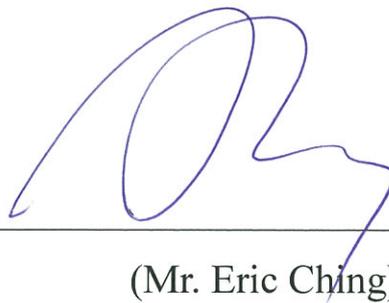


MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –  
SHENZHEN – HONG KONG EXPRESS RAIL LINK  
(Environmental Permit No. EP-349/2009/N)

Environmental Monitoring and Audit Report  
on the Implementation of Mitigation Measures for  
Operation Stage of the Project

Verified by:



(Mr. Eric Ching)

Position:

Independent Environmental Checker

Date:

25 Feb 19

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –  
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(Mr. Raymond Wong)

Position:

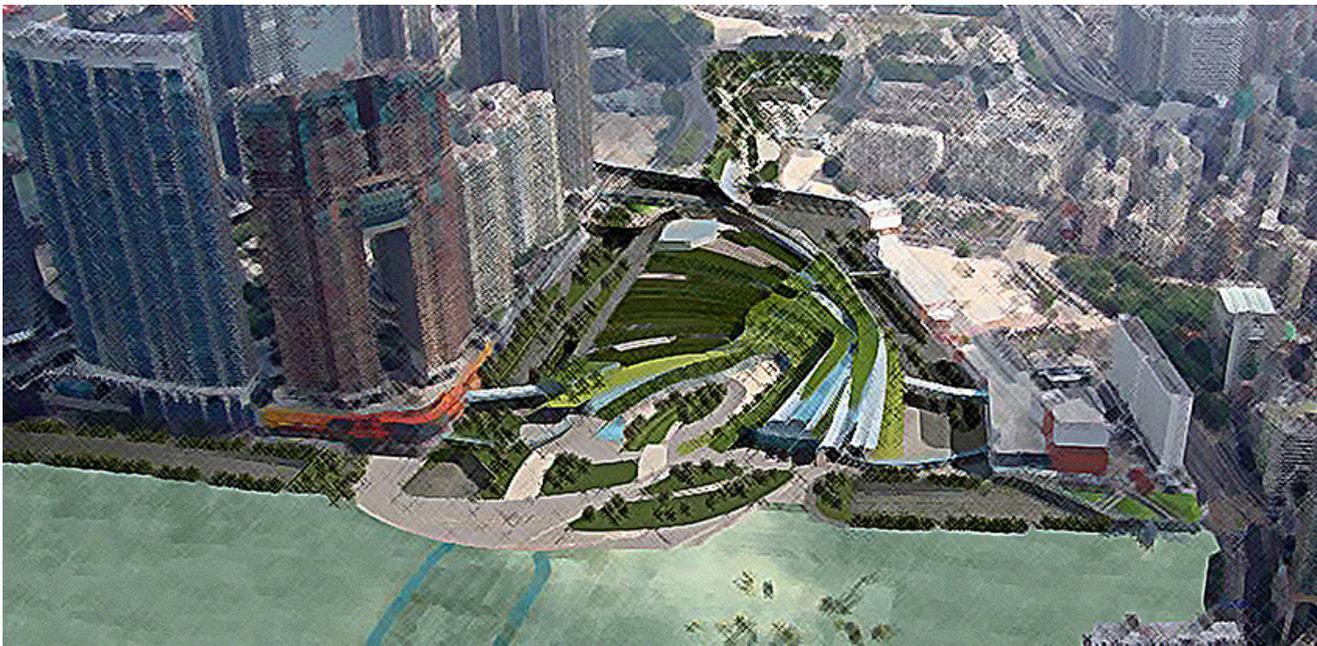
Environmental Team Leader

Date:

25 FEB 2019



# Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link



Environmental Monitoring and Audit Report  
on the Implementation of the Mitigation Measures  
for Operation Stage of the Project

**ABBREVIATION**

<b>DDC</b>	Detailed Design Consultant
<b>EAP</b>	Emergency Access Point
<b>EIA</b>	Environmental Impact Assessment
<b>EM&amp;A</b>	Environmental Monitoring and Audit
<b>EP</b>	Environmental Permit
<b>EPD</b>	Environmental Protection Department
<b>ERS</b>	Emergency Rescue Station
<b>HSR</b>	High Speed Rail
<b>IST</b>	Isolated Slab Track
<b>KCV</b>	Kwai Chung Ventilation Building
<b>LEL</b>	Lowest Exposure Level
<b>MKV</b>	Mong Kok West Ventilation Building
<b>MPV</b>	Mai Po Ventilation Building
<b>MSH</b>	Mitigated Stream Habitat
<b>NCO</b>	Noise Control Ordinance
<b>NCV</b>	Nam Cheong Ventilation Building
<b>NTML</b>	Ngau Tam Mei Landfill
<b>NTV</b>	Ngau Tam Mei Ventilation Building
<b>PHV</b>	Pat Heung Ventilation Building
<b>PlanD</b>	Planning Department
<b>ProPECC PNs</b>	Professional Persons Environmental Consultative Committee Practice Notes
<b>PTI</b>	Public Transport Interchange
<b>SMV</b>	Shing Mum Ventilation Building
<b>SPN (ENV)</b>	Shek Kong Emergency Rescue Station Plant Building - North (ENV)
<b>SPS (ENS)</b>	Shek Kong Emergency Rescue Station Plant Building - South (ENS)

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<b>SSS</b>	Shek Kong Stabling Sidings
<b>TM-DSS</b>	Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters
<b>VB</b>	Ventilation Buildings
<b>VEP</b>	Variation of Environmental Permit
<b>VSRs</b>	Visual Sensitive Receivers
<b>WDO</b>	Waste Disposal Ordinance
<b>WEK/WKT</b>	Hong Kong West Kowloon Station
<b>WKCD/WKCDA</b>	West Kowloon Cultural District/ West Kowloon Cultural District Authority
<b>WKP</b>	West Kowloon Plant Building
<b>XRL</b>	The Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link

## **1. INTRODUCTION**

### **1.1 Project Background**

The Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link (hereinafter referred to “the XRL” or “the Project”) provides high speed rail services between Hong Kong and Guangzhou, and a connection to the national high-speed passenger rail network serving major mainland cities outside of Guangdong province. The Hong Kong section of the XRL is about 26 km from new station located in West Kowloon (i.e. Hong Kong West Kowloon Station (WEK)) to the boundary at Huanggang. Along the railway corridor, there would be a total of eight ventilation buildings/emergency access point (EAP), stabling sidings and a maintenance facility at Shek Kong Stabling Sidings (SSS) and an Emergency Rescue Station (ERS) next to SSS serving the operation of the XRL.

The construction of the Project was completed in September 2018, and the railway operation was commenced on 23 September 2018. The operating of the XRL is named the High Speed Rail (“the HSR”).

### **1.2 Coverage of this Report**

As stipulated in the Environmental Permit (No.: EP-349/2009/N) Condition 2.49, “The Permit Holder shall, no later than three months after the commencement of operation of the Project, deposit with the Director an Environmental Monitoring and Audit report on the implementation of the mitigation measures for operation stage of the Project in accordance with the EIA Report and submissions required under this Permit.”, this Report presents the implementation status of mitigation measures for operation stage of the Project.

## 2 IMPLEMENTATION STATUS OF MITIGATION MEASURES FOR OPERATION OF THE PROJECT

This chapter is the main part of this Report, which presents the status of implementation of the mitigation measures for Operation of the Project, with photos illustrating the status (where applicable). The following table lists the mitigation measures for all works areas recommended in the approved Environmental Impact Assessment (EIA) Report and the Environmental Permit (EP), as well as the subsequent applications for Variation to the Environmental Permit.

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
<b>Terrestrial Ecological Impact (Post-construction / Operation Phase)</b>							
S3.327 & S3.412	- Implementation of the groundwater monitoring and emergency response plan.	To detect and minimize hydrogeological impacts	Contractor	MPV	Post-construction phase	Implemented	Post-construction monitoring of groundwater level was conducted from May 2016 (after the completion of tunneling works at MPV) to Oct 2016 for about 6 months. No alarm, alert or action level of groundwater level monitoring was triggered in the post-construction monitoring period.
S3.381	- The affected agricultural land should be restored to a condition suitable for agricultural use before handing over to landowners / operators.	To minimize impacts to surrounding habitats	MTR / Contractor	All temporarily occupied agricultural land	Operation phase	Implemented	All temporarily occupied agricultural lands were restored and handed over to landowners/operators. Refer to <b>Appendix I</b> for an example photo.
S3.382 – S3.384	- Vegetation control in the constructed channels should be implemented to prevent the excessive growth of vegetation that would impede the drainage capacity of the channel. To minimise sedimentation, de-silting should be limited to the dry season (November to March). The natural stream bed substrate should not be removed from the channel during de-silting works.	To minimize impacts to constructed channels	MTR	All constructed channels in SSS	Operation phase	Implemented	Example photo is provided in <b>Appendix I</b> .
	Being implemented					No desilting was scheduled for the newly completed works. When desilting is required in the future, mitigation measures will be provided.	

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
S3.385 & S3.387 (i)	- Large areas of reflective material (including glass) should not be used on the outer surfaces of the buildings.	To minimize impacts to wildlife	MTR	All ventilation buildings in northern section and SSS	Detailed design and Operation phase	Implemented	No large area of reflective materials was used on the surfaces of the ventilation buildings in northern section and SSS. Refer to <b>Appendix I</b> for an overview photo.
S3.385 & S3.387 (ii)	- All the major lighting sources should point inward and downward to minimise glare disturbance to wildlife. The intensity of light should also be controlled to the lowest possible level.	To minimize impacts to wildlife	MTR	All ventilation buildings in northern section and SSS	Detailed design and Operation phase	On-going	Example photo is provided in <b>Appendix I</b> .
S3.411	- Implementation of ecological habitat management plan. - Ecological monitoring of the mitigation stream habitats according to ecological habitat management plan.	To monitor the wildlife use of the mitigation stream habitat	MTR	Mitigation stream habitat in SSS / ERS	Operation phase	Implemented	The mitigated stream habitat (MSH) near SSS was completed in Feb 2017 and the one-year post construction monitoring was completed in Mar 2018. Refer to <b>Appendix I</b> for photo.
<b>Pond Fisheries Impact (Post-construction Phase)</b>							
S4.51	- Implementation of the groundwater monitoring and emergency response plan.	To detect and minimize hydrogeological impacts	MTR / DDC	MPV	Post-Construction phase	Implemented	Please refer to item S3.327 & S3.412
<b>Airborne Noise Impact (Operation Phase)</b>							
S5.113, Table 5.21 & EP Cl. 2.35	The maximum permissible sound power levels (Max SWLs) for the fixed plant should be complied with during the selection of equipment and mitigation measures.	To comply with the noise criteria of Noise Control Ordinance	MTR / DDC	MPV, NTV, SPN (ENV), SPS (ENS), PHV, SMV, KCV, NCV, MKV, WKP and WKT	Detailed design and operation phases	Implemented.	Commissioning Test Reports for Fixed Plant Noise were submitted under EP condition 2.36 to confirm the compliance of the operational noise levels. The Reports were approved by EPD on 29 Aug 2018.

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
S5.140, EP Cl. 2.33 and application for VEP-377/2012 Figure C8016/C/XRL/ACM/M63/188 and Appendix 4.2	Noise barrier should be erected as follow: <ul style="list-style-type: none"> <li>A 8m high barrier along the access road on eastern side of SSS; and</li> <li>5.5m barrier along western boundary facing Leung Uk Tsuen squats.</li> </ul>	To comply with the noise criteria of Noise Control Ordinance (NCO)	MTR / DDC	SSS	Detailed design and operation phases	Implemented	Noise barriers were installed at the SSS in accordance with the EIA and the application for VEP-377/2012. Refer to <b>Appendix I</b> for photo showing the locations of the noise barriers in SSS.
S5.140 & EP Cl. 2.32	Installation of 13m absorptive panels on both sides and full length of ERS.	To comply with the noise criteria of Noise Control Ordinance	MTR / DDC	ERS	Detailed design and operation phases	Implemented	13m absorptive panels were installed on both sides and full length of ERS. Refer to <b>Appendix I</b> for photo.
S5.198	Noise commissioning test is recommended to monitor the railway noise and fixed plant noise level complying with NCO.	To monitor the fixed plant noise impact	MTR / Contractor	Selected monitoring locations	Operation phase	Implemented.	Commissioning Test Reports for Fixed Plant Noise, as well as a Commissioning Test Report for Train Noise were submitted under EP condition 2.36 and were approved by EPD on 3 Oct 2018.
Application for VEP-439/2014 Table 3.2 and App.3.1	A canopy with absorptive lining will be provided at the southern façade of Nam Cheong Ventilation Building for screening the fixed plant noise.		MTR / Contractor	NCV		Implemented	A canopy with absorptive lining was installed at the South façade of NCV for screening the fixed plant noise. Refer to <b>Appendix I</b> for photo.
<b>Ground-borne Noise Impact (Operation Phase)</b>							
S6.87	Noise commissioning test is recommended to monitor the ground-borne noise level complying with NCO.	To monitor ground-borne noise impact	MTR / Contractor	Selected monitoring locations	Operation phase	Implemented	Commissioning Test Report for Train Noise was submitted under EP condition 2.36 and was approved by EPD on 3 Oct 2018.
EP Cl. 2.27	Train operation is confined within 0415 to 0015 hours daily with operation details: <ul style="list-style-type: none"> <li>Train Length: <ul style="list-style-type: none"> <li>Long haul train: not more than 427m long</li> <li>Short haul train: not more than 241m long</li> </ul> </li> <li>Daily Operation: <ul style="list-style-type: none"> <li>Not more than a total of 280 short haul</li> </ul> </li> </ul>		Railway operator	HSR (Hong Kong Section)	Operation phase	On-going	A Noise Review Report was approved by EPD on 5 Sep 2018 to allow additional train operation scenarios to include: <ul style="list-style-type: none"> <li>Train Length: <ul style="list-style-type: none"> <li>Long haul train: not more than 430m long</li> <li>Short haul train: not more than 241m long</li> </ul> </li> <li>Daily Operation: <ul style="list-style-type: none"> <li>Not more than a total of 190 short haul trains and 156 long haul</li> </ul> </li> </ul>

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
	<p>trains and 66 long haul trains</p> <ul style="list-style-type: none"> <li>- Operation Period from 0700 to 2300 hours: Hourly frequency: not more than 13 short haul and 4 long haul trains at northbound and not more than 12 short haul and 3 long haul trains at southbound.</li> <li>- Operation Periods of 0600 to 0700 hours and 2300 to 2400 hours: Hourly frequency: not more than 6 short haul trains at northbound and 6 short haul trains at southbound; no long haul train movements.</li> <li>- Frequency of 0000 to 0015 hours: not more than 1 short haul train at northbound.</li> <li>- Frequency of 0415 to 0500 hours: not more than 1 short haul train at northbound and 1 short haul train at southbound.</li> <li>- Frequency of 0500 to 0600 hours: not more than 1 short haul train at northbound and 2 short haul trains at southbound.</li> <li>- Train Speed: Not faster than 200 km/hr</li> </ul>						<p>trains</p> <ul style="list-style-type: none"> <li>- Operation Period from 0700 to 2300 hours: Hourly frequency: not more than 9 short haul and 6 long haul trains at northbound and not more than 6 short haul and 6 long haul trains at southbound.</li> <li>- Operation Periods of 0400 to 0700 hours and 2300 to 0100 hours: Hourly frequency: not more than 2 short haul and 2 long haul trains at northbound and not more than 2 short haul and 2 long haul trains at southbound</li> <li>- Train Speed: Not faster than 200 km/hr</li> </ul>
EP Cl. 2.28	Low noise trackform to be installed at designated sections		MTR / Contractor	Designated sections		Implemented	Refer to <b>Appendix I</b> for an example photo.

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
<b>Landscape and Visual Impact (Operation Phase)</b>							
Table 7.11 (i)	Compensatory tree planting should be incorporated into the proposed Project where space is available	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Being implemented.	Tree planting, and landscape and visual enhancement on Hong Kong West Kowloon Station – majority of the planting works are completed; the remaining works will be completed in Q1 2019. <b>Appendix I</b> provides an overview photo.
Table 7.11 (ii)	Landscape and visual enhancement treatments	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Implemented	Refer to <b>Appendix I</b> for an example photo.
Table 7.11 (iii)	Compensatory habitat proposal for natural stream course at SSS	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Implement	Please refer to item S3.411
Table 7.11 (iv)	Reinstatement of works area in Nam Cheong Park to integrate with the existing park.	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	In progress	Reinstatement of works area in Nam Cheong Park is in progress, target for completion in Q3 2019.
Table 7.11 (v)	Tall buffer tree planting should be incorporated provide screening to ventilation buildings, engineering structures and associated facilities.	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Implemented	Example photos are provided in <b>Appendix I</b> .
Table 7.11 (vi)	Roof greening to mitigate the visual impact of VB on the VSRs at high level.	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Implemented	Example photos of roof greenings at West Kowloon and SSS are shown in <b>Appendix I</b> .
Table 7.11 (vii)	Vertical greening would be incorporated where practicable to visually soften the façade of ventilation building and/or noise barrier	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Implemented	Example photos of vertical greening at SSS and climbers on noise barrier at roads in West Kowloon are shown in <b>Appendix I</b> .
Table 7.11(viii)	Incorporation of aesthetically pleasing streetscape design which would be responsive to adjacent landscape context.	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Implemented	Refer to photos in <b>Appendix I</b> .
Table 7.11 (ix)	Roadside amenity trees to enhance the landscape and visual quality of the existing and proposed road.	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Implemented	Example photo of roadside amenity trees planted under XRL project to enhance the landscape quality of existing roads and new roads are provided in <b>Appendix I</b> .

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
Table 7.11 (x)	Reinstatement of disturbed areas to match adjacent area or to condition to suit future land use.	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Implemented	Refer to <b>Appendix I</b> for an overview photo.
Table 7.11 (xi)	Aesthetically pleasing design as regard to the form, material and finishes shall be incorporated to all buildings, engineering structures and associated infrastructure facilities so as to blend in the buildings and structures to the adjacent landscape and visual context.	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Implemented	An example photo of landscape deck designed for noise mitigation measure is provided in <b>Appendix I</b> .
Table 7.11 (xii)	Control of Operation Night-time Glare	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Implemented	An example photo is provided in <b>Appendix I</b> .
Table 7.11 (xiii)	Incorporation of aesthetically pleasing design to boundary fence so as to blend in the structure to the adjacent landscape and visual context.	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	Implemented	An example photo is provided in <b>Appendix I</b> .
Table 7.11 (xiv)	The scale, location, disposition and design of the ventilation shafts at WKCD would be further reviewed and submitted to relevant parties (e.g. WKCDA and PlanD) for agreement.	To minimize landscape and visual impacts during operation phase	MTR	All Works areas	Detailed design and operation phases	On-going discussion with WKCDA	

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
<b>Waste Management Implications (Operation Phase)</b>							
S10.146-10.147	Chemical waste: <ul style="list-style-type: none"> <li>The requirements stipulated in the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i> should be followed in handling of chemical waste as in construction phase.</li> <li>A trip-ticket system should be operated in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulation</i> to monitor all movements of chemical wastes which would be collected by a licensed collector to a licensed facility for final treatment and disposal.</li> <li>The recommendations proposed for the mitigation of impacts from chemical waste in construction phase should also be followed (refer to S10.104- S10.106).</li> </ul>	To avoid environmental impacts in handling, storage and disposal of chemical waste	MTR	VBs, SSS and WKT	Operation phase	Implemented	Chemical Waste Producer No. WPN:7112-217-M2717-27 for Hong Kong West Kowloon Station, and WPN:7112-533-M3042-01 for Shek Kong Stabling Sidings
S10.148-S10.149	General refuse: <ul style="list-style-type: none"> <li>Provide recycling bins at designated areas for proper recycling of papers, aluminium cans and plastics bottles.</li> <li>Separation from other waste types and collected by licensed collectors at daily basis to minimize the potential impacts from odour and vermin.</li> </ul>	To separate general refuse from other waste types and proper disposal of the refuse	MTR	VBs, SSS and WKT	Operation phase	Being Implemented	An example photo is provided in <b>Appendix I</b> .
S10.150	Industrial waste: <ul style="list-style-type: none"> <li>Separation of reusable components like steel before collection by licensed collector</li> </ul>	To recycle useful materials from industrial waste and proper disposal	MTR	VBs, SSS and WKT	Operation phase	Being Implemented	

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
<b>Water Quality Impact (Operation Phase)</b>							
S11.174	<p>Tunnel run-off and drainage:</p> <ul style="list-style-type: none"> <li>Track drainage channels discharge should pass through oil/grit interceptors/chambers to remove oil, grease and sediment before being pumped to the foul sewer/holding tank for further disposal.</li> <li>The silt traps and oil interceptors should be cleaned and maintained regularly.</li> <li>Oily contents of the oil interceptors should be transferred to an appropriate disposal facility, or to be collected for reuse, if possible.</li> </ul>	To control runoff from rail track	MTR/DDC	Tunnels and rail tracks	Operation phase	Implemented in design; and on-going in operation phase	Track drainage channels discharge would go through oil interceptors. Drainage schematic diagram was submitted for the application for the effluent discharge license.
S11.175 – S11.176	<p>Sewage effluents:</p> <ul style="list-style-type: none"> <li>Connection of domestic sewage generated from the Project should be diverted to the foul sewer wherever possible. If public sewer system is not available, sewage tanking away services or on-site sewage treatment facilities should be provided to prevent direct discharge of sewage to the nearby storm system and all the discharge should comply with the requirements stipulated in the TM-DSS.</li> <li>For handling, treatment and disposal of other operation stage effluent, the practices outlined in ProPECC PN 5/93 should be adopted where applicable.</li> </ul>	To control water quality impact from sewage effluent discharge ventilation buildings, SSS and WKT	MTR/DDC	VBs, SSS and WKT	Operation phase	Implemented	<p>WPCO Licence No:</p> <ul style="list-style-type: none"> <li>Hong Kong West Kowloon Station (WEK) - WT00031466-2018</li> <li>Seawater cooling in Hong Kong West Kowloon Station (WEK) - WT00028566-2017</li> <li>Mong Kok West Ventilation Building (MKV) - WT00025487-2016</li> <li>Nam Cheong Ventilation Building (NCV) - WT00024938-2016</li> <li>Kwai Chung Ventilation Building (KCV) – WT00023273-2015</li> <li>Shing Mun Ventilation Building (SMV) - WT00031666-2018</li> <li>Pat Heung Ventilation Building (PHV) – WT00028357-2017</li> </ul>

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
S11.177- S11.181	<p>Shek Kong Stabling Sidings (SSS):</p> <ul style="list-style-type: none"> <li>▪ All the maintenance areas within the SSS should be housed or covered to prevent generation of contaminated rainwater runoff. All wastewater generated from the maintenance and cleaning activities should be collected and diverted to oil interceptor or other appropriate treatment facilities for proper treatment so that it satisfies the requirements stipulated in the TM-DSS.</li> <li>▪ In case there is no public sewer available for the SSS during the operation phase, all wastewater generated or collected in the SSS should be tankered away for proper disposal to prevent direct discharge of any wastewater to the nearby surface water system.</li> </ul>	To control water quality impacts from the operation of Shek Kong Stabling Sidings	MTR/DDC	SSS	Operation phase	Implemented in design; and on-going in operation phase	Maintenance areas within the SSS are housed or covered to prevent generation of contaminated rainwater runoff. An overview photo is provided in <b>Appendix I</b> .

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
S11.177- S11.181	<ul style="list-style-type: none"> <li>▪ Oil interceptors should be regularly inspected and cleaned to avoid wash-out of oil during storm conditions. A bypass would be provided to avoid overload of the interceptor's capacity.</li> <li>▪ All waste oils and fuels should be collected and handled in compliance with the Waste Disposal Ordinance. Site drainage should be well maintained and good management practices should be observed to ensure that oils and chemicals are managed, stored and handled properly and do not enter the nearby water streams. Areas for chemical storage should be securely locked. The storage area should have an impermeable floor and bunding of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest, to minimize the impacts from any potential accidents. In case of the occurrence of accidental spillage of chemicals, it is required to take immediate actions to control the release of chemicals.</li> <li>▪ Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance (WDO). The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.</li> </ul>	To control water quality impacts from the operation of Shek Kong Stabling Sidings	MTR/DDC	SSS	Operation phase	Being Implemented	Refer to <b>Appendix I</b> for photo.

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
S11.182	For any future maintenance desilting of the newly constructed or diverted watercourses, temporary barrier walls should be used to provide a dry zone for desilting work. Maintenance desilting should be carried out during periods of low flow in the dry season.	To control water quality impact due to maintenance desilting of the newly constructed or diverted watercourses	MTR	Diverted watercourses in Shek Kong	Operation phase	Being implemented	
<b>Air Quality (Operation Phase)</b>							
S12.48	The vent shafts of the stations should be designed to be sited at more than 5m from any opening at the adjacent building	To alleviate the adverse air quality impact in the stations	MTR	WKT	Design and operation phases	Implemented	
S12.50	The design of the mechanical air ventilation for PTI should follow EPD's ProPECC PN1/98 Control of Air Pollution in Semi-confined Public Transport Interchanges.	To alleviate the adverse air quality impact in the PTI	MTR	PTI at the G/F of ventilation building complex at WKT	Design and operation phases	Implemented	
<b>Landfill Gas Hazard – Operation Phase</b>							
S14.81	Ventilation of the tunnels should be switched on for half an hour before the first train is expected (the requirement to implement this measure is subject to findings of the review of landfill gas monitoring data with EPD before the commencement of operation).	Protect the operation of the XRL from landfill gas hazards	MTR	XRL tunnels within the NTML Consultation Zone	Operation phase	On-going	<p>The findings of the construction and post-construction landfill gas monitoring concluded that all measured parameters showed full compliance with the criteria, and the potential risk of landfill gas migration to the Project is minimal.</p> <p>Therefore, instead of daily ventilation of the tunnels before the first train is expected, it was proposed to switch on mechanical ventilation at least 30 minutes before the first train operates only when the measured methane concentration be higher than 10% LEL during the weekly monitoring. And the monitoring frequency should be increased to daily until the concentration of methane is consistently below 10% LEL in 7 consecutive days.</p>

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
S14.81	All maintenance personnel and station staff working within the tunnels should be educated in the dangers of landfill gas and the signs and symptoms of asphyxia.	Protect the operation of the XRL from landfill gas hazards	MTR	XRL tunnels within the NTML Consultation Zone	Operation phase	On-going	Trainings have been provided to all maintenance personnel and station staff working with the tunnels.
	Smoking within the tunnels should be prohibited at all times.					On-going	
	An assumed presence of landfill gas should be adopted at all times by maintenance workers and a strictly regulated “work permit procedure” involving training, ventilation, gas monitoring (as detailed in the Construction recommendations section), safety tracking and communication with maintenance staff, enforcement of the no smoking order.						
S14.82 & S14.83	The monitoring requirement during the operational phase should be discussed with EPD before the commencement of operation. Weekly monitoring of methane, carbon dioxide and oxygen in the form of a walkover survey at 20m intervals for section of tunnels under NTML and 50m interval within the NTML Consultation Zone is tentatively proposed. The survey should be conducted under non-ventilated condition and before the first train operates and start-up of ventilation, if applicable. A summary of the monitoring results should be submitted to EPD for record at the end of the monitoring period.	Confirm no landfill gas ingress into the XRL tunnels	MTR	XRL tunnels within the NTML Consultation Zone	Operation phase	On-going	Weekly monitoring of methane, carbon dioxide and oxygen in the form of a walkover survey at 20m intervals for section of tunnels under NTML and 50m interval within the NTML Consultation Zone shall be conducted during the operation phase until further arrangement is agreed with EPD. A summary will be submitted to EPD for record at the end of the monitoring period.

EIA/EP Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status	Remarks
S14.84	An annual walkover survey in the tunnels within the Consultation Zone of the NTML should be conducted to test for the presence of flammable gas at joints and cracks, if identified. Rectifications, such as sealing of cracks and inspection of tunnel seals, should be carried out for any signs of presence of flammable gas. The survey should be conducted under non-ventilated condition and before the first train operates and start-up of ventilation, if applicable.	Confirm no landfill gas ingress into the XRL tunnels	MTR	XRL tunnels within the NTML Consultation Zone	Operation phase	On-going	Annual walkover survey at all joints and cracks within the tunnels within the NTML Consultation Zone shall be conducted during the operation phase until further arrangement is agreed with EPD.

### 3 CONCLUSIONS

This Environmental Monitoring and Audit Report presents the status of Implementation of Mitigation Measures for Operation Stage of the Project. All recommended mitigation measures for operation stage of the Project either have been implemented or are being implemented with satisfaction and should be maintained. It is concluded that the environmental mitigation measures as recommended in the approved EIA Report and the EP have been implemented satisfactorily.

**APPENDIX I – Photos Illustrating the Mitigation Measures**

EIA/EP Ref.	Photo Records
S3.381	<p data-bbox="352 427 1410 456">Example photo showing the land was restored to a condition suitable for agricultural use.</p> 
S3.382 – S3.384	<p data-bbox="352 1249 1445 1328">Example photo was taken in August 2018 to show the condition of a channel in SSS, no overgrown was observed.</p> 

EIA/EP Ref.	Photo Records
<p>S3.385 &amp; S3.387 (i)</p>	<p>Overview of buildings in SSS.</p> 
<p>S3.385 &amp; S3.387 (ii)</p>	<p>Example photo showing light sources pointing inward and downward to minimize glare disturbance.</p> 

EIA/EP Ref.	Photo Records
S3.411	<p data-bbox="352 327 791 360">View of MSH is shown in the photo.</p> 
<p data-bbox="148 1272 328 1496">S5.140, EP Cl. 2.33 and application for VEP -377/2012</p>	<p data-bbox="352 1272 852 1305">The locations of the noise barriers in SSS.</p> 

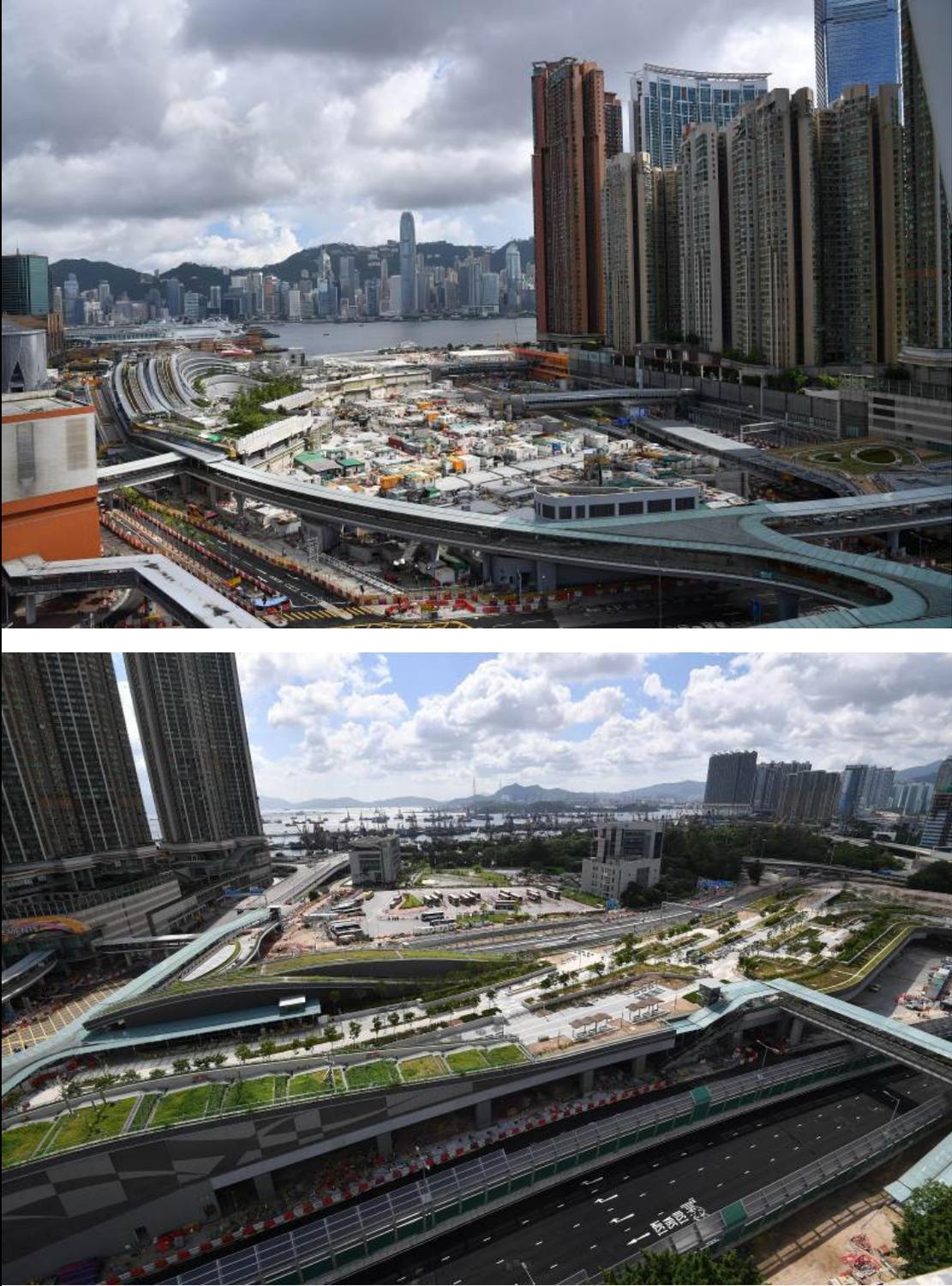
EIA/EP Ref.	Photo Records
<p>S5.140 &amp; EP Cl. 2.32</p>	<p>13m absorptive panels were installed on both sides and full length of ERS.</p> 
<p>S5.198 Application for VEP -439/2014</p>	<p>A canopy with absorptive lining was installed at the south façade of NCV for screening the fixed plant noise.</p> 
<p>EP Cl. 2.28</p>	<p>Example photo of Isolated Slab Track (IST) installation at Hong Kong West Kowloon Station.</p> 

EIA/EP Ref.	Photo Records
Table 7.11 (i)	<p data-bbox="352 327 1449 409">An overview of tree planting, and landscape and visual enhancement on Hong Kong West Kowloon Station</p> 
Table 7.11 (ii)	<p data-bbox="352 1171 1265 1205">Example photo of landscape and visual enhance treatment in West Kowloon.</p> 

EIA/EP Ref.	Photo Records
Table 7.11 (v)	<p data-bbox="352 327 1393 405">Example photos showing the tall buffer tree planting provided screening to the building structures.</p>  

EIA/EP Ref.	Photo Records
Table7.11 (vi)	<p data-bbox="352 327 1161 360">Example photos showing roof greenings at West Kowloon and SSS.</p> 

EIA/EP Ref.	Photo Records
Table7.11 (vii)	<p data-bbox="352 327 1433 409">Example photos showing vertical greening at SSS and climbers on noise barrier at roads in West Kowloon.</p>  <p>The top photograph shows a modern building facade with a vertical garden. A red oval highlights the green wall. The bottom photograph shows a noise barrier with green slats and climbing plants.</p>

EIA/EP Ref.	Photo Records
Table 7.11 (viii)	<p data-bbox="352 327 1161 362">Aesthetically pleasing streetscape design in roads at West Kowloon.</p> 

EIA/EP Ref.	Photo Records
Table 7.11 (ix)	<p data-bbox="352 327 1422 409">Example photo showing roadside amenity trees planted under XRL project to enhance the landscape quality of existing roads and new roads.</p> 

EIA/EP Ref.	Photo Records
Table 7.11 (x)	<p data-bbox="352 327 831 360">Reinstatement of PTI in West Kowloon.</p> 
Table 7.11 (xi)	<p data-bbox="352 1187 1010 1220">Landscape deck designed for noise mitigation measure.</p> 

EIA/EP Ref.	Photo Records
Table 7.11 (xii)	<p data-bbox="352 331 1129 365">Example photo showing the control of operation night time glare.</p> 
Table 7.11 (xiii)	<p data-bbox="352 1149 1430 1223">Example photo showing climbers planted at the boundary fence to blend in the structure to the adjacent landscape and visual context.</p> 

EIA/EP Ref.	Photo Records
S10.148 - S10.149	<p data-bbox="352 327 991 360">Recycling bins in Hong Kong West Kowloon Station.</p> 
S11.177- S11.181	<p data-bbox="352 1120 1318 1198">Maintenance areas within the SSS are housed or covered to prevent generation of contaminated rainwater runoff.</p> 

EIA/EP Ref.	Photo Records
S11.177- S11.181	<p data-bbox="352 327 807 360">Chemical Waste Storage Area in SSS.</p> 