction with MD.

LD's measures in response to recent fatal industrial accidents

20. Together the aforementioned fatal accident, there have been seven industrial fatalities in the construction industry in 2017. LD is highly concerned about the situation and has rolled out a series of initiatives to curb recurrence of similar accidents. The Commissioner for Labour has met with construction industry stakeholders to discuss how to further enhance the safety awareness of employers and employees, and remind the industry to take suitable and adequate safety measures. As a number of the fatal accidents involved workers falling from height, LD has stepped up enforcement effort and launched a special enforcement operation, targeting at work-at-height safety with special attention to scaffolding works and other high risk processes, to deter unsafe works. LD has also stepped up television and radio broadcast of Announcements of Public Interest to remind employers to provide safe working platforms, suitable personal protective equipment and anchorage for workers, and that workers must also attach their personal protective equipment to independent lifelines and other secure anchorages. LD has also widely disseminated the above messages through other channels such as public transport and safety promotional activities. LD has issued advisory letters to all relevant stakeholders, urging them to strengthen safety measures so as to ensure the OSH of workers, including conducting risk assessment for work processes, devising appropriate systems of work and providing suitable personal protective equipment.

21. In addition, LD is actively organising a large-scale continuous campaign to remind the stakeholders of the construction industry, including project proponents, contractors, subcontractors, workers and safety practitioners, the importance of work safety, especially the risk of work-at-height, and taking appropriate precautions to prevent accidents. LD is actively working out the details of the campaign with OSHC and other relevant stakeholders, with a view

to kicking off the campaign the soonest possible so as to further consolidate safety protection for construction workers. The campaign will include a series of publicity, promotion and education initiatives targeting different stakeholders of the construction industry and common works risks. The campaign will cover concrete measures to enhance work safety, such as promoting the use of safety helmets with chin straps, improvement on the design of bamboo scaffolds, revamp of the curriculum of the Mandatory Basic Safety Training (Construction Work) (commonly known as "Green Card") courses etc. LD looks forward to working together with different stakeholders of the construction industry to enhance the OSH performance of the industry through this campaign.

Advice sought

22. Members are invited to offer views on the above.

Labour Department
Highways Department
Marine Department
April 2017