

**Legislative Council Panel on Transport**  
**Subcommittee on Matters Relating to Railways**  
**Progress Update of the Construction of the Shatin to Central Link**  
**(As at 31 December 2016)**

## **Introduction**

This paper reports to Members on the progress of the main construction works of the Shatin to Central Link (“SCL”) as at 31 December 2016.

## **Background**

2. SCL, with a total length of 17 kilometres, consists of the following two sections –

- (a) Tai Wai to Hung Hom Section: this is an extension of the Ma On Shan Line from Tai Wai via Southeast Kowloon to Hung Hom where it will join the West Rail Line; and
- (b) Hung Hom to Admiralty Section: this is an extension of the East Rail Line from Hung Hom across the Victoria Harbour to Wan Chai North and Admiralty.

3. SCL will have ten stations. Apart from bringing improvements to the existing Tai Wai Station, the SCL project will involve construction of new stations or extension of existing stations at Hin Keng, Diamond Hill, Kai Tak, To Kwa Wan, Ma Tau Wai, Ho Man Tin, Hung Hom, the Hong Kong Convention and Exhibition Centre, and Admiralty. It is a territory-wide strategic railway project (alignment layout at **Annex 1**). Admiralty Station and Ho Man Tin Station will become integrated stations providing interchange service to passengers of SCL and South Island Line (East)(“SIL(E)”), as well as passengers of SCL and Kwun Tong Line Extension (“KTE”) respectively.

4. The Approved Project Estimate for the entire SCL project is **\$79,800 million**<sup>1</sup> (in money-of-the-day prices) and the project is funded by the Government under the “concession approach”. The MTR Corporation Limited (“MTRCL”) is entrusted by the Government to carry out the construction of the project. On 18 February 2011, the Finance Committee of the Legislative Council approved the funding applications for “63TR – Shatin to Central Link – construction of railway works – advance works” and “64TR – Shatin to Central Link – construction of non-railway works – advance works” with a total of about **\$7,700 million** (in money-of-the-day prices). Thereafter, the Government and MTRCL entered into an agreement for entrusting to the latter the advance works of SCL at the expanded Admiralty Station and Homantin Station while implementing SIL(E) and KTE respectively. The advance works commenced in May 2011.

5. Subsequently, on 11 May 2012, the Finance Committee of the Legislative Council approved the funding applications for “61TR – Shatin to Central Link – construction of railway works – remaining works” and “62TR – Shatin to Central Link – construction of non-railway works – remaining works” with a total of about **\$71,400 million** (in money-of-the-day prices). Thereafter, the Government and MTRCL entered into an agreement for entrusting construction, testing and commissioning of the main works of SCL to the latter. MTRCL has been entrusted to provide management and monitoring service to the SCL project. The main works commenced in July 2012. According to the agreement for the main works of SCL, the original target commissioning date for the “Tai Wai to Hung Hom Section” is December 2018 and the original target commissioning date for the “Hung Hom to Admiralty Section” is December 2020.

## **Monitoring Mechanism of the Government**

6. According to the entrustment agreement, MTRCL is responsible for the overall management of the SCL project. The Government maintains a mechanism to closely monitor the work of the MTRCL, which includes a Project Supervision Committee (“PSC”) led by the Director of Highways (“DHy”). The

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<sup>1</sup> The Approved Project Estimate for the entire SCL project comprises (i) Protection Works (**58TR** Shatin to Central Link – construction of railway works – protection works and **59TR** Shatin to Central Link – construction of railway works – protection works in Wan Chai Development Phase II) of about \$700 million (in money-of-the-day prices); (ii) Advance Works (**63TR** and **64TR**) of about \$7,700 million (in money-of-the-day prices); and (iii) Main Works (**61TR** and **62TR**) of about \$71,400 million (in money-of-the-day prices).

PSC holds monthly meetings to review the progress of the project and monitor the procurement activities, post-tender cost control and resolution of contractual claims. MTRCL has to submit monthly progress reports to the Highways Department (“HyD”) to report the latest progress and financial position of the SCL project.

7. Moreover, an officer at Assistant Director level of HyD holds monthly Project Coordination Meetings with the General Managers and Project Managers of MTRCL to monitor different aspects of the implementation of the SCL project, including the timely completion of land-related matters, the handling of issues in relation to the design, construction and environmental fronts that may have potential impact on the progress and programme of the SCL project, as well as the handling of interfacing issues with other projects.

8. Meanwhile, two officers at Chief Engineer level hold monthly Project Progress Meetings with the site supervision staff of MTRCL on major civil and E&M works. In case of delays, the MTRCL would report delay recovery measures at such meetings.

9. The HyD has also employed a monitoring and verification (“M&V”) consultant to assist in the monitoring work and undertake regular audits. The M&V consultant will review the works progress and advise the HyD of any potential risk of delay. It will also offer comment to the HyD on the appropriateness of MTRCL’s proposed delay recovery measures.

10. The DHy meets with the Secretary for Transport and Housing (“STH”) on a monthly basis and submits reports to report the progress of the project. Where necessary, he also reports to the STH any significant issue relating to the implementation of the project.

### **Financial Arrangement for Advance Railway Works of the Shatin to Central Link (63TR)**

11. The advance railway works of SCL include the expansion of the existing Admiralty Station and the construction of Ho Man Tin Station to accommodate the railway facilities of SCL. Upon expansion, Admiralty Station will become an integrated station serving passengers of SCL and SIL(E). Hence, except for the construction cost (about \$300 million in money-of-the-day prices) of the overrun

tunnel of SCL which would be fully absorbed by the SCL project, the construction cost of the expansion works of Admiralty Station will be apportioned between SCL and SIL(E) projects at a ratio of 70:30 in accordance with the estimated patronage at peak hours at the station. According to the cost estimate in 2011, SCL project has to share about \$2,700 million (in money-of-the-day prices) for the costs of building works, building services works, electrical and mechanical (“E&M”) works for the portion of SCL at Admiralty Station. Besides, the SCL project has to share about \$350 million (in money-of-the-day prices) for the construction costs of the portion of ventilation facilitates at Admiralty Station for SCL. Hence, the SCL will have to share an overall cost of about \$3,350 million (in money-of-the-day prices) for the advance works at Admiralty Station. Ho Man Tin Station is also an integrated station serving passengers of both SCL and KTE. The construction cost of Ho Man Tin Station is also apportioned between SCL and KTE projects at a ratio of about 74:26 in accordance with the estimated patronage at peak hours at the station. According to the cost estimate in 2011, the SCL project has to share about \$2,900 million (in money-of-the-day prices) for the costs of building works, building services works, E&M works for the advance works of SCL at Ho Man Tin Station.

12. MTRCL advised HyD in August 2015 that the completed cost estimate review of the expansion works of Admiralty Station of SIL(E) indicated an upward adjustment of the relevant cost of expansion works of Admiralty Station to be shared by SCL. According to the information provided by MTRCL to HyD in August 2015, the relevant construction cost of Ho Man Tin Station shared by SCL would remain within the budget under the advance railway works of SCL (63TR). According to the information provided by MTRCL, HyD and its M&V consultant had conducted a comprehensive assessment. Having considered the latest construction cost estimate of Admiralty Station and Ho Man Tin Station, it was opined that the contingency of 63TR – SCL advance railway works would be insufficient to meet the additional cost of the relevant construction works for the expansion of Admiralty Station. Therefore, we have explained to the Legislative Council (“LegCo”) Subcommittee on Matters Relating to Railways (“Subcommittee”) in December 2016 for the proposed increase of the Approved Project Estimate (“APE”) of 63TR - the advance railway works of SCL by \$847.7 million, from the original \$6,254.9 million to \$7,102.6 million (in money-of-the-day (MOD) prices), and the Subcommittee supported the proposal. We submitted a paper on the proposed increase in the APE of 63TR to the Public Works Subcommittee on 18 January 2017 with a view to obtaining the approval of the Finance Committee for the additional fund in the second quarter of 2017.

## **Latest Progress of the Main Works**

13. The progress report of the SCL project as at 31 December 2016 submitted by MTRCL is at **Annex 2**. The analysis and supplement made by HyD on the progress report are provided below.

### Tai Wai to Hung Hom Section

#### *Shatin Section (Section of Railway between Tai Wai Station and Ma Chai Hang, Wong Tai Sin, including Hin Keng Station and Modification of Station Platforms of Ma On Shan Line)*

14. Building services works and E&M works, including the installation of overhead line, lifts, escalators, signalling system, power and relevant systems, at Hin Keng Station and the connecting elevated and at grade tracks are in progress, the progress is generally in line with the planned programme. Construction of the Emergency Vehicular Access outside the station and the diversion works for the underground utilities at Che Kung Miu Road are in progress. In addition, station modification works for all stations along Ma On Shan Line were completed on 20 November 2016 and have been opened for public use. Installation works for the Automatic Platform Gates (“APG”) at all stations along Ma On Shan Line continue.

15. During the period from January to September 2014, the excavation works of Hin Keng to Ma Chai Hang Tunnel had been slightly behind schedule due to unfavorable ground conditions. MTRCL has taken various measures to speed up the works so as to recover some of the delays in the tunnel excavation. Tunnel lining construction inside the Hin Keng to Ma Chai Hang tunnel was completed in September 2016 and track laying works are in progress. The drill and blast works, and the tunnel lining construction for the ventilation tunnel at the former Ma Chai Hang Recreation Ground running towards Hin Keng were completed in December 2016.

#### *Wong Tai Sin Section (Section of Railway between Ma Chai Hang, Wong Tai Sin and Kai Tak, including Diamond Hill Station)*

16. Building services works and E&M works inside the SCL Diamond Hill

Station are in progress. Foundation works for the two pedestrian adits underneath Lung Cheung Road connecting Diamond Hill Stations of SCL and the Kwun Tong Line are in progress and it is anticipated that the structural works for the adits will be completed in the fourth quarter of 2017. Besides, the construction of emergency access point and the Public Transport Terminus at the junction of Wong Tai Sin Road and Sha Tin Pass Road continues.

17. The excavation and tunnel lining construction works of the two sections of tunnels from Kai Tak Station to Diamond Hill Station and from Diamond Hill Station to Ma Chai Hang were completed in September 2016. Track laying works are in progress and in line with the programme. The construction of the ventilation building at the former Ma Chai Hang Recreational Playground is in progress.

18. Regarding the improvement works of the pedestrian connecting facilities between Tsz Wan Shan area and Diamond Hill Station of SCL (the layout plan of the pedestrian connecting facilities at **Annex 3**), 11 out of the 15 items of facilities have already been opened for public use since January 2016, these include the lifts next to Po Kong Village Road and Fung Tak Road footbridges (opened in end October 2016), the lift at Lung Poon Street (opened in early November 2016), the staircase and escalator at Tsz Lok Estate near Tsz Wan Shan Shopping Centre (opened in end December 2016), the lift next to Tsz Lok Estate Ancillary Facilities Block (opened in end December 2016) and the covered walkways at Po Kong Village Road near Tsz Lok Estate Phase 3 (opened in end December 2016). Another 2 items are anticipated to be gradually opened to the public in the first quarter of 2017, including the lift next to Ching Hong House of Tsz Ching Estate and the covered walkways at Po Kong Village Road near Fung Tak Estate. Regarding the remaining two items, i.e. the footbridges along Wan Wah Street and Yuk Wah Street, it is anticipated that they would be completed in the third quarter of 2017.

*Kowloon City Section (Section of Railway between Kai Tak Station to Ho Man Tin Station, including To Kwa Wan Station and Ma Tau Wai Station)*

*Kai Tak Station*

19. The construction of the main structure of the Kai Tak Station and the tunnel structures between Kai Tak Station and To Kwa Wan Station were

completed in July 2015 and April 2016 respectively. The fitting-out works, E&M works and track laying works in the station and tunnels are in progress. The fitting-out works of the entrances are also underway.

### *To Kwa Wan Station*

20. In accordance with the recommendation of the Environmental Impact Assessment Report of SCL, MTRCL carried out the archaeological work at the designated site area before the commencement of the construction of To Kwa Wan Station. Under the close supervision of the Antiquities and Monuments Office (“AMO”), the independent archaeological team engaged by the contractor of the SCL carried out the archaeological work between November 2012 and December 2013.

21. Over 500 coins mainly dated to the Song dynasty were discovered while piling works were carried out at the location of the launching shaft for tunnel boring machines. MTRCL reported the discovery immediately to AMO. Upon request and under the close supervision of AMO, the independent archaeological team carried out the expanded archaeological work at the launching shaft area in December 2013. At the same time, MTRCL suspended the construction works in the area where archaeological work was ongoing, except for those relating to the archaeological excavation in order not to affect the archaeological work. It had caused a delay to the progress of works. As a result, some labour, machinery and equipment of the contractor had to be left idle.

22. The expanded archaeological work was completed in April 2014. However, a square-shaped stone well of the Song-Yuan period and stone building remnants (i.e. items 5 and 6 of the archaeological features at **Annex 4**) were discovered at the T1 Area which was of about 400 square metres at the south-western corner of the TBM launching shaft. The construction work within the T1 Area could not resume and thus affecting the construction of the entire TBM launching shaft and the subsequent tunneling works. Under the agreement of Antiquities Advisory Board, MTRCL had implemented appropriate measures for the protection of the stone well in the T1 area and other stone building remnants in July 2014. The excavation of launching shaft could then resume. In order not to affect the remnants within T1 Area, MTRCL had to alter the temporary support structure design for the TBM launching shaft and re-sequence the construction of the launching shaft. It had caused further delay to the construction of the launching shaft.

23. Upon the request of AMO, the archaeological work was further expanded to the entire works site of To Kwa Wan Station. The further expanded archaeological work commenced in April 2014 and completed in September 2014. In order not to affect the archaeological work and discoveries, MTRCL had to suspend the construction works within the archaeological work area. HyD worked with MTRCL to explore measures to adjust the construction sequence, modify the original construction method, and to devise a suitable revised scheme for the design of To Kwa Wan Station with a view to preserving the discoveries while minimising the impact on the works.

24. The Antiquities Authority (i.e. the Secretary for Development), after considering the views of the Antiquities Advisory Board, the Legislative Council and the Kowloon City District Council, decided on the conservation options on 8 December 2014 with most of the archaeological discoveries preserved in-situ. The archaeological remnants to be preserved in-situ have to be protected by backfilling of protective materials. Under the close supervision of AMO, the protective works for the remnants to be preserved in-situ were completed in May 2015. Regarding Well J2 and the water channel (i.e. item 4 of the archaeological features at **Annex 4**), they were removed piece by piece by hand in March 2015 after detailed recording and under the close supervision of AMO. The components are stored properly for future reinstatement.

25. Moreover, as we stated in the papers submitted to this Subcommittee and the Panel on Development in November 2014, due to the preservation in-situ of the remnants at and in the vicinity of Adit C connecting the station and Pak Tai Street (i.e. items 6 to 10 of the archaeological features at **Annex 4**), the entire alignment of the adit would be seriously affected. It would be necessary to find a suitable alternative alignment for the construction of the adit. The supporting facilities within the area around the adit, previously reserved as a temporary works site for the construction of the station and the railway tunnel, are being demolished. It is anticipated that the area can be made available for further investigation by the relevant department when the respective works are completed in the second half of 2017. In other words, Adit C connecting the station and Pak Tai Street would not be completed at the same time as To Kwa Wan Station. A temporary access at grade would be required to connect the station entrance. In case no suitable alternative alignment could be identified eventually as a result of further archaeological discoveries or other site constraints, residents in the vicinity of Pak



Tai Street might need to use the existing pedestrian crossing facilities at Ma Tau Chung Road to gain access to To Kwa Wan Station. MTRCL is exploring the feasibility of adding an at-grade crossing at a suitable location of Song Wong Toi Road (see **Annex 5**) for reducing the walking distance between Pak Tai Street and the station entrance.

26. The construction works of To Kwa Wan Station fully resumed in March 2015. The excavation work for the station was substantially completed in December 2015. The structural works of the station is still in progress, but part of the platform and concourse structure was completed. It is anticipated that the station structure would be completed in the third quarter of 2017. The TBM works for the tunnel between To Kwa Wan Station and Ho Man Tin Station were completed in August 2016. The tunnel invert and access are being constructed within the tunnel.

27. MTRCL previously estimated that the archaeological works would result in a minimum delay of at least 11 months and a minimum additional cost of about \$4.1 billion to the “Tai Wai to Hung Hom Section” of SCL. In this connection, HyD and its M&V consultant worked closely with MTRCL and provided suggestions to enhance the delay recovery measures proposed by MTRCL, with a view to mitigating part of the delay to the “Tai Wai to Hung Hom Section”. With the efforts of the construction team, the delay recovery measures implemented at the “Tai Wai to Hung Hom Section” is picking up the pace progressively.

### *Ma Tau Wai Station*

28. Ma Tau Wai Station is an underground station beneath Ma Tau Wai Road. The station is being constructed by a top-down method. To cater for the construction of the station, the traffic diversion scheme implemented at a section of Ma Tau Wai Road between Chi Kiang Street and Sheung Heung Road continues. Since end 2016, phase 3 of the temporary diversion scheme commenced and two southbound traffic lanes and two northbound lanes are being provided in phases to replace the existing two southbound lanes and a single northbound lane arrangement. MTRCL is carrying out the structural works of the station in full swing. Construction of the station concourse, upper track slab and lower track slab was completed in November 2015, March 2016 and December 2016 respectively. Construction of the station entrances and

ventilation shaft continues.

*Hung Hom Section (Section of Railway between Ho Man Tin Station and Hung Hom Station, including the modification works of Hung Hom Station and associated tunnelling works)*

29. As the tunnelling works of SCL to the north of Hung Hom Station have to be carried out on a very busy road and along the operating East Rail Line, it is necessary to exercise due care to prevent the construction from affecting the busy road sections nearby. For the construction work of the section between Ho Man Tin Station and Hung Hom Station, construction of tunnel structural work was substantially completed in April 2016. Regarding the temporary traffic diversions along Chatham Road North implemented for the tunnelling works from end 2014, according to the progress of works, the relevant roads affected have been being reinstated to its original alignment in phases since December 2016. The first phase of reinstating the westbound carriageway was completed in early December 2016. For the section near Oi Sen Path south of Princess Margaret Road southbound, installation of noise enclosure was substantially completed in December 2016. For the section near Princess Margaret Road connecting the East Rail Line and the new platforms of Hung Hom Station, excavation works was substantially completed in July 2016 and tunnel structural works continue.

30. To tie in with the SCL project, part of the foundation of existing podium of Hung Hom Station is required to be modified in order to provide space for the construction of new platforms and tunnels. Due to the complicated works, part of works sequence had to be carried out in a prudent manner and taking into account the actual situation of the foundation and underground utilities. During construction, unfavourable geological conditions were encountered, thereby causing a delay of about four months to the works. MTRCL and the contractor had adjusted the work sequences and deployed additional machinery and manpower in order to recover some of the delay of the works at Hung Hom Station. The current progress is generally on schedule.

## Hung Hom to Admiralty Section

### Cross Harbour Section (Section of the tunnel across Victoria Harbour)

31. The main works of the Cross Harbour Section continue. The contractor is carrying out tunnel excavation works in the temporary marine cofferdam at Hung Hom landfall. The tunnel structural works in the temporary marine cofferdam commenced in December 2016. For the preparation for the future placement of immersed tube tunnel units, the dredging works at the seabed of Victoria Harbour and construction works of the temporary wave barrier at Causeway Bay Typhoon Shelter (“CBTS”) continue. Also, the structural works of the immersed tube tunnel units at the ex-Shek O Quarry were substantially completed in December 2016.

32. Due to the unfavourable geological conditions encountered during the tunnel excavation works within the temporary cofferdam at Hung Hom landfall, the actual amount of rock excavated is more and harder than expected, thus increasing the difficulty of excavation works and leading to a decrease in the excavation efficiency. The contractor had accelerated the excavation progress by deploying more machinery and manpower to mitigate the delay to the works, thus causing a certain impact on the construction cost. The tunnel excavation works within the abovementioned temporary cofferdam were substantially completed and the tunnel structural works have also commenced.

### Hong Kong Island Section (Section of Railway between Wan Chai North and Admiralty Station, including Exhibition Station)

33. The structural works for the re-provisioning of Harbour Road Sports Centre (HRSC) were completed. E&M works and building services works are in progress. The construction of Exhibition Station at the location of the existing HRSC could only proceed after the opening of new HRSC.

34. The tunnel excavation works of the Hong Kong Island Section are very difficult. For the section from CBTS to Exhibition Station, the tunnels are located at shallow depth, and they would pass under the heavily trafficked Gloucester Road eastbound near the portal of Cross-Harbour Tunnel. It was also necessary to resolve the challenges arising from the congested underground obstructions and the uncharted, complicated underground utilities network at Wan

Shing Street and Marsh Road. As a result, the contractor had to deploy additional resources to overcome the difficulties. In addition, the tunnel section from Convention Avenue to Admiralty Station will pass underneath the heavily trafficked Harcourt Road and close to the tunnels of the busy MTR Tuen Wan Line. To reduce the risks to the works and the public, it was necessary to remove the underground obstructions found during construction and carry out the associated advance works along the tunnel alignments before the tunnel excavation by TBM. During construction, it was necessary to closely monitor and devise emergency measures to ensure safety.

35. The excavation works of the up-track and down-track TBM tunnels from CBTS to Exhibition Station were completed in July and November 2016 respectively. Besides, the assembling of TBM at Fenwick Pier Street work site is in progress. The TBM is expected to start launching in the direction to Admiralty Station in the first quarter of 2017 for the excavation of the tunnels from Convention Avenue to Admiralty Station. Tunnel excavation would be carried out underneath the MTR Tuen Wan Line. Apart from a series of protective measures, it is required to vigilantly carry out the tunnel excavation works. For the cut and cover Western Approach Tunnels, the construction of the diaphragm wall is still in progress and excavation works underneath the Expo Drive has already commenced.

36. At the work site of Exhibition Station at the ex-Wan Chai Ferry Pier Public Transport Interchange, the construction of diaphragm walls and pipe piling works continues. In January 2017, MTRCL implemented a new temporary traffic management scheme at the junction of Convention Avenue, Fleming Road and Expo Drive East. Part of the Fleming Road traffic lanes has then become works site for the construction of diaphragm walls of Exhibition Station.

37. In addition, to allow flexibility for the construction of convention facilities above Exhibition Station, it is necessary for MTRCL to carry out enabling works for the topside development. Hence, the construction of the station becomes more complicated and additional piles have to be constructed. Based on the currently available information on the geological condition, it is initially estimated that this would result in a delay of at least 5 months for the construction of Exhibition Station and an increase in construction cost.

38. Regarding the large metal object found on the seabed within the reclamation area under Wan Chai Development Phase II (“WDII”), the Civil

Engineering Development Department (“CEDD”) removed it from the reclamation site in June 2015. The reclamation works at the location concerned were completed and associated works are underway. Originally, the reclaimed land would be handed over to the contractor of SCL at the end of December 2016. As the discovery of the metal object had affected the progress of reclamation works there, CEDD indicated that the handover date of part of the works area would still be deferred by 7 months. For the remaining works area, CEDD handed over part of it for the SCL construction on 12 January 2017, with the rest to be handed over after CEDD has completed their works. HyD and MTRCL will continue to liaise with CEDD on the handover arrangement of works areas.

39. In addition, as mentioned in previous progress reports, CEDD estimated that the handover date of the associated critical work sites adjoining the junction of Expo Drive East and Convention Avenue would be deferred by about 6 months. For a period of time, CEDD has been implementing measures to catch up with part of the works progress and most of the work sites could be handed over to MTRCL in accordance with the original schedule. It is estimated that the original delay of 6 months for the handover dates of other critical work sites would also be shortened. For those remaining work sites which could not be handed over as scheduled, HyD and MTRCL will continue to discuss further with CEDD on measures to minimise the risk of delay to SCL as far as possible.

40. Further to the works sites mentioned above, difficulties are also encountered in the handing over of another parcel of land near Fenwick Pier Street. Apart from the WDII works, CEDD is entrusted by HyD to carry out works for the Central Wan Chai Bypass (“CWB”) at the same site. The site was originally planned to be handed over from CEDD in September 2016 upon the completion of the associated works in order for SCL contractor to construct the SCL works. However, due to the design change to the CWB Middle Ventilation Building, CEDD anticipated in mid-2015 that the site could not be handed over as scheduled. Subsequent to liaison amongst parties concerned, CEDD has allowed SCL contractor to gain access to and carry out works within the site since April 2016, with a view to minimising the impact on SCL programme.

41. Besides, an abandoned pipe pile has been discovered within the works site mentioned in paragraph 40 above and the pipe pile is in close proximity to the diaphragm wall of SCL. As the pipe pile is deeply embedded into the ground, the diaphragm wall design has to be modified with a view to minimising the impact of the pipe pile on the SCL programme. Nevertheless, the construction

works could still be very challenging and need a longer time to complete. With the common goal of not affecting the progress of SCL and with the concerted efforts of parties concerned, an agreement was reached. CEDD would hand over the required site for SCL construction in three phases, with a view for the SCL contractor to carrying out the modification works.

42. Despite the above, MTRCL subsequently indicated that the “Hung Hom to Admiralty Section” would incur a further delay of three months due to the modification works as mentioned in paragraph 41 above. HyD has requested MTRCL to submit further detailed information and will examine the impact on the programme with the assistance of its M&V consultant when the detailed information is available from MTRCL. HyD and MTRCL are finding solutions to overcome the technical challenges with a view to minimising the construction and programme risks.

43. Since parts of Exhibition Station are located underneath the busy and narrow roads in Wan Chai North, they had posed constraints of different extents on the planning works at the preparatory stage, such as site arrangement, required works sequence and the associated integrated temporary traffic management schemes etc. Moreover, the main construction works for Exhibition Station are highly complicated and involve a wide extent of site. For instance, the demolition of the ex-Wan Chai North public transport interchange, ex-Wan Chai swimming pool and the existing Harbour Road Sports Centre, prior to the construction of Exhibition Station, could only proceed upon the completion of the re-provisioning works. As the services provided by the above facilities could not be disturbed, detailed site investigation required for detailed design could not be conducted prior to the reprovisioning of the facilities. As such, the uncertainties of the geological conditions in these areas may affect the progress of works. Furthermore, diversion of Fleming Road box culvert and the congested underground utilities will also be required to facilitate the construction of part of Exhibition Station that runs across the road. It is not possible to close the said road to carry out trial trenches for verifying the number and location of the underground utilities there before the actual construction works. In addition, there are uncertainties on the accuracy of the underground utility records. They increased construction difficulties and uncertainties, thereby posing certain risks to the works progress and construction costs. It is anticipated that the overall 6-month delay in the completion of Exhibition Station and the “Hung Hom to Admiralty Section” of SCL will remain. The commissioning date of the “Hung Hom to Admiralty Section” would then be deferred to 2021. For the possible

delay associated with the works site near Fenwick Pier Street as advised by MTRCL, HyD would examine the impact on the programme with the assistance of its M&V consultant after MTRCL has submitted the detailed information. Besides, apart from the additional construction cost arising from the enabling works at Exhibition Station, the construction delay as a result of the deferred handover of work sites may also lead to additional construction cost.

## **Conclusion**

44. In view of the above assessments as mentioned in paragraphs 14 to 43 above, taking into account the delay of about 11 months to the “Tai Wai to Hung Hom Section” of SCL arising from the archaeological works, archaeological discoveries and conservation options for archaeological features at To Kwa Wan Station earlier on, the commissioning date of “Tai Wai to Hung Hom Section” is deferred to end 2019. HyD has been coordinating and overseeing the construction of SCL so that MTRCL could try its best to recover some of the delay to the “Tai Wai to Hung Hom Section”. With the efforts of the construction team, the delay recovery measures implemented at the “Tai Wai to Hung Hom Section” is picking up the pace progressively. Hence, the target commissioning date of this section could be advanced to about mid-2019. Due to the impact of site handover arrangement of WDII and to allow flexibility for the construction of new convention facilities above Exhibition Station, the target commissioning date of the “Hung Hom to Admiralty Section” remains in 2021. Regarding the new challenge and the associated impact on the “Hung Hom to Admiralty Section” as recently advised by MTRCL as stated in paragraphs 41 and 42 above, HyD would critically examine the impact with the assistance of its M&V consultant after MTRCL has submitted the detailed information. We will also continue to coordinate and oversee the construction of SCL so as to achieve the aforementioned revised target commissioning dates.

45. MTRCL is conducting a cost review of the main works of SCL, including the additional costs arising from the archaeological and conservation works at To Kwa Wan Station, the enabling works to cater for the topside development, the deferred site handover, as well as the difficulties and challenges encountered on site as mentioned in paragraphs 14 to 43 above.

46. MTRCL pointed out that the SCL project was complicated and only 45% of the Hung Hom to Admiralty Section had been completed as at 31

December 2016, adding that the remaining 55% of the Section would still be affected by a number of factors as stated in paragraphs 31 to 43 above. To provide a more accurate estimate for the cost of the main works, it is necessary to wait until the second half of 2017 in order to have a more practical assessment. As it is anticipated that the contingencies for the main works of the SCL would not be sufficient to meet the additional costs of the main works, upon receiving the final assessment on the additional costs from the MTRCL and completing the scrutiny of such assessment, we will seek additional funding from the LegCo in the 2017/18 legislative session for the continuation of the main works.

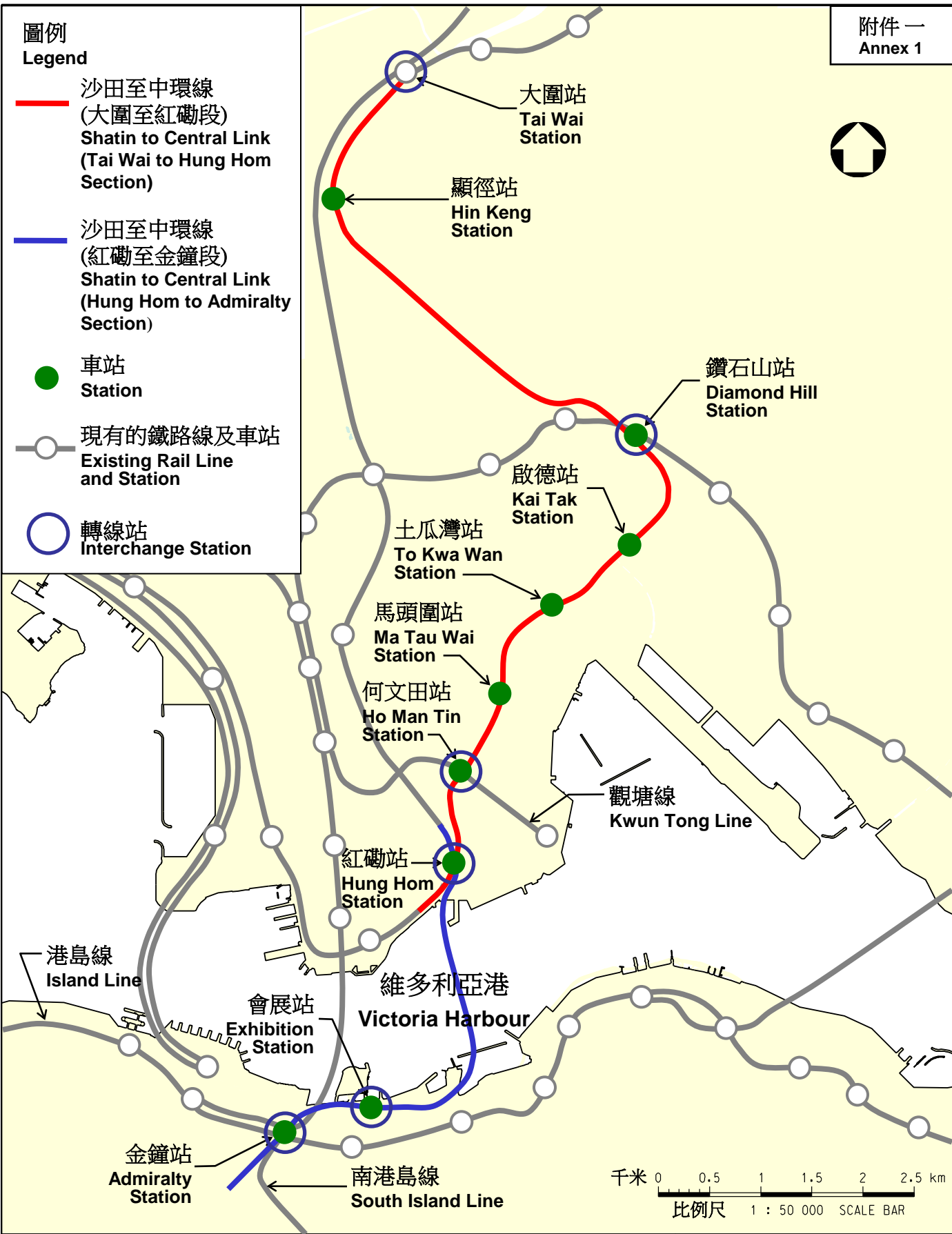
47. SCL is a major underground infrastructure project of a considerable scale. There are various difficulties and challenges encountered in the course of construction. It is unavoidable that there are deviations from the original plan for individual works contracts. MTRCL has adjusted its works procedures having regard to the actual situation of work sites. Additional manpower and machinery have also been deployed in order to overcome the difficulties. The Government will closely monitor the progress of works and the construction. It will also assist MTRCL to resolve the problems encountered in the course of construction as early as possible and conduct timely reviews of the commissioning programme taking into account the latest situation of the works.

**Transport and Housing Bureau  
Highways Department  
February 2017**



圖例  
Legend

- 沙田至中環線  
(大圍至紅磡段)  
Shatin to Central Link  
(Tai Wai to Hung Hom Section)
- 沙田至中環線  
(紅磡至金鐘段)  
Shatin to Central Link  
(Hung Hom to Admiralty Section)
- 車站  
Station
- 現有的鐵路線及車站  
Existing Rail Line and Station
- 轉線站  
Interchange Station



圖則名稱 drawing title

# 沙田至中環線的走線

## Alignment of the Shatin to Central Link

圖號 drawing no.

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鐵路拓展處 RAILWAY DEVELOPMENT OFFICE



路政署  
HIGHWAYS DEPARTMENT

**Legislative Council Panel on Transport  
Subcommittee on Matters Relating to Railways**

**Progress Update of the Shatin to Central Link  
(As at 31 December 2016)**

**INTRODUCTION**

This report aims to update Subcommittee members on the progress of Shatin to Central Link (“SCL”) as at 31 December 2016.

**OVERVIEW OF THE SCL PROJECT**

Cost and expenditure

2. Since mid-2012, 27 major civil and 29 major electrical & mechanical (“E&M”) contracts<sup>1</sup>, together with other minor contracts, have been awarded with a total sum of \$57.288 billion. The contract sums for civil works and E&M works are about \$43.733 billion and \$13.555 billion respectively (Please refer to Enclosure I).

3. Under the Entrustment Agreement for the SCL, the Government of the Hong Kong Special Administrative Region (“the Government”) is responsible for funding the construction of the SCL. As previously reported, currently the East-West Corridor (“EWC”) is expected to complete in 2019 and the North-South Corridor (“NSC”), after taking into account the issue highlighted in paragraph 51, still expected to be in 2021.

Cost review

4. The Corporation attaches great importance to the monitoring and cost control of railway projects. The Corporation has a robust governance framework and a set of stringent procedures governing procurement, contract administration and cost control of its projects, be it an ownership project or a concession project.

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<sup>1</sup> Major civil contract/E&M contract refers to any individual contract with value above \$50 million, and includes Contract 11227 with a value of \$49.8 million.

5. Under the Entrustment Agreements for concession projects, the Corporation is obliged to use the same management system and procedures that are applicable to all other MTR projects. For concession projects like the SCL project, there is also an independent rigorous monitoring and verification system in place conducted by the concerned Government authority and its consultants in addition to the Corporation's contract management and control procedure.

6. To enhance the control of expenditure, the Corporation also set up the Project Control Group (PCG) as a gate keeper, to scrutinize the assessments of variations and claims arising from consultancies and works contracts under the SCL project. Representatives from the Railways Development Office of Highways Department are invited to attend the PCG meetings.

7. Besides, where the progress of works has been delayed, the Corporation would consider implementing delay recovery measures as appropriate. The proposals of delay recovery measures including the cost and benefits implications are required to be reviewed and approved by PCG.

8. As announced in the Corporation's interim results on 9 August last year, due to the continuing challenges faced by the SCL project, the Corporation considers that the cost estimate will need to be revised upwards significantly to include the additional HK\$4.1 billion that was previously reported in 2014 as a result of the archaeological finds in the work sites of To Kwa Wan Station, as well as the additional cost for the late handover of construction sites at Exhibition Station, the previously unbudgeted foundation works for top-side development at Exhibition Station and other factors such as the shortage of labour in the construction sector.

9. Given the complexity of the project works, the continuing uncertainties associated with some of the issues highlighted above, including the late handover of construction sites at Exhibition Station, the last one of which is only expected to be handed over in July 2017, and the fact that the North South Corridor is only about 45% complete as at late December 2016, this detailed review will only be completed in the second half of 2017 after which the Corporation will formally report the findings to the Government.

## Works progress

### *Overall progress*

10. As at 31 December 2016, the overall works for SCL were 68% complete compared to the planned completion rate of 73% against the original project completion target in 2018 for EWC and 2020 for NSC respectively (Please refer to Enclosure II for details). As reported before, the construction works were affected by various factors, including the archaeological works at To Kwa Wan Station site, late land handover in Wan Chai North, and complicated underground conditions. During this reporting period, the progress of the construction works is steady and in line with the current completion dates for EWC and NSC in 2019 and 2021 respectively.

11. With the continuous efforts of the construction team, around 83% of the works of the EWC have been completed as at 31 December 2016 compared to the originally planned completion rate of 91%. As previously reported, the archaeological works at To Kwa Wan Station have caused a delay of at least 11 months and EWC will be completed in 2019. With the mitigation measures being implemented, it is expected that some of this delay would be recovered. Key progress include:

- a. **Track works have fully commenced along the EWC tunnel upon the breakthrough in August 2016; and**
- b. **Two 8-car trains have been put into service on the Ma On Shan Line (“MOL”) in January 2017.**

12. With a number of works fronts opening up, NSC was 45% complete in overall terms as at 31 December 2016 compared to the originally planned completion rate of 47%. Key progress include:

- a. **The second tunnel boring machine (“TBM”) on Hong Kong Island, “Zhi-nu”, has completed her journey to Exhibition Station in November 2016;**
- b. **The fabrication of the immersed tube (“IMT”) units has been substantially completed. The finished units will be towed for installation in mid-2017 onwards; and**

**c. Testing of new signalling system with the EAL trains has extended from Racecourse Station to University Station as planned during non-service hours.**

13. In addition to the SCL construction works, delivery of new trains, conversion of existing trains and train tests are progressing as planned. New trains for NSC and EWC are being delivered to Hong Kong in batches as scheduled. 8-car train conversion of West Rail Line (“WRL”) is progressing as planned and twelve 8-car trains have been put into service and are running smoothly, relieving crowdedness on WRL. At the same time, other improvement works for the operating railway are also underway, including retrofitting of Automatic Platform Gates (“APG”) at the stations of MOL, and platform strengthening works at the EAL stations.

*Progress in different sections*

14. SCL comprises six sections according to geographical locations -

- (i) Sha Tin Section;
- (ii) Wong Tai Sin Section;
- (iii) Kowloon City Section;
- (iv) Hung Hom Section;
- (v) Cross Harbour Section; and
- (vi) Hong Kong Island Section.

(i) Sha Tin Section (Section of railway between Tai Wai Station and Ma Chai Hang in Wong Tai Sin)

15. Fitting out works for Hin Keng Station continue. Building services and E&M equipment installation are on-going at all levels within the station area. External works including utilities diversions, reinstatement of the Hin Tin Playground and the public roads are in progress.



Location map of Hin Keng Station and associated tunnel structures

16. For the viaduct and at-grade tunnel box connecting Hin Keng Station, backfilling and external finishing works have been completed. The diversion works for underground utilities, carriageway and footpath reinstatement under the viaduct section are in progress.



Hin Keng Station and part of the viaduct

17. Subsequent to the completion of lining works and internal structural works of the tunnel section inside Lion Rock, track laying works were in progress and anticipated to complete in March 2017. With the completion of the tunnel structures, reinstatement of the works site at Hin Keng portal area of Lion Rock has also commenced. As previously reported, because of the complicated geological conditions under the Hin Keng portal area of Lion Rock, the progress of tunnelling works were behind the original schedule. In this regard, a number of mitigation measures had been taken and the tunnel was subsequently broken through in November 2015. The successful recovery of delay can be attributed to



the mitigation measures such as increase of blasting charge, re-sequencing of works procedures and adoption of alternative tunnel lining formwork design which allows parallel activities to be carried out. Permanent lining works for the ventilation tunnel running from Ma Chai Hang towards Hin Keng Station have also been completed in November 2016.

(ii) Wong Tai Sin Section (Section of railway between Ma Chai Hang and Kai Tak Station)

18. Track-laying and installation of trackside auxiliary works are in progress in the down track tunnel from Ma Chai Hang to Diamond Hill following the completion of excavation works in September 2016. E&M installation works are on-going in the up-track tunnel.

19. At Ma Chai Hang, structural works for the ventilation building and the emergency adit connecting the building with the railway tunnels are now underway.



Structural works for the ventilation building at Ma Chai Hang

20. Construction of the Fung Tak Emergency Access Point at the junction of Wong Tai Sin Road and Sha Tin Pass Road is in progress and is expected to be completed in the first quarter of 2017. Structural works for the adjacent Public Transport Terminus were 92% complete. E&M and building service works have commenced.

21. After the topping out of the Diamond Hill Station extension in June 2016, building service works are in progress at platform level and concourse level, including the installation of escalators and platform

screen doors. Construction of a new entrance adjacent to the existing Entrance B is in progress. Piling works for the modification of Entrance A2 are underway.



Expansion works for Diamond Hill Station

22. Modification works continue at the existing Diamond Hill Station to transform it into an interchange station of the existing Kwun Tong Line and SCL. The external lift at Entrance A1 and the new escalator in the existing station have been opened for public use in mid-2016. The first stage construction works of the pedestrian subways connecting the existing Diamond Hill Station and its extended part has been completed with half of the structures completed. To facilitate the construction of the remaining part, the third stage of the temporary traffic diversion at Lung Cheung Road has been implemented since late August 2016. During the traffic diversion, the number of traffic lanes at Lung Cheung Road remains unchanged. Meanwhile, piling works for the remaining pedestrian subways have been completed. Main excavation has also commenced in January 2017.

23. After the completion of track-laying works of the TBM tunnels from Kai Tak to Diamond Hill, overhead line installation is on-going in both up track and down track tunnel and are expected to be completed in February 2017.

24. As part of the SCL, the Government has entrusted the Corporation to carry out certain improvement works related to improving the connectivity of pedestrian facilities to Diamond Hill Station. This includes the provision of footbridges, covered walkways, lifts and escalators in Tsz Wan Shan area. Tsz Wan Shan is a densely populated area and works site are close to residential blocks. Some of the facilities



and the related temporary traffic management schemes have been revised in order to minimise the potential impacts on the residents. Some works have encountered unexpected and complicated geological condition, as well as complications caused by underground utilities. As a result, the original programme was affected. The contractor is striving to carry out works at different locations in parallel to catch up on the programme. With the efforts made, the facilities have been opened progressively for public use since 2015. By the end of 2016, 11 out of 15 items of facilities have already been opened. Another two facilities, including the covered walkway at Po Kong Village Road and lifts at Tsz Wan Shan Road are expected to be available for public use in early 2017. Completion of the remaining two footbridges at Wan Wah Street and Yuk Wah Street is expected in the third quarter of 2017.

(iii) Kowloon City Section (Section of railway between Kai Tak Station and Ho Man Tin Station)

25. Track works, fitting out and E&M works are progressing well at Kai Tak Station. The track works and fitting out works are expected to be substantially completed in the first half of 2017. Trackside cabling works will follow in the station and the tunnel section between Kai Tak Station and To Kwa Wan Station.

26. As previously reported, the archaeological works at To Kwa Wan Station have caused a delay of at least 11 months to the original programme of the Tai Wai to Hung Hom Section. A number of delay recovery measures for To Kwa Wan Station, Ma Tau Wai Station and the associated tunnels are being implemented. For example, by re-sequencing the works procedures and strengthening the site management, the construction of station structure and removal of TBM launching shaft are being carried out in the To Kwa Wan Station site area simultaneously. It is expected that some of the delays would be recovered.

27. Structural works for To Kwa Wan Station are on-going, while the construction of concourse and roof slabs is underway. With the delay recovery measures as mentioned above, the station base slab was completed in December 2016 and the overall structural works were 60% complete. Excavation and structural works for the adit connecting with the entrance at Nam Kok Road were 95% and 69% complete respectively.



Structural works for To Kwa Wan Station

28. Inside the railway tunnel between To Kwa Wan Station and Ho Man Tin Station, construction of walkways and track bed along the down track tunnel has been substantially completed and is now underway in the up-track tunnel.

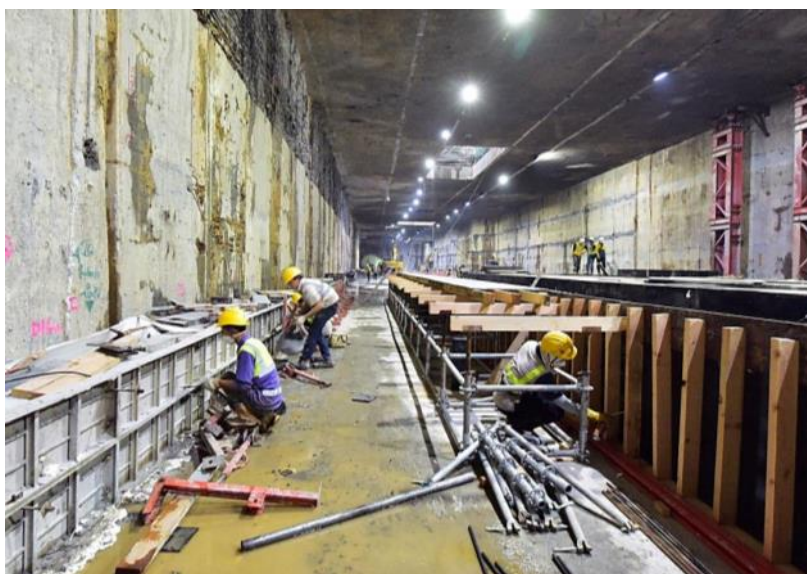
29. Shaft excavation of the emergency access for the railway tunnels near Tam Kung Road has been completed and permanent tunnel lining works are in progress. The adits connecting the shaft with the railway tunnels have also been completed. For the emergency access at Chi Kiang Street, excavation of the shaft and the lower adit connecting the shaft with the railway tunnel has been completed. Permanent tunnel lining works are in progress in the adit.

30. At Ma Tau Wai Station, structural works are on-going and concrete casting of all lower track slabs has been completed. The overall structural works of the station were over 80% complete and are expected to be completed by the first quarter of 2017. Fitting out works and building services works are continuing at the concourse level and will be extended to the upper platform level soon.

31. To facilitate the construction of the station and station entrances, the temporary traffic arrangement at Ma Tau Wai Road will continue with public access maintained for two southbound and one northbound traffic lanes. A northbound lane of the Ma Tau Wai Road has been re-opened in phases while a section of the northbound lane between Lok Shan Road and Sheung Heung Road was re-opened in late December 2016. The remaining section of this northbound lane will re-open in

phases in 2017, so that two southbound and two northbound traffic lanes will be provided for public use under the temporary traffic arrangement.

32. Excavation and structural works for the four station entrances, which are located at Lok Shan Road, Kiang Su Street, Ma Tau Wai Road (outside To Kwa Wan Market) and the junction between Chi Kiang Street and Ma Tau Wai Road, are in progress. Structural works for the ventilation shaft in front of To Kwa Wan Market are proceeding from upper platform level to concourse level.



Construction works of Ma Tau Wai Station

(iv) Hung Hom Section (Section of railway between Ho Man Tin Station and Hung Hom Station)

33. Under SCL, two railway tunnels are being constructed north of Hung Hom Station to connect the existing EAL and WRL to form the NSC and EWC respectively. For the future connection from Ho Man Tin Station to Hung Hom Station and the existing WRL, structural works of the tunnel have been completed. For the tunnel connecting with the existing EAL to form NSC, excavation works have been completed and structural works are now underway.

34. To facilitate the construction of the EWC tunnels, Chatham Road North and its slip road have been diverted since 2013. Following the completion of structural works of EWC tunnels, part of the Chatham Road North westbound was reinstated in early December 2016. The reinstatement for the remaining part of the road is expected to be completed by the end of 2017 to early 2018.

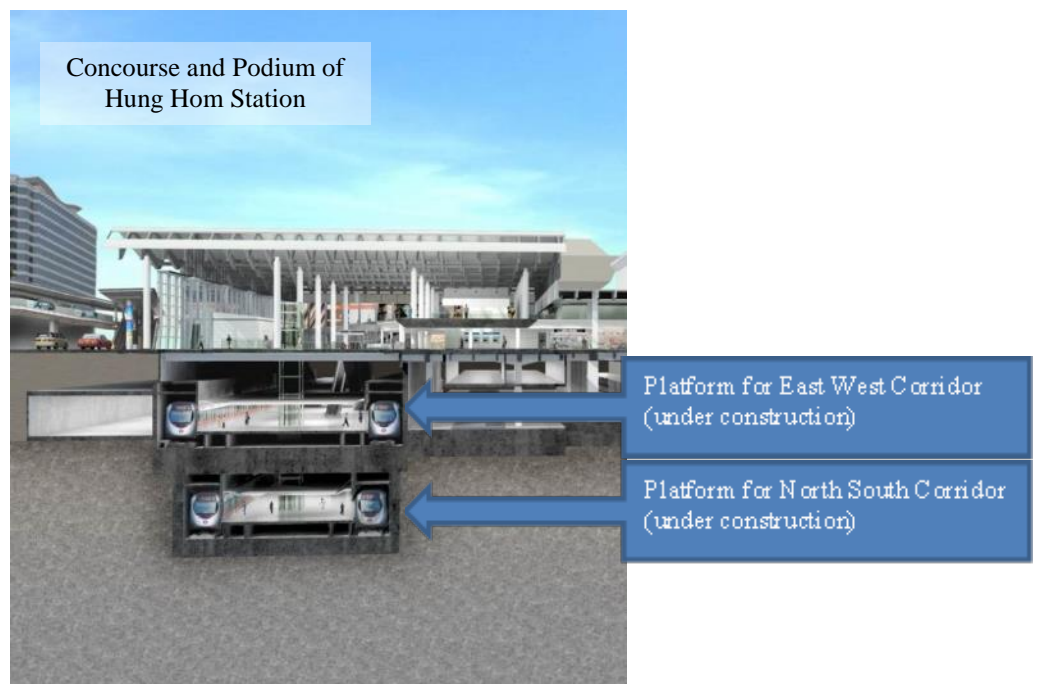




Tunnel excavation under Chatham Road North and near Winslow Street

35. To facilitate the future railway operation, noise enclosures are being built along the new section of tracks near Oi Sen Path. The installation works of the noise enclosures have been substantially completed.

36. Hung Hom Station will become the interchange station of EWC and NSC of the SCL. To cater for the future railway services, two levels of new platforms designated for EWC and NSC are now being built under the existing station podium. To prepare for the future arrangements, modification works are now being carried out at the existing northern concourse until the first quarter of 2017.



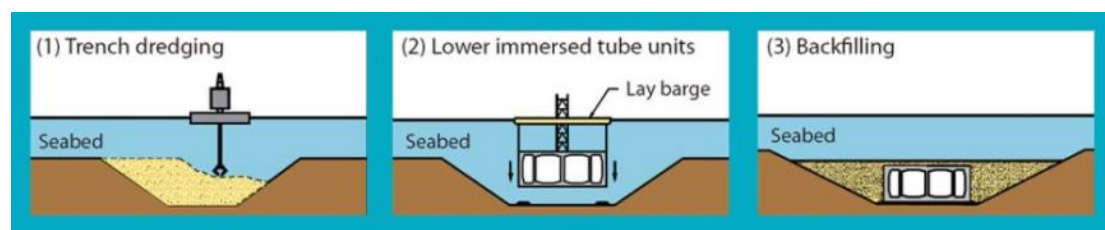
37. The construction works of the new platforms in Hung Hom Station for EWC and NSC are in progress. Structural works are on-going at the new platforms. Construction of platform slab and back of house structures are now in full swing and are expected to be completed in the second quarter of 2017. As previously reported, the works were about four months behind the original schedule due to the complicated geological conditions under the station podium, as well as limited space and headroom available for construction works. In order to catch up with the programme, E&M and fitting out works are being carried out in parallel with the structural works. The contractor has also deployed additional manpower and re-sequenced the works in order to catch up with the progress. We will ensure that the structural safety of the station and adjoining buildings will be maintained throughout the works.

38. To facilitate future railway operations, the stabling sidings for the EWC trains are now under construction at the former Hung Hom Freight Yard. Structural works, track installation, building services and E&M works are now underway. Preparation works for track laying are also on-going.

(v) Cross Harbour Section (Section of railway across Victoria Harbour)

39. To extend the existing EAL across Victoria Harbour to Hong Kong Island, a new cross-harbour rail tunnel will be built under the SCL project. A section of the cross-harbour rail tunnel near the seashore at Hung Hom will be constructed by cut-and-cover method within a temporary cofferdam. Although unforeseen obstructions have been encountered during the piling and excavation works, the contractor has been using every endeavour to overcome the challenges. Excavation works at the southern half of offshore has been completed and structural works are now underway, while excavation at the northern half of offshore and landfall is on-going and is expected to be completed in early 2017.

40. The section of the cross-harbour rail tunnel between Hung Hom and Causeway Bay Typhoon Shelter (CBTS) will be constructed by the IMT method (See the diagram below).



Construction Method of IMT

41. The fabrication of all IMT pre-cast units is progressing as planned. A total of 11 IMT pre-cast units are being fabricated in the casting yard located at the ex-Shek O Quarry and are expected to be completed in the first quarter of 2017. As at 31 December 2016, all structural concrete for IMT fabrication has been completed and all associated works such as waterproofing, and associated facilities installation are underway. The finished IMT units will be stored in the basin and then towed out one by one for installation from mid-2017 onwards. The finished IMT unit will be first towed to a temporary holding area near Tseung Kwan O for installation of surveying towers and floating pontoons, to ensure the IMT units can be accurately installed into the dredged trenches, then it will be towed to its designated location for immersion. The first IMT unit is expected to be towed out in the second quarter of 2017, followed by installation in the CBTS.



Structural works of IMT pre-cast units are substantially completed

42. The trench dredging work for the section of IMT in Victoria Harbour continues. As at 31 December 2016, approximately 75% of the dredging works were completed in Victoria Harbour. The dredging works are continued to be carried out in phases in Victoria Harbour to prepare for the placing of the gravel bed within the trench for the installation of the IMT units. Backfilling will be carried out after IMT installation.

43. To prepare for the installation of the IMT units inside CBTS, moorings within CBTS were adjusted in early June 2016 to vacate spaces for pipe piling and dredging works. Pipe piling works have been completed for forming the temporary wave barrier within the CBTS. Upon the formation of the temporary wave barrier, the front line of pipes pile outside breakwater will be extracted to facilitate the remaining

dredging works, so as to prepare for the tow-in and installation of IMT units.

(vi) Hong Kong Island Section (Section of railway on Hong Kong Island ending at Admiralty Station)

44. The tunnels on Hong Kong Island are excavated by two TBMs, namely “Athena” and “Zhi-nu”. “Athena” has completed excavating the around 600-metre-long up-track tunnel from the temporarily reclaimed land at CBTS to Exhibition Station in early July 2016, while “Zhi-nu” has also overcome the challenges of passing through the complex ground conditions beneath the busy carriageways of Wan Chai North, and completed the excavation of the down-track tunnel in late November 2016.



Excavation of the up-track and down-track tunnel between CBTS and Exhibition Station are completed

45. At the works site of Fenwick Pier Street, the excavation of the TBM shaft has been completed in September 2016. “Athena” has been delivered to the shaft in mid-November 2016 for re-assembly following the completion of her up-track tunnelling works from CBTS to Exhibition Station. Once assembled, “Athena” will head towards Admiralty Station in close proximity to the alignment of the existing Tsuen Wan Line for the around 450-metre-long up-track tunnel in the second quarter of 2017.

46. To ensure smooth operation of the TBMs, some advanced works have to be carried out along the tunnel alignment between CBTS and Admiralty Station. These works include the removal of underground piles, diversions of underground utilities, bridge underpinning and ground stabilisation works. These underground obstruction removal works and contingency arrangements for tunnelling beneath the busy carriageways



added to the complexities of the works and some of them required the deployment of extra resources. The removal of additional unforeseen obstructions on Marsh Road has been completed. Following the completion of tunnel boring works by “Zhi-nu”, the contractor has started to re-instate the carriageways and footpath along Wan Shing Street and Marsh Road, as well as the underpinned flyovers and underground box culvert in the Cross Harbour Tunnel approaching area.

47. At the former Police Officers’ Club in Causeway Bay, excavation for the ventilation facilities has commenced in the fourth quarter of 2016.

48. In the Wan Chai North area, the Exhibition Station will be located under the former Public Transport Interchange (“PTI”), the former Wan Chai Swimming Pool and the Harbour Road Sports Centre. Construction works for the diaphragm walls of Exhibition Station and relevant railway facilities are underway. Due to limited area in Wan Chai North, different stages of temporary traffic management are being implemented in phases in Wan Chai North to create additional works areas for the construction of diaphragm walls for the Exhibition Station and relevant railway facilities. The next stage of temporary traffic management which involves shifting the junction between Convention Avenue, Fleming Road and Expo Drive East are scheduled to be implemented in phases in the first half of 2017. Traffic lanes will be diverted in phases while the number of traffic lanes will remain unchanged at peak hours.



The junction between Convention Avenue, Fleming Road and Expo Drive East will be shifted eastward in phases

49. Regarding the large metal object found on the seabed within the reclamation area under the Wan Chai Development Phase II (“WDII”) project, the Civil Engineering and Development Department (“CEDD”)



removed it from the reclamation site in June 2015 to allow resumption of the reclamation works and relevant works. Originally, the reclaimed land will be handed over to the contractor of SCL at the end of December 2016. As the discovery of the metal object has affected the progress of reclamation works there, CEDD indicates that the handover date of part of the works areas would be deferred by seven months. For the remaining area, a majority of it was handed over in January 2017 with small pieces to be available by phases at a later stage. The Highways Department (“HyD”) and the Corporation will maintain liaison with CEDD on the handover arrangement of works areas.

50. In addition to the deferred handover of some associated critical works sites as reported previously, a parcel of land under the WDII project near Fenwick Pier Street, which was originally planned to be handed over to the Corporation on 1 September 2016, has also been deferred. CEDD, HyD and the Corporation are actively evaluating options including earlier partial access to more critical works area to lower the impact on the programme for the interfacing works of the Western Approach Tunnel of Exhibition Station as well as the tunnelling works to Admiralty Station.

51. Within the parcel of land near Fenwick Pier Street highlighted in Paragraph 50 above, the SCL project had entrusted to WDII residual works to construct the last section of a diaphragm wall cofferdam at this location which include removing an abandoned 40-meter deep pipe pile that is in close proximity to other existing permanent foundation structures. These residual works entrusted to WDII have not been completed and now need to be completed as part of the SCL project. This has both schedule and additional costs implications. Currently due to this incomplete works entrusted to WDII, the NSC now faces a further delay of at least three months on top of the previously reported six months delay. HyD and the Corporation are seeking engineering solutions to overcome the technical challenges so as to contain the construction and programme risks.

52. According to the latest information on the site handover schedules provided by CEDD and construction challenges, the Corporation has explored possible measures to improve the progress, and will continue to maintain close communication with relevant government departments. We will closely monitor the latest situation regarding the timing of handing over works sites and strive to minimise the risks of delay.

53. As mentioned in Paragraph 48, since the Exhibition Station is located under the Harbour Road Sports Centre, the Sports Centre needs to be reprovisioned so as to facilitate the station construction. The new Sports Centre has been topped out in early December 2016. However, the underground condition at the original sports centre has yet to be ascertained. Upon completion of the reprovisioning works and demolition of the original sports centre, detailed ground investigation works at the original sports centre will follow to ascertain the underground condition.

54. The future NSC of the SCL will terminate at Admiralty Station, which will become an interchange hub for the SCL, Island Line, Tsuen Wan Line and South Island Line (“SIL”). To facilitate the train operations of the SCL, a 900-metre overrun tunnel will be extended southwards from the SCL platform at Admiralty Station for train regulation. Among which, a 200-metre-long section extending south of the Admiralty Station to Hong Kong Park has been entrusted to the South Island Line (East) project and the excavation works was completed in the second quarter of 2015. The remaining 700-metre-long section of the SCL overrun tunnel extending from Hong Kong Park has commenced construction by drill and blast in late September 2016 and is progressing as scheduled. It is expected to be completed in the third quarter of 2018.



SCL overrun tunnel is being constructed by drill and blast method

55. Upon the commissioning of the SIL, the works site for the future SCL station facilities at Admiralty Station has been handed over to the SCL in late December 2016. Construction of the facilities on the platforms and connection facilities between the platform and concourse commenced shortly and its completion will be in line with the commissioning of the NSC.

## **NEW TRAINS**

56. To facilitate the future operation of the NSC, 37 sets of new trains for NSC are being delivered to Hong Kong in batches. Stringent testing and commissioning for the delivered new trains are underway at Ho Tung Lau Depot. From December 2015 onwards, dynamic testing is also underway at the existing EAL during non-service hours. New trains are equipped with new design features including dynamic route map and gangway end display system.



New trains of NSC (photo to be inserted)

57. Meanwhile, 14 sets of new trains for EWC are also being delivered to Hong Kong in batches. Stringent testing and commissioning for the delivered new trains are underway at Pat Heung Depot. Dynamic test is also underway at the existing WRL during non-service hours. To ensure smooth future operations of EWC, three additional sets of new trains were purchased to further increase its train fleet size.

## **SERVICE ENHANCEMENT BY TRAIN CONVERSION**

58. Apart from the procurement of new trains, some of the existing train compartments on MOL, WRL and EAL are also undergoing modification and reconfiguration, together with the new purchased train cars to form the converted 8-car trains for the EWC. While WRL trains are being gradually converted into 8-car trains to facilitate the 8-car train operation in EWC since January 2016. A total of twelve 8-car trains have

been put into service on WRL. The conversion all of the 28 WRL trains is expected to be completed in 2018.

59. On the other hand, following the opening of the extended platforms and roofs along MOL in November 2016, the first two 8-car trains for the MOL have entered service since 15 January 2017 upon the completion of the three-month dynamic testing during non-service hours. The existing 15 MOL trains will gradually be replaced with 8-car trains in 2017. Tailor-made signage and additional platform assistants are in place to guide passengers to the designated waiting area for boarding. When the conversion programme is completed, the overall carrying capacity on the MOL will be doubled.



The first two 8-car trains for the MOL have entered service

## **IMPROVEMENT WORKS FOR THE OPERATING RAILWAY FACILITIES**

60. The retrofitting works of APGs along the MOL are in full swing. With the completion of retrofitting works at Tai Wai Station, those at Sha Tin Wai Station also completed in January 2017, while works are on-going at other remaining seven stations. The Corporation is committed to completing the retrofitting works of APGs in the stations of MOL in 2017.



Retrofitting works of APGs

61. The retrofitting of APGs will also be carried out for EAL. Before the commencement of the retrofitting works, platforms have to be strengthened in advance and equipment rooms for the relevant signalling system and facilities have to be constructed. To avoid interrupting normal train services, most of the works can only be carried out overnight after normal train service hours. Platform strengthening works from Lok Ma Chau Station to Kowloon Tong Station have been substantially completed. Works are underway in phases in the remaining stations of EAL as planned. Construction of equipment rooms for the signalling and communication systems have been substantially completed in January 2017.

62. To facilitate the future operation of new trains and APGs, the existing signalling system of EAL has to be upgraded. The upgrading works are being implemented progressively in phases while installation of equipment compatible with the new signalling system at trains and trackside are underway. Installation of equipment at the trackside along Fo Tan, Racecourse and University Stations has been substantially completed. The installation works have fully commenced at the trackside along the EAL between Hung Hom and Lo Wu/ Lok Ma Chau Stations. Testing of new signalling system with EAL trains have extended from track sections at Racecourse Station to University Station during non-service hours in mid-December 2016. It will then proceed to the track sections at Fo Tan Station.

63. As the signalling system involves tens of thousands of electronic components, the replacement of signalling systems involves risks which cannot be totally eliminated. In general, during the works period, major



signalling system upgrades may lead to unstable system performance and the railway service may be more vulnerable to service delay and interruption. Teething problems are experienced in signalling upgrade on replacement projects in railways elsewhere especially during the initial changeover periods. Overseas experience shows that most railways would suspend their services for signalling upgrade to minimise such risks. Since EAL services are essential for passengers, we endeavour to avoid any suspension of EAL service in Hong Kong. This poses significant challenges to the works team and the railway operations given the complexity of the works and the limited time available outside traffic hours to implement the replacement works.

64. Since railway safety is always our top priority, the Corporation has appointed independent experts to ensure that international safety standards are met. A comprehensive risk assessment of the upgrade of the signalling system is being conducted. The possible risks and contingency measures are being carefully examined having regard to the existing contingency mechanism for handling railway service disruptions. Contingency plan on railway service disruption is subject to the agreement of the Transport Department (TD). While every precaution has been taken to avoid impact on the operating railway, teething problems during the replacement works may occur with inconvenience to passengers. The Corporation is closely monitoring the situation to ensure that any hiccups will be tackled in a timely manner and safety will be upheld at all times.



Signalling upgrade along EAL

## **STAKEHOLDER COMMUNICATION AND ENGAGEMENT**

65. Most of the SCL works sites are in urban areas and close to local communities. We attach great importance to close communication and engagement with the local communities and relevant stakeholders, in order to keep them informed of the works progress and to listen to their views.

66. Apart from the regular progress updates to the Subcommittee members and respective District Councils (“DC”), another major channel for communicating with the local communities is the Community Liaison Groups (“CLGs”), which have been set up across districts to provide regular updates on possible impacts of works relating to the SCL. Members of the CLGs include representatives of local District Councils, residents, schools, local organisations, etc. Representatives from government departments sitting in the CLGs include HyD, Hong Kong Police Force, TD, Lands Department and Home Affairs Department. Newsletters, leaflets and notices are also distributed to the local communities to provide updated information about the SCL. Dedicated MTR and Contractors’ Hotlines are also available for handling any enquiries and complaints in relating to the project; while the SCL Information Centre in To Kwa Wan has also handled over 1,100 enquiries since October 2012.

67. In September 2016, a number of briefings were held for the District Councillors from North District, Tai Po District and Sha Tin District on the signalling replacement works along the EAL. During the briefings, they were introduced about the works procedures, challenges encountered, as well as risk assessment of the replacement works and contingency measures being implemented.



Briefings for DC members on EAL signalling replacement works (photo to be inserted)

## **EMPLOYMENT OPPORTUNITIES**

68. As at 31 December 2016, about 7,194 construction workers and technical/ professional staff members are employed for the SCL project. Labour shortage continues to pose challenges to the project – the project is in shortage of around 500 construction workers. To attract new blood to join the construction industry, the Corporation has initiated the “SCL Contractors Cooperative Training Scheme” in 2012. Under the Scheme, all SCL civil works contracts require contractors to recruit a specified amount of trainees. Training and internship programmes are provided to the trainees by the contractors of SCL and the Construction Industry Council. After passing relevant trade tests, the graduates would be offered a minimum 12-month employment contracts on the SCL. So far, the scheme has provided training to 715 trainees with 455 having completed the trade test and continuing their careers in the field.

## **CONCLUSION**

69. Members are invited to note the above information.

**MTR Corporation Limited**  
**February 2017**



### Expenditure report as at 31 December 2016

Table 1 – Situation of expenditure

	<b>Awarded contract sum for the contracts</b>	<b>Cumulative expenditure of awarded contracts</b>	<b>Estimated amount of unresolved claims*</b>
	<b>( \$ million )</b>	<b>( \$ million )</b>	<b>( \$ million )</b>
Civil works	43,732.8	32,292.8	1,432.1
E&M works	13,555.0	3,100.6	161.0
<b>Total</b>	<b>57,287.8</b>	<b>35,393.4</b>	<b>1,593.1</b>

\* The estimated amount of unresolved claim: Amount claimed (\$2,216.1 million) – Interim award (\$623.0 million) = \$1,593.1 million (See Table 2)

Table 2 – Situation of substantiated claims

	Claims resolved			Claims unresolved		
	Number	Amount claimed ( \$ million )	Amount awarded (\$ million)	Number	Amount claimed (\$ million)	Interim award (\$ million)
Civil works	56	598.3	466.5	420	2,055.1	623.0
E&M works	6*	0	0	72	161.0	0
<b>Total</b>	<b>62</b>	<b>598.3</b>	<b>466.5</b>	<b>492</b>	<b>2,216.1</b>	<b>623.0</b>

\* The claims only involved extension of time without cost implication.

1. The Government and the Corporation conducted risk assessment at the planning and budgeting stages of the project to minimise claims arising from the works. Nevertheless, there were often unforeseeable situations in the course of works. For instance, the foundation or excavation works might come across a larger amount of or more complicated obstructions than expected. As this would add difficulties to the works, the contractors might have to use more machines or switch to other machines that were more suitable and employ more staff to cope with these situations. The contractors would submit claims in accordance with the contract terms to cover the additional expenditures. Upon receipt of claims from contractors, the corporation would examine such claims and assess the amount concerned based on the relevant contract terms, justifications, documents, records, etc.

2. As at 31 December 2016, the Corporation received 554 substantiated claims and the amount claimed in total was about \$2,814.4 million, representing 4.9% of the awarded contract sum for the contracts. The Corporation has been discussing the details of the claims with the contractors concerned, and would thoroughly assess the amount claimed. The Corporation would process each claim in a prudent manner, and the contractors would have to provide sufficient justifications and information. As at 31 December 2016, 62 cases were resolved and about \$466.5 million

was awarded, representing about 0.81% of the awarded contract sum for the contracts. Having regard to the needs of individual works and progress of the relevant assessment and discussion, interim award amounting to about \$623.0 million was made for some cases.

### Overall works progress of the SCL as at 31 December 2016

Overall works completed : 68%

Percentage completed as originally planned <sup>(1)</sup>: 73%

(A) Culminated progress of 26<sup>(2)</sup> major civil contracts awarded :

<b>Contract No.</b>	<b>Contract Name</b>	<b>Percentage completed</b>
1101	Modification of Ma On Shan Line	100%
1102	Hin Keng Station and Approach Structures	96%
1103	Hin Keng to Diamond Hill Tunnels and Fung Tak Public Transport Interchange	92%
1106	Diamond Hill Station Extension	85%
1107	Diamond Hill to Kai Tak Tunnels	100%
1108	Kai Tak Station and Associated Tunnels	99%
1108A	Kai Tak Barging Point Facilities	100%
1109	Stations and Tunnels of Kowloon City Section	85%
1111	Hung Hom North Approach Tunnels	93%
1112	Hung Hom Station and Stabling Sidings	93%
1113	Reprovisioning of New Territories South Animal Management Centre and Shatin Plant Quarantine Station	100%
1114	Pedestrian Links at Tsz Wan Shan	90%
1117	Pat Heung Depot Modification Works	100%
1119	Trackwork and Overhead Line Modification Works at Lo Wu and PHD	100%
1120	Trackwork and Overhead Line for SCL Phase 1	55%
1120B	Trackwork and Overhead Line for SCL Phase 2	1% <sup>(3)</sup>
1121	North South Line (NSL) Cross Harbour Tunnels	67%
1122	Admiralty South Overrun Tunnel	16%
1123	Exhibition Station and Western Approach Tunnel	30%

1124	Admiralty SCL Related Works	3%
1125	Police Sports and Recreation Club Enhancement Works	100%
1126	Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool	93%
1128	South Ventilation Building to Admiralty Tunnels	49%
1129	SCL - Advance Works for NSL	100%
11209	Platform Modification and Associated Works at East Rail Line	93%
11227	Advance Works for NSL Cross Harbour Tunnels	100%

Note:

- (1) The original programme is to commission the Tai Wai to Hung Hom Section and the Hung Hom to Admiralty Section in December 2018 and December 2020 respectively.
- (2) The 27 awarded major civil contracts as mentioned in Paragraph 2 of this report include Contract 11230, which is a tenancy agreement for the Joint Site Office for Contracts 1123 and 1128. This contract is part of the project cost for Contracts 1123 and 1128. As it involves no civil construction works, it is not included in the table above.
- (3) Civil Contract 1120B was awarded on 8 July 2016.

(B) Culminated progress of 29 major E&M contracts awarded :

<b>Contract No.</b>	<b>Contract Name</b>	<b>Percentage completed</b>
1141A	New Rolling Stock for SCL Phase 1	76%
1141B	New Rolling Stock for SCL Phase 2	32%
1151	Rolling Stock Modification and New Train Cars for SCL Phase 1	62%
1152	Signalling System for SCL Phase 1 & Signalling System Modification for MOL and WRL	71%
1152B	Signalling System for SCL Phase 2	54%
1153	Tunnel ECS for SCL Phase 1	48%
1153B	Tunnel ECS for SCL Phase 2	22%
1154	Platform Screen Doors for SCL Phase 1 & APG Retrofit for MOL	78%
1154B	Platform Screen Doors for SCL Phase 2 & APG Retrofit for EAL	3%
1155	Power Supply System and Trackside Auxiliaries for SCL Phase 1	65%
1155B	Power Supply System and Trackside Auxiliaries for SCL Phase 2	20%
1159	Lifts for SCL Phase 1	49%
1162	TETRA System for SCL Phases 1 & 2	77%
1162B	Radio Distribution Network System for SCL Phases 1 & 2	31%
1163	AFC System and SAM System for SCL Phases 1 & 2	28%
1164	Building Services for Diamond Hill Station	53%
1165	Building Services for Hin Keng Station, Ma Chai Hang Ventilation Building and Fung Tak Emergency Access	64%
1166	Main Control System for SCL Phase 1	77%
1166B	Main Control System for SCL Phase 2	29%
1169	Communications System for SCL Phase 1	71%
1169B	Communications System for SCL Phase 2	Less than 1% <sup>(4)</sup>
1172	Escalators for SCL Phase 1	48%

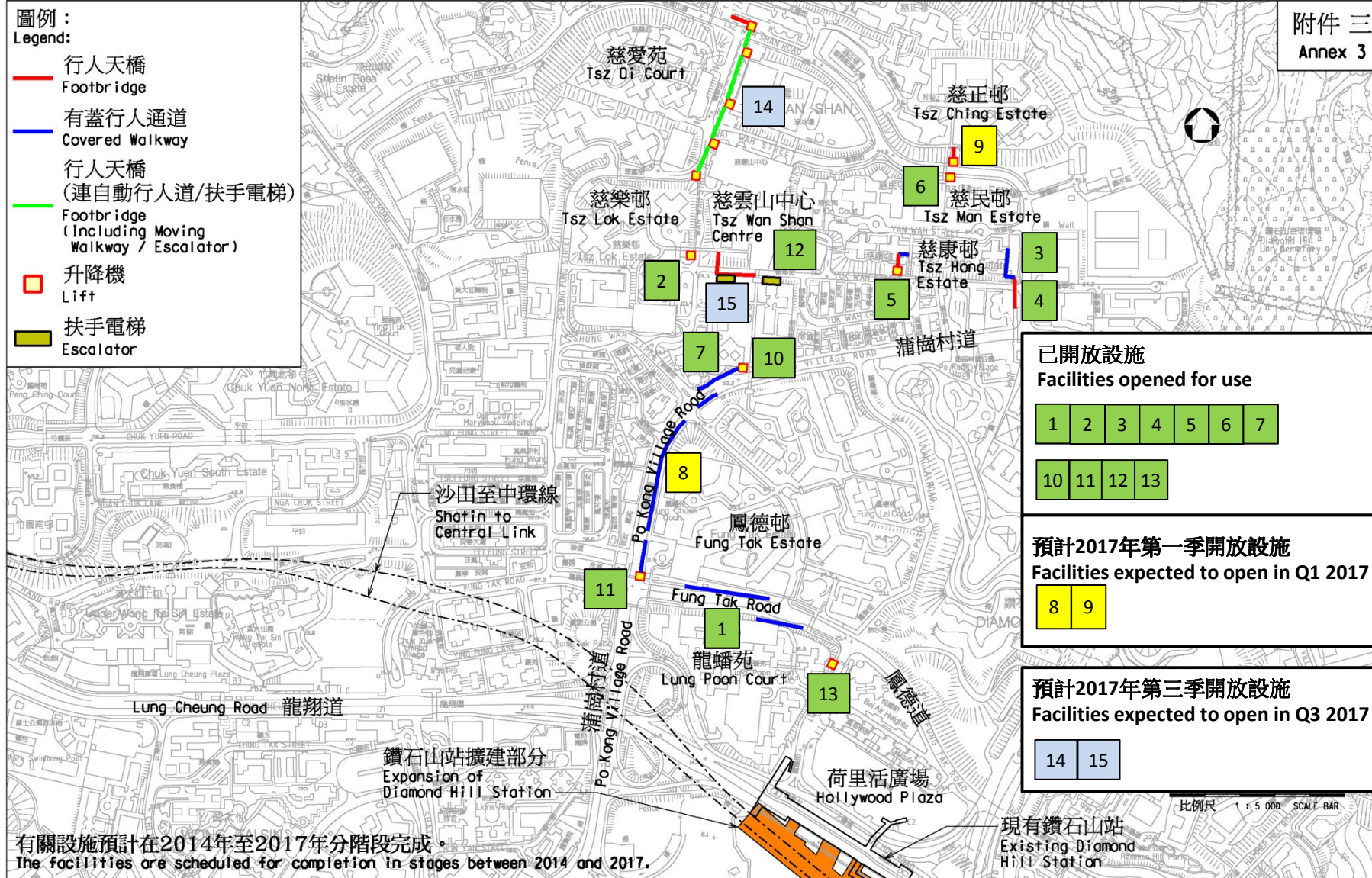
1172B	Lift and Escalators for SCL Phase 2	5 %
1173	Building Services for Hung Hom Station and Hung Hom Stabling Sidings	59%
1175	Building Services for Kai Tak Station	86%
1176	Building Services for To Kwa Wan Station and Ancillary Building	30%
1177	Building Services for Ma Tau Wai Station and Ancillary Building	26%
1183	EAL Signalling System Modification for SCL	100%
1191	Floodgate System for SCL Phase 2	6%

Note:

(4) E&M Contract 1169B was awarded on 9 December 2016.

**圖例：**  
**Legend:**

- 行人天橋  
Footbridge
- 有蓋行人通道  
Covered Walkway
- 行人天橋  
(連自動行人道/扶手電梯)  
Footbridge  
(Including Moving Walkway / Escalator)
- 升降機  
Lift
- 扶手電梯  
Escalator

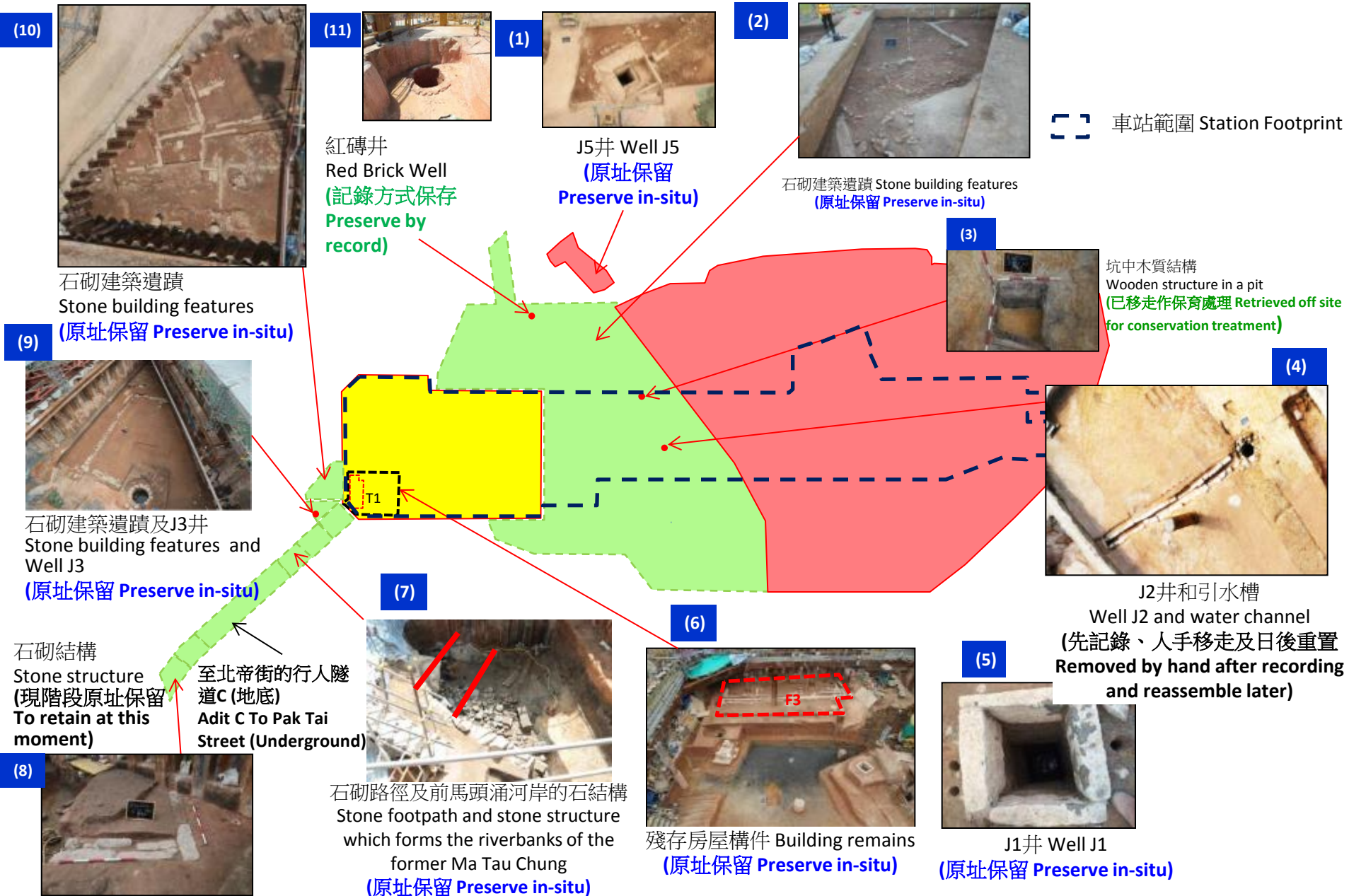


圖則名稱 drawing title  
**沙田至中環線 - 慈雲山區與沙田至中環線鑽石山站的行人接駁設施**  
**Shatin to Central Link - Pedestrian connecting facilities between Tszy Wan Shan Area and Diamond Hill Station of Shatin to Central Link**

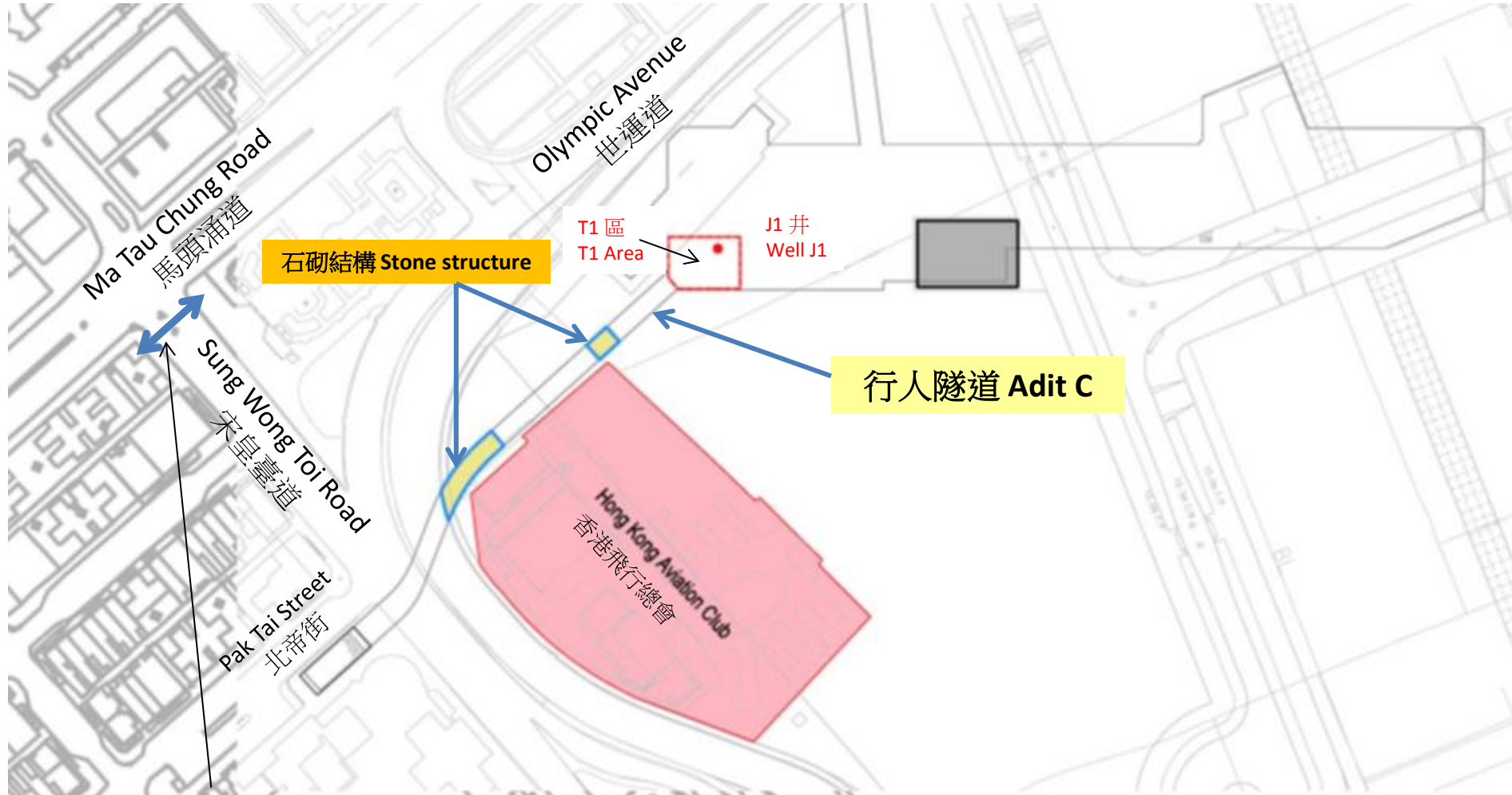


# 土瓜灣站工地考古文物保育方案

## Conservation Options for Archaeological Features Discovered at To Kwa Wan Station



# 行人隧道 C 的走線 Alignment of Adit C



Existing pedestrian crossing  
原有行人過路處