## Appendix 12.1 Project Implementation Schedule

| EIA 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? | Requirements |
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| **Air Quality (Construction Phase)** | | | | | | |
| S3.9.1 | Watering once every 2 hours on heavy construction work areas to reduce dust emission by 91.7%. Any potential dust impact and watering mitigation would be subject to the actual site condition. | To minimize dust impacts | Contractor | All works sites & areas identified with heavy construction works | Construction phase | Air Pollution Control Ordinance (APCO) |
| S3.10.2 | Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices listed below should be carried out to further minimize construction dust impact.<br>• Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.<br>• Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines.<br>• Open stockpiles should be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.<br>• Covering of all dusty materials on vehicles transported to, from and between site locations.<br>• Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.<br>• Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, | To minimize dust impacts | Contractor | All works sites/areas | Construction phase | Air Pollution Control Ordinance (APCO) |

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| | streets or other accessible to the public except for a site entrance or exit.<br>• Imposition of speed controls for vehicles on unpaved site roads.<br>• Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.<br>• Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. | | | | | |
| S3.10.3 | Below measures should be implemented as a good practice:<br>• Proper planning of site layout to locate the machinery and dusty activities (e.g. haul roads and stockpiling areas) away from nearby air sensitive uses such as soccer pitch and basketball court as far as practicable;<br>• Provision of at least 2.4 m or higher hoarding from ground level along works site boundary close to the basketball court; and<br>• Adopt more frequent watering (e.g. once every hour) to reduce dust emissions from the exposed site surfaces, if any. | To implement as a good practice | Contractor | Works sites located at the junction of Wu King Road and Wu Yuet Street | Construction phase | Air Pollution Control Ordinance (APCO) |
| S3.10.4 | Below measures should be applied as far as practicable:<br>• Connect construction plant and equipment to main electricity supply and avoid use of diesel generators and diesel-powered equipment;<br>• Avoid usage of exempted NRMMs as far as practicable; and<br>• Deploy electrified NRMMS as far as practicable. | To minimize the exhaust emission from NRMMs | Contractor | All works sites/areas | Construction phase | Air Pollution Control Ordinance (APCO) |
| **Noise Impact (Construction Phase)** | | | | | | |

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| S4.5.17 to S4.5.18 | The site practices listed below should be followed during construction:<br><br>• Only well-maintained plant should be operated on-site and plant should be serviced regularly during construction;<br>• Silencers or mufflers on construction equipment should be utilised and should be properly maintained during construction;<br>• Mobile plant, if any, should be sited as far from NSRs as possible;<br>• Machine and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;<br>• The engine of lorry should be switched off after arriving the unloading position;<br>• Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and<br>• Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.<br><br>In addition, the "*Recommended Pollution Control Clauses for Construction Contracts"* published by the EPD should be adopted in the Contract Specification for the Contractor to follow and implement relevant measures and good site practices in minimising noise impact. | To reduce impact to surrounding NSRs | Contractor | All works sites/areas | Construction phase | EIAO-TM |
| S4.5.19 to S4.5.22 | *Quiet Construction Method / Powered Mechanical Equipment*<br><br>Mitigation measure such as the use of quiet PME/ QPME/Press-in Method/quieter demolition equipment is recommended. The contractors may adopt alternative quiet PME as long as it can be demonstrated that they would not result in construction noise impacts worse than those predicted in this EIA report. | To reduce impact to affected NSRs | Contractor | All works sites/areas where applicable | Construction phase | EIAO-TM |

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| S4.5.23 to S4.5.26 | *Use of Noise Barrier, Noise Insulating Fabric and Noise Enclosure*<br><br>Noise barriers or enclosures would be erected to provide screening from the construction plant. Noise barriers will become more effective when located immediately adjacent to the PME and can reduce the noise level by up to 5 dB(A) and 10 dB(A) for mobile and stationary plants, respectively. The Contractor should be responsible for design of the noise barrier with due consideration given to the size of the PME and the requirement of intercepting the line of sight between the NSRs and PME. A typical design which has been used locally is a wooden framed barrier with a small cantilevered upper portion of superficial density no less than 14kg/$m^2$ on a skid footing with 25mm thick internal sound absorptive lining. Purpose-built acoustics barrier can be used to screen noise from particular items of PME or noisy construction activities. The direct line of sight between the PME and the NSRs should be totally screened by a substantial barrier such that the PME will not be visible when viewed from any window, door or other opening in any façade of the NSR. Noise barriers should be erected/built in such a way that there will be no openings or gaps on the joints. The noise barriers should be long enough (e.g. at least five times greater than its height) or be bent around the noise sources to ensure the effectiveness of the noise barriers.<br><br>Noise insulating fabric (the Fabric) is proposed to install for PME such as piling rigs and drilling rigs and the Fabric should be lapped such that there would be no opening or gaps on the joints.<br><br>The use of full enclosure is proposed to shelter the noise from stationary plants. The minimum surface density of the enclosure panel should achieve 14 kg/$m^2$ and lined with noise absorption material internally. | To reduce impact to affected NSRs | Contractor | All works sites/areas where applicable | Construction phase | EIAO-TM |
| S4.5.27 to S4.5.28 | *Use of soundproof hammer bracket for hydraulic breaker* | To reduce impact to affected NSRs | Contractor | Works sites/areas for | Construction phase | EIAO-TM |

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| | Excavator mounted hydraulic breakers would be required for the realignment of Wu King Road (West) and removal of central median at Wu King Road. To minimise the noise impact to surrounding NSR, the Contractor should install soundproof hammer bracket for the hydraulic breakers. According to the "Best Practice Guide for Environmental Protection on Construction Sites"[1], page 6-10, published by Hong Kong Construction Association, May 2013, excavator-mounted breaker with soundproof hammer bracket can provide a noise reduction of up to 10dB(A). The bracket should be made of special alloy and the inside of it is lined with sound insulation material. The soundproof hammer bracket should be used together with a purpose-built barrier to achieve total of 15 dB(A) noise reduction. The Contractor should verify the overall noise reduction performance of the sound-proof bracket and the purpose-built barrier or other equivalent noise mitigation measures before using the hydraulic breaker for the realignment and removal of central median of Wu King Road.<br><br>Apart from the use of soundproof hammer bracket, alternatively, quieter construction equipment/method, such as, use of medium duty hydraulic breaker and quieter type blade saw and high pressure water jetting could possibly be used to reduce noise impact to the surrounding NSRs subject to the site condition. The contractors should explore and adopt quieter construction equipment/method as far as practicable. | | | the realignment of Wu King Road (West) and removal of central median at Wu King Road | | |
| S4.5.29 | *Mitigation Measures for Construction Works During Restricted Hours*<br><br>The Contractor(s) should avoid conducting construction activities during restricted hours as far as practicable. If such construction activities are unavoidable, the Contractor(s) should adopt quieter construction methods | To reduce impact to affected NSRs | Contractor | All works sites/areas where applicable | Construction phase | EIAO-TM, NCO |

1 https://www.epd.gov.hk/epd/english/greenconstruction/links/links.html

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| | such as use of QPME, quieter PME, quieter construction method (such as use of hydraulic crusher/wire saw/hand-held concrete crusher instead of hydraulic breaker for demolition works), purpose-built noise barrier and noise enclosure for construction activities during restricted hours to ensure compliance with the NCO and relevant TM. The effectiveness and practicality of all these identified measures should be investigated and verified during the design, tendering and implementation stage of the construction works. | | | | | |
| S4.5.31 | There are other NSRs (e.g. education institutions, clinics and homes for the aged) located on the ground floor of Wu Tsui House and Wu Boon House that may have direct line of sight to the proposed works areas. Similar to the education institutions, those NSRs were noise insulated with air conditioners and thus the sensitive room do not rely on opened windows for ventilation. The Contractor should closely liaise with the representatives of those education institutions / clinics / homes for the aged to confirm that air conditioners would be used during normal school days and examination periods for education institutions and during the normal operation of the clinics and homes for the aged. Otherwise, further noise mitigation measures in form of schedule of works/work area arrangement, as listed below, should be implemented to ensure the compliance of EIAO-TM criteria. Proposed further mitigations measures are listed below:<br><br>*Islamic Primary School (IPS)*<br>• During the site clearance and reinstatement works of Work Site (WS) 2.1, 2.3, 2.4, 2.4a, 2.4b, 2.5, 3.1, 3.2, 3.4, 3.6, 4.2a, dump trucks / mobile cranes/road roller should not be used very close to IPS. One dump truck / mobile crane / road roller would need to maintain 11m setback from IPS and the other one would need to maintain at least 30m from IPS;<br>• During site clearance of Work Site (WS) 2.1, 2.3, 2.4, 2.4a, 2.4b, 2.5, 3.1, 3.2, 3.4, 3.6, 4.2a, only 1 electric | To reduce impact to affected NSRs | Contractor | Works sites/areas near concerned NSRs | Construction phase | EIAO-TM |

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| | chain saw can be operated in the vicinity of IPS and the operation of electric chain saw and the generator would need to maintain 10m setback from IPS;<br>• If a drill rig would be operated close to IPS (i.e. at 23m from IPS) in Zone 2a.1, other two drill rigs should maintain at least 34m away from IPS. The Contractor should review this further mitigation measure if there is any update on pier locations during the construction stage to ensure the compliance of EIAO criteria;<br>• Piling works in Zone Z2a.1 should maintain at least 27m away from the IPS; and<br>• The Contractor should liaise with the school representative(s) to obtain the examination schedule so as to avoid noisy construction activities during school examination periods.<br><br>*Oi Lai House (OL1)*<br>• During the site clearance and reinstatement works of Work Site (WS) 2.1, 2.3, 2.4, 2.4a, 2.4b, 2.5, 3.1, 3.2, 3.4, 3.6, 4.2a, dump trucks / mobile cranes should not be used very close to OL1. One dump truck / mobile crane would need to maintain 7m setback from OL1 and the other one would need to maintain at least 12m from OL1; and<br>• During site clearance of Work Site (WS) 2.1, 2.3, 2.4, 2.4a, 2.4b, 2.5, 3.1, 3.2, 3.4, 3.6, 4.2a, only 1 electric chain saw can be operated in the vicinity of OL1.<br><br>*Yan Chai Hospital Ho Sik Nam Primary School (HSNPS)*<br>• The Contractor should liaise with the school representative(s) to obtain the examination schedule so as to avoid noisy construction activities during school examination periods.<br><br>*Tuen Mun District Women's Association Limited - Zonta Club of Hong Kong Integrated Service Centre (WT0b) and other noise sensitive uses on G/F of Wu Tsui House* | | | | | |

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| | • Between Apr 2024 and May 2024 & Jul 2024 - Aug 2024, use of breaker for realignment of Wu King Road (West) and removal of central median works at Zone W4a should not be carried out within 27m and 38m, respectively, from WT0b, and piling works at Zone CRO should not be carried out within 60m from WT0b;<br>• Between Dec 2024 and Apr 2025, piling works and construction of piers should not be carried out at the same time in Zone CRO;<br>• Between May 2025 and Nov 2025, piling works in Zone CRO, construction of pier in Zone CRO and piling works in Zone TMS.1a should maintain at least 60m, 60m and 45m from WT0b respectively, and piling works, construction of pile caps and construction of piers should not be carried out at the same time in Zone CRO; and<br>• Between Dec 2025 and Feb 2027 & Apr 2027 and July 2027, piling works, construction of pile caps and construction of piers should not be carried out at the same time in Zone TMS.1a, and construction of pier and construction of viaduct structure at Zone CRO should not be carried out within 60m from WT0b, and piling works in Zone TMS1.a should not be carried out within 34m from WT0b.<br><br>*Yan Chai Hospital Law Chan Chor Si Primary School (LCCS1& LCCS2)*<br>• Piling works in Zone TMS.1b should maintain at least 30m from LCCS1 and piling works, construction of pile caps and construction of piers should not be carried out at the same time in Zone TMS.1b;<br>• Construction of pile caps, construction of piers and construction of station should not be carried out at the same time in Zone TMS.1b;<br>• Construction of station at Zone TMS.1b and Construct Pick Up Drop Off Area should not be carried out at the same time and construction of station at TMS.1b and other external works at Zone TMS.2a should maintain 35m setback from LCCS1; | | | | | |

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| | • Use of breaker for realignment of Wu King Road (West) and removal of central median works at Zone W4b should not be carried out within 27m from LCCS2;<br>• Piling works in Zone TMS.1b should maintain at least 38m from LCCS2 and piling works, construction of pile caps and construction of piers should not be carried out at the same time in Zones TMS.1b and TMS.1c;<br>• Construction of pile caps, construction of pier and construction of station should not be carried out at the same time in Zones TMS.1b and TMS.1c;<br>• Construction of pier, construction of station in Zone 1b, other external works in Zone TMS2a, ABWF works for Degree 1 in Zone TMS.2a and ABWF & BS works in Zone TMS.2a should not be carried out within 35m from LCCS2. Construction of station in Zone TMS.1b, other external works in Zone TMS.2a and construction of pick up drop off area should not be carried out at the same time; and<br>• The Contractor should liaise with the school representative(s) to obtain the examination schedule so as to avoid noisy construction activities during school examination periods.<br><br>*Tung Wah Group of Hospitals Sun Hoi Directors' College (SHDC1)*<br>• Piling works, construction of pile caps and construction of piers should not be carried out at the same time in Zone TMS.1b;<br>• ABWF & BS works at Zone TMS.2a and construction of station at Zone TMS.1b should not be carried out at the same time; and<br>• The Contractor should liaise with the school representative(s) to obtain the examination schedule so as to avoid noisy construction activities during school examination periods.<br><br>*Carmel Bunnan Tong Memorial Secondary School (CBTMSS) and Caritas Institute of Community Education* | | | | | |

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| | *(WY0)*<br>• The Contractor should liaise with the school representative(s) to obtain the examination schedule so as to avoid noisy construction activities during school examination period.<br><br>*Taoist Ching Chung Primary School (TCC)*<br>• Use of breaker for realignment of Wu King Road (West) and removal of central median works at Zone W4b should not be carried out within 27m from TCC;<br>• Piling works, construction of pile caps and construction of piers should not be carried out at the same time in Zone TMS.1b and TMS.1c, and piling works in Zones TMS.1b and TMS.1c should not be carried out with 43m from TCC;<br>• Construction of pile caps, construction of pier and construction of station should not be carried out at the same time in Zone TMS.1c;<br>• ABWF & BS works at Zone TMS.2a and TMS.2b and construction of station structure at Zone TMS.1b and TMS.1c should not be carried out at the same time, and construction of pier and construction of station in Zone TMS.1b and construction of station in Zone TMS.1c should not be carried out within 38m from TCC; and<br>• The Contractor should liaise with the school representative(s) to obtain the examination schedule so as to avoid noisy construction activities during school examination periods.<br><br>*Yan Oi Tong Allan Yap Kindergarten (WB0) and other noise sensitive uses on G/F of Wu Boon House*<br>• Piling works at Zone TMS.1c should not be carried out within 43m from WB0, and piling works, construction of pile caps and construction of pier should not be carried out at the same time in Zone TMS.1c;<br>• Construction of pile caps, construction of pier and construction of station should not be carried out at the same time in Zone TMS.1c; and | | | | | |

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| | • ABWF & BS works at Zone TMS.2b and construction of station structure at Zone TMS.1c should not be carried out at the same time.<br><br>*W.F.B. Mantra Institute Nursery School (MINS)*<br>• Piling works at Zone TMS.1d should maintain 38m from MINS;<br>• Piling works, construction of pile caps and construction of pier should not be carried out at the same time in Zone TMS.1c and TMS.1d;<br>• Construction of pile caps, construction of pier and construction of station should not be carried out at the same time in Zone TMS.1c and TMS.1d; and<br>• Construction of station at Zone TMS.1d, other external works at Zone TMS.2b, ABWF works for Degree 1 at Zone TMS.2b and ABWF & BS works at Zone TMS.2b should maintain 35 m from MINS. | | | | | |
| S4.5.32 | It is recommended that Construction Noise Management Plan(s) (CNMP) should be prepared before commencement of construction works, so that both the verification of the plant inventory, and the assessment of the effectiveness and practicality of all identified mitigation measures for mitigating the construction noise impact of the Project, would be performed during the design, tendering and construction stage of the Project. A clear method statement of all the recommended mitigation measures for controlling the construction noise impacts should be formulated in the CNMP(s) to be prepared by future Contractors, such that all the recommended mitigation measures will be implemented and executed properly. | To ensure that all the recommended mitigation measures will be implemented and executed properly. | Contractor | All works sites/areas where applicable | Construction phase | EIAO-TM |
| **Noise Impact (Operational Phase)** | | | | | | |
| S4.6.10 | Selection of proper plant and adoption of acoustic treatment based on the past experience of other similar railway projects were suggested to achieve the predicted maximum allowable Sound Power Levels. | To minimize impact to surrounding NSRs | Contractor | All fixed plant sources where applicable | Detailed Design stage and operation phase | IND-TM, EIAO-TM |

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| S4.7.19 | Rail noise mitigation measures in the forms of noise barrier, semi-enclosure and enclosure with opening were proposed to mitigate the adverse impacts predicted at the existing NSRs and the future NSRs at the planned property development at Area 16. Details of the measures can refer to **Table 4.16** of EIA report. | To reduce impact to affected NSRs | MTRCL | The Project alignment | Detailed Design stage and operational phase | EIAO-TM, NCO |
| **Water Quality Impact (Construction Phase)** | | | | | | |
| S5.8.1 to S5.8.4 | <u>Construction of Piers in Tuen Mun River</u><br><br>The pilling works should be conducted by phases. The method and sequence of the proposed pier works in Tuen Mun River should be carefully designed so that wastewater and sediment laden water generated from the pilling works would be confined and physically separated from the watercourse.<br><br>All pilling, the associated excavation works and construction of pile caps in river should be fully enclosed by casing/concrete cofferdam/watertight precast pile cap shells. Concrete cofferdam and watertight precast pile cap shells should be constructed to isolate the construction activities from the river water. The detail design of the concrete cofferdams and watertight precast pile cap shells will be conducted by the Contractor during the construction phase to fulfil the requirements in DSD Technical Circular No. 1/2017 "*Temporary Flow Diversions and Temporary Works Affecting Capacity in Stormwater System*" for DSD approval in order to formulate feasible options of these temporary structure.<br><br>Water pumps should be used to collect any construction site runoff and ingress/seepage water within the concrete cofferdam and watertight precast pile cap shells. The collected construction site surface runoff and ingress/seepage water should be diverted to the on-site wastewater treatment facilities for treatment to satisfactory levels before discharged. Discharge licence issued by EPD for discharging effluent from the construction site under the | To minimise impact during the piling and excavation work | Contractor | All works sites/areas on TMRC | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |

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| | WPCO is needed. The discharge quality and quantity must meet the requirements specified in the discharge licence and follow the TM-DSS.<br><br>To further minimize any adverse water quality impact during the pilling and excavation works, silt curtains should be deployed to completely enclose the concrete cofferdam/watertight precast pile cap shells prior to setting up piling works and installation of concrete cofferdam/watertight precast pile cap shells. Silt curtains should only be removed after completion of pilling works and removal of concrete cofferdam/watertight precast pile cap shells. The Contractor should be responsible for the design, installation and maintenance of the silt curtain to minimize the impacts on water quality. The design and specification of the silt curtains should be submitted by the Contractor to the Engineer for approval. | | | | | |
| S5.8.5 | <u>Construction Site Runoff and General Construction Activities</u><br><br>Control of potential pollution of nearby water bodies during the construction phase of the Project should be achieved by measures to:<br><br>• Prevent or minimize the likelihood of pollutants (generated from construction activities) being in contact with rainfall or runoff; and<br>• Abate pollutants in the stormwater surface runoff prior to the discharge of surface runoff to the nearby water bodies. | To minimise impact from construction site run-off and general construction activities | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |
| S5.8.6 | It is important that Best Management Practices (BMPs) of mitigation measures in controlling water pollution and good site management, as specified in the ProPECC PN 1/94 "*Construction Site Drainage*" are followed, where applicable, to prevent runoff with high level of SS from entering the surrounding waters | To minimise impact from construction site run-off and general construction activities | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |

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| S5.8.7 | All effluent discharged from the construction site should comply with the standards stipulated in the TM-DSS. The measures discussed below are recommended to protect water quality of the inland and coastal waters, and when properly implemented should be sufficient to adequately control site discharges so as to avoid water quality impacts. | To minimise impact from construction site run-off and general construction activities | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |
| S5.8.8 | Surface runoff from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers should be provided on site during construction works to properly direct stormwater to such silt removal facilities. Perimeter channels should be provided on site boundaries where necessary to intercept storm runoff from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks. | To minimise impact from construction site run-off and general construction activities | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |
| S5.8.9 | Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage should comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. | To minimise impact from construction site run-off and general construction activities | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |
| S5.8.10 | Construction works should be programmed to minimize soil excavation works in rainy seasons (April to September) as far as practicable. If soil excavation cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from | To minimise impact from construction site run-off and general construction activities | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |

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| | washing across exposed soil surfaces. Arrangements should always be in place in such that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. | | | | | |
| S5.8.11 | Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary. | To minimise impact from construction site run-off and general construction activities | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |
| S5.8.12 | Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. | To minimise impact from construction site run-off and general construction activities | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |
| S5.8.13 | If bentonite slurries are required for any construction works, they should be reconditioned and reused wherever practicable to minimise the disposal volume of used bentonite slurries. Temporary enclosed storage locations should be provided on-site for any unused bentonite that needs to be transported away after the related construction activities are completed. Requirements as stipulated in ProPECC Note PN 1/94 should be closely followed when handling and disposing bentonite slurries | To minimise impact from construction site run-off and general construction activities | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94 |
| S5.8.14 | Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric. | To minimise impact from construction site run-off and general construction activities | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |
| S5.8.15 | Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting | To minimise impact from construction site | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |

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| | into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. | run-off and general construction activities | | | | |
| S5.8.16 | Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. | To minimise impact from construction site run-off and general construction activities | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |
| S5.8.16 | The following mitigation measures related to the transportation of the sediment should be implemented to minimize the potential water quality impact:<br>• Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.<br>• The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation.<br>• Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the Director of Environmental Protection (DEP). | To minimise the potential water quality impact | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |
| S5.8.17 | Discharge licence issued by EPD for discharge of effluent from the construction site under the WPCO is needed. The discharge quality and quantity must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing | To minimise impact from effluent discharge | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS |

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| | and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence. | | | | | |
| S5.8.18 | <u>Construction Works in Close Proximity to Inland Water</u><br>The practices outlined in ETWB TC (Works) No. 5/2005 "*Protection of natural streams / rivers from adverse impacts arising from construction works*" should also be adopted where applicable to minimise the water quality impacts on any natural streams or surface water systems. Relevant mitigation measures from the ETWB TC (Works) No. 5/2005 are listed below:<br>• The use of less or smaller construction plants may be specified in works area close to the inland water bodies.<br>• Temporary storage of material (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from watercourse/ditch when carrying out of the construction works.<br>• Stockpiling of construction materials and dusty materials should be covered and located away from any watercourse.<br>• Construction debris and spoil should be covered up and / or disposed of as soon as possible to avoid being washed into the nearby water receivers.<br>• Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the watercourse, where practicable.<br>• Construction effluent, site run-off and sewage should be properly collected and / or treated. | To minimise impact from construction site run-off | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, ProPECC PN 1/94, TM-DSS, ETWB TC(Works) No. 5/2005 |

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| | • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the inland water bodies. | | | | | |
| S5.8.19 to S5.8.21 | <u>Accidental Spillage of Chemicals</u><br><br>• Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes. The Contractor is also recommended to develop management procedures for chemicals used and prepare an emergency spillage handling procedure to deal with chemical spillage in case of accident occurs.<br>• Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.<br>• Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. 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. General requirements are given as follows:<br>o Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.<br><br>o Chemical waste containers should be suitably labelled, to notify and warn the personnel who are | To minimise impact from accidental spillage | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM, WDO, Waste Disposal (Chemical Waste) (General) Regulation |

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| | handling the wastes, to avoid accidents.<br>○ Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. | | | | | |
| S5.8.22 to S5.8.23 | <u>Sewage Effluent from Construction Workforce</u><br>• No discharge of sewage to the storm water system and marine water will be allowed. Adequate and sufficient portable chemical toilets should be provided in the works areas to handle sewage from construction workforce. A licensed waste collector should be employed to clean and maintain the chemical toilets on a regular basis.<br>• Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment. | To minimise impact from workforces sewage effluent | Contractor | All works sites/areas | Construction phase | WPCO, EIAO-TM,TM-DSS |
| S5.8.24 to S5.8.26 | <u>Groundwater from Contaminated Areas, Contaminated Site Runoff and Wastewater from Land Decontamination</u><br>• Remediation of contaminated land should be properly conducted following the recommendations of Land Contamination Assessment to be conducted in future. Any excavated contaminated material and exposed contaminated surface should be properly housed and covered to avoid generation of contaminated runoff. Open stockpiling of contaminated materials should not be allowed. Any contaminated runoff or wastewater generated from the land decontamination processes should be properly collected and diverted to wastewater treatment facilities (WTF) as necessary. The WTF should deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as total petroleum | To minimise impact from groundwater from contaminated areas, contaminated site run-off/ wastewater from land decontamination | Contractor | All works sites/areas confirmed with land contamination | Construction phase | WPCO, EIAO-TM, TM-DSS, Guidance Note for Contaminated Land Assessment and Remediation |

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| | hydrocarbon) to an undetectable range. All treated effluent from the wastewater treatment system should meet the requirements as stated in TM-DSS and should be either discharged into the foul sewers or tankered away for proper disposal.<br>• No direct discharge of groundwater from contaminated areas should be adopted. Prior to any excavation works within the potentially contaminated areas, the baseline groundwater quality in these areas should be reviewed based on the past relevant site investigation data and any additional groundwater quality measurements to be performed with reference to *Guidance Note for Contaminated Land Assessment and Remediation* and the review results should be submitted to EPD for examination. If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, this contaminated groundwater should be either properly treated or properly recharged into the ground in compliance with the requirements of the TM-DSS. If wastewater treatment is to be deployed for treating the contaminated groundwater, the wastewater treatment unit should deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as total petroleum hydrocarbon) to an undetectable range. All treated effluent from the wastewater treatment plant should meet the requirements as stated in the TM-DSS and should be either discharged into the foul sewers or tankered away for proper disposal.<br>• If deployment of wastewater treatment is not feasible for handling the contaminated groundwater, groundwater recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the | | | | | |

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| | groundwater quality will not be affected by the recharge operation as indicated in section 2.3 of TM-DSS. The baseline groundwater quality should be determined prior to the selection of the recharge wells. Pollution levels of groundwater to be recharged should not be higher than pollutant levels of ambient groundwater at the recharge well. Groundwater monitoring wells should be installed near the recharge points to monitor the effectiveness of the recharge wells and to ensure that no likelihood of increase of groundwater level and transfer of pollutants beyond the site boundary. Prior to recharge, free products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater. | | | | | |
| **Water Quality Impact (Operation Phase)** | | | | | | |
| S5.8.27 | All sewage and wastewater effluents generated from operation of the stations should be properly collected and diverted to public sewers for proper treatment and disposal. No direct discharge of sewage and wastewater effluents into the storm drains or inland/marine waters will be allowed. | To minimise impact from sewage and wastewater discharge | MTRCL | A16 and TMS Stations | Detailed Design stage and Operational phase | WPCO, EIAO-TM, ProPECC PN 5/93 |
| S5.8.28 to S5.8.33 | Best Management Practices (BMPs) for stormwater discharge are recommended to reduce stormwater pollution arising from the Project.<br><br>*Design Measures*<br><br>Exposed surface should be avoided to minimise soil erosion. The Site should be either hard paved or covered by landscaping area and plantation where appropriate.<br><br>The drainage system should be designed to avoid flooding. The drainage system will be designed to avoid any case of | To reduce stormwater pollution | MTRCL | A16 and TMS Stations | Operational phase | WPCO, EIAO-TM |

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| | flooding based on at least 1 in 50 year return period.<br><br>*Devices and Facilities*<br><br>Screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening large substances such as fallen leaves and rubbish should be provided at the inlet of drainage system.<br><br>Silt traps and oil interceptors should be incorporated as appropriate during the detailed design to remove particles and oil present in stormwater runoff, where appropriate.<br><br>*Administrative Measures*<br><br>Good management measures such as regular cleaning and sweeping of road surface / open areas are suggested. Manholes and stormwater gullies provided at the Project sites should be regularly inspected and cleaned (e.g. monthly). Additional inspection and cleansing should be carried out before forecast heavy rainfall. | | | | | |
| **Waste Management Implication (Construction Phase)** | | | | | | |
| S6.4.3 | Recommendations for good site practices during the construction phase include:<br><br>• Nomination of approved personnel, such as a site manager, to be responsible for implementation of good site practices, arrangements for waste collection and effective disposal to an appropriate facility;<br>• Training of site personnel in site cleanliness, concepts of waste reduction, reuse and recycling, proper waste management and chemical waste handling procedures;<br>• Provision of sufficient waste reception/ disposal points, and regular collection of waste; | To avoid and minimize impacts arising from waste management | Contractor | All works sites/areas | Construction phase | WDO, Public Cleansing and Prevention of Nuisances Regulation (Cap. 132BK) |

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| | • Adoption of appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;<br>• Provision of regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;<br>• Adoption of a recording system for the amount of wastes generated, recycled and disposed (including the disposal sites); and<br>• Preparation of Waste Management Plan (WMP), as part of the Environmental Management Plan (EMP) and submission of WMP to the Engineer of the Project for approval. | | | | | |
| S6.4.4 | Recommendations to achieve waste reduction are as follow:<br>• Segregate and store different types of construction related waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;<br>• Provide separate labelled bins to segregate recyclable waste such as aluminium cans from other general refuse generated by the work force, and to encourage collection by individual collectors;<br>• Recycle any unused chemicals or those with remaining functional capacity;<br>• Maximise the use of reusable steel formwork to reduce the amount of C&D materials;<br>• Adopt proper storage and site practices to minimise the potential for damage to, or contamination of construction materials; | To minimize waste generation | Contractor | All works sites/areas | Construction phase | WDO |

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| | • Plan the delivery and stock of construction materials carefully to minimise the amount of waste generated; and<br>• Minimize over ordering and wastage through careful planning during purchasing of construction materials. | | | | | |
| S6.4.6 | The C&D materials generated from demolition works, site clearance, excavation works, and construction of viaduct and stations should be sorted on-site into inert C&D materials (i.e. public fill) and C&D waste. To minimise the impact resulting from collection and transportation of C&D materials as far as practicable, C&D waste, such as wood, plastic, steel and other metals should be reused or recycled and, as a last resort, disposed to landfill. A suitable area should be designated within the site for temporary stockpiling of C&D materials and to facilitate the sorting process. Within the stockpile areas, the following measures should be taken to control potential environmental impacts or nuisance:<br>• Proper handling and storage of waste such as soil by means of covers and/or water spraying system to minimise the potential environmental impact and to prevent materials from wind-blown or being washed away;<br>• Covering materials during heavy rainfall;<br>• Locating stockpiles to minimise potential visual impacts;<br>• Minimising land intake of stockpile areas as far as possible;<br>• Adopting GPS or equivalent system for tracking and monitoring of all dump trucks engaged for the Project in recording their travel routings and parking locations to | To minimise the impact resulting from collection and transportation of C&D materials | Contractor | All works sites/areas | Construction phase | WDO |

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| | prohibit illegal dumping and landfilling of C&D materials; and<br>• Keeping record and analysis of data collected by GPS or equivalent system related to travel routings and parking locations of dump trucks engaged on site. | | | | | |
| S6.4.7 to S6.4.9 | General refuse should be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light materials.<br><br>The recyclable component of general refuse, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.<br><br>The Contractor should carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins should also be provided in the sites as reminders. | To avoid and minimize impacts arising from waste management | Contractor | All works sites/areas | Construction phase | WDO |
| S6.4.10 to S6.4.12 | If chemical wastes were to be produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer, and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.<br><br>Appropriate containers with proper labels should be used for storage of chemical wastes. Chemical wastes should be | To avoid and minimize impacts arising from waste management | Contractor | All works sites/areas | Construction phase | WDO |

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| | collected and delivered to designated outlet by a licensed collector. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the CWTC, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.<br><br>Any unused chemicals or those with remaining functional capacity should be collected for reuse as far as practicable. | | | | | |
| S6.4.13 to S6.4.14 | The sediment should be excavated, handled, transported and disposed of in a manner that would minimise adverse environmental impacts. For minimization of sediment disposal, beneficial reuse should be considered on site as far as practicable during the construction stage before the disposal of excavated sediment.<br><br>Requirements of the *Air Pollution Ordinance (Construction Dust) Regulation*, where relevant, should be adhered to during excavation, transportation and disposal of sediments. | To avoid and minimize impacts arising from waste management | Contractor | All works sites/areas confirmed with sediment | Construction phase | APCO,<br>WDO |
| S6.4.15 | In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. | To avoid and minimize impacts arising from waste management | Contractor | All works sites/areas confirmed with sediment | Construction phase | WDO |
| S6.4.16 | For off-site disposal, the basic requirements and procedures specified under PNAP No. 252 (ADV-21) should be followed. Marine Fill Committee (MFC) of CEDD is managing the disposal facilities in Hong Kong for the excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance (DASO). | To avoid and minimize impacts arising from waste management | Contractor | All works sites/areas confirmed with sediment | Construction phase | WDO, DASO, ADV-21 |

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| S6.4.17 | For the purpose of site allocation and application of marine dumping permit and if considered necessary by EPD (Marine Dumping Section), separate SSTP should be submitted to EPD for agreement under DASO. Additional SI works, based on the SSTP, should then be carried out in order to confirm the disposal arrangements of the excavated sediment. A Sediment Quality Report (SQR), reporting the chemical and biological screening results and the estimated quantities of sediment under different disposal options, should then be submitted to EPD for agreement under DASO. | To avoid and minimize impacts arising from waste management | Contractor | All works sites/areas confirmed with sediment | Construction phase | WDO, DASO, ADV-21 |
| S6.4.18 | To ensure disposal space is allocated for the Project, the Project Proponent should be responsible for obtaining agreement from MFC on the allocation of the disposal site. The contractor(s), on the other hand, should be responsible for the application of the marine dumping permit under DASO from EPD for the sediment disposal. | To avoid and minimize impacts arising from waste management | Project Proponent and Contractor | All works sites/areas confirmed with sediment | Construction phase | WDO, DASO, ADV-21 |
| S6.4.19 | The excavated sediments are expected to be loaded onto the barge at public barging point of which the exact location will be determined by the contractor(s) and agreed by EPD/CEDD and transported to the designated disposal sites allocated by MFC. The excavated sediment would be disposed of according to its determined disposal options and PNAP No. 252 (ADV-21). | To avoid and minimize impacts arising from waste management | Project Proponent and Contractor | All works sites/areas confirmed with sediment | Construction phase | WDO, DASO, ADV-21 |
| S6.4.20 | Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is unavoidable, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiles should be placed on surface completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling | To avoid and minimize impacts arising from waste management | Contractor | All works sites/areas confirmed with sediment | Construction phase | WPCO |

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| | of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). | | | | | |
| S6.4.21 | In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments should be wetted during excavation / material handling and should be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. | To avoid and minimize impacts arising from waste management | Contractor | All works sites/areas confirmed with sediment | Construction phase | WDO, APCO |
| S6.4.22 | The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP. | To avoid and minimize impacts arising from waste management | Contractor | All works sites/areas confirmed with sediment | Construction phase | WDO |
| **Waste Management Implication (Operation Phase)** | | | | | | |

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| S6.4.23 to S6.4.24 | Chemical Wastes<br><br>The requirements given in the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes* should be followed in handling of chemical waste as in construction phase. A trip-ticket system would be adopted by the operator to monitor disposal of chemical waste.<br><br>*Chemical waste shall be disposed of at appropriate facility such as the CWTC by licensed collectors.* | To monitor the disposal of chemical waste | MTRCL | A16 and TMS Stations | Operational phase | WDO |
| S6.4.25 | *General Refuse*<br><br>Designated areas will be assigned for proper storage and collection of general refuse generated on site. A reputable waste collector should be employed to remove general refuse regularly to minimize potential impacts arising from storage and collection of general refuse. Recycling bins would be provided to staff and passengers to separate recyclable component of general refuse. | To monitor the disposal of general refuse | MTRCL | A16 and TMS Stations | Operational phase | WDO |
| **Land Contamination** | | | | | | |
| S7.8.1 to S7.8.3 | *Recommended Further Works*<br><br>As the concerned facilities within the Project Area are still in operation, it would not be feasible to carry out the proposed SI works under the EIA Study. Moreover, as the demolition of concerned facilities and construction works at the concerned areas will not commence until 2023, there could be changes in the operation or changes in land use within the Project Area which may cause further contamination issues. Therefore, site re-appraisal and submission of supplementary CAP(s) should be carried out for the whole Project Area at a later stage of the Project in order to address any new contamination issues caused by the (i) changes in operation of the identified potentially | To control land remediation work | Contractor | All works sites/areas identified with potential land contamination | Prior to the commencement of the construction works at the concerned areas | Guidance Note for Contaminated Land Assessment and Remediation, Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land |

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| | contaminated site and (ii) changes of land use within the Project Area. The associated SI works and any necessary remediation action are recommended to be carried out after the operation of concerned area(s) has ceased but prior to the commencement of construction works at the concerned area(s).<br><br>The site re-appraisal and submission of supplementary CAP(s) should be carried out prior to the commencement of the SI works. Supplementary CAP(s), presenting findings of the review, the latest site conditions and updated sampling strategy and testing protocol, should be submitted to EPD for approval. The SI works should be carried out according to EPD's approved supplementary CAP(s). Following completion of SI works and receipt of laboratory test results, CAR(s) should be prepared to present the findings of the SI works and to discuss the presence, nature and extent of contamination. If contamination is identified, RAP(s) which provides details of the remedial actions for the identified contaminated soil and / or groundwater should be approved by EPD.<br><br>Remediation action, if necessary, will be carried out according to EPD approved RAP(s) and Remediation Report(s) (RR(s)) will be submitted after completion of the remediation action. The RR(s) should be endorsed by EPD prior to the commencement of construction works at the respective identified contaminated areas (if any). | | | | | Management |

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| S7.8.4 | *Possible Remediation Measures*<br><br>According to the Practice Guide, the need to remediate the concerned areas would be determined based on the findings of the SI presented in the CAR and the actual nature, level and extent of contamination can only be evaluated through SI. The appropriate remediation methods should be selected in the RAP based on the SI findings. The possible remediation methods and the selection criteria are detailed in Section 5.2 of the CAP (**Appendix 7.1** refers). | To control land remediation work | Contractor | All works sites/areas identified with land contamination | Prior to the commencement of construction works at the contaminated areas | Guidance Note for Contaminated Land Assessment and Remediation, Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management |

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| S7.8.5 | *Mitigation Measures for Remediation Works*<br><br>Mitigation measures for the remediation works would depend on the nature / extent of contamination and the method of treatment.<br>• Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety;<br>• Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils;<br>• Supply of suitable clean backfill material (or treated soil) after excavation;<br>• Stockpiling site(s) shall be lined with impermeable sheeting and bunded. Stockpiles shall be fully covered by impermeable sheeting to reduce dust emission;<br>• Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions;<br>• Speed control for the trucks carrying contaminated materials shall be enforced;<br>• Vehicle wheel and body washing facilities at the site's exist points shall be established and used; and<br>• Pollution control measures for air emissions (e.g. from biopile blower and handling of cement), noise emissions (e.g. from blower or earthmoving equipment), and water discharges (e.g. runoff control from treatment facility) shall be implemented and complied with relevant regulations and guidelines. | To control land remediation work | Contractor | All works sites/areas identified with land contamination | Prior to the commencement of construction works at the contaminated areas | Guidance Note for Contaminated Land Assessment and Remediation, Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management, Public Cleansing and Prevention of Nuisances Regulation (Cap. 132BK)<br><br>APCO, WDO, WPCO |
| **Ecology (Construction Phase)** | | | | | | |

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| S8.9.3 | *Impacts on the Ardeid Night Roost*<br>Tree felling at the Tuen Mun Park will be avoided, while maintenance works would only be limited to necessary pruning works, at overgrown trees branches that may pose safety issue to the public, or obstruction of construction within the works site and subsequent of railway operation. In addition, pruning of trees of the ardeids night roost should only be conducted when no ardeids are perching on the trees. | To avoid direct impact on ardeid night roost | Contractor | Works sites adjoining to TUM Station | Construction Phase | EIAO-TM, EIAO Guidance Note. 3/2010 |
| S8.9.4 to S8.9.5 | *Establishment of Buffer Zone and Control of Working Hours*<br>During the construction phase, the timing of the noisy construction activities should be arranged to avoid impact on the night roosting ardeids as far as possible. As such, no noisy construction activities using the power mechanical equipment (PME) should be conducted within 100 m from the night roosting site after 30 minutes before sunset, until the ardeids leave the roosting location of the following day (i.e. around 30 minutes after sunrise), in order to minimise the potential disturbance to night-roosting ardeids. The time for the control of noisy construction will commence 30 minutes before sunset, as presented in Table 8.16 with reference made to the Hong Kong Observatory. As a good practice, the contractor should plan the construction works properly for completion of the daily noisy construction works within the buffer zone 30 minutes before sunset, especially for concreting works of bored piles which should be carried out continuously to avoid the cold joint. The concreting works beyond the sunset time should therefore be considered as contingency arrangement due to the uncontrollable issues (i.e. traffic jam, delay of concrete supply, breakdown of plant / equipment, etc). In the event of occurrence of contingency arrangement, a notice with valid justification documents and contingency arrangement details should be prepared and recorded in the EM&A reports. This notice should also record any change in the ardeid night roost (e.g. displacement or abandonment) observed during contingency arrangement and any | To to avoid early disturbance to the night roost that could discourage and displace ardeid night roosting use | Contractor | Works sites adjoining to TUM Station | Construction Phase | EIAO-TM, EIAO Guidance Note. 3/2010 |

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<td>mitigation measures implemented and/or to be implemented. A reporting mechanism should be developed with details stated in Environmental Monitoring and Audit (EM&A) Manual. A monthly monitoring and observation on condition of night roost should be carried out during the construction phase to monitor the impact on the night roost.<br><br>Some night-time activities are necessary to avoid potential safety issue and minimise interruption or disruption to existing road and rail traffic. In case where these activities occur in close proximity of the night roost, careful arrangement of work programme should be adopted as far as practicable to avoid disturbances from construction activities near the night-roost (such as noise, light and other human disturbance), especially during dry season (when ardeids are at relatively higher abundance). In addition, mitigation measures such as movable noise enclosures and movable barriers should be adopted to mitigate the noise and light from the night-time construction activities and to minimise disturbance to the night roosting ardeids, where necessary. Proper construction planning would also be implemented to arrange night-time activities in wet season as far as practicable. Where possible, these activities will also be scheduled on non-consecutive days to avoid continuous disturbance on the night roost.</td>
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<td>Table 8.16</td>
<td>Seasonal Sunset Time During Survey
<table>
<tr><th>Months</th><th>Reference Time of Sunset (1)</th><th>Control of Noisy Construction Activities (2)</th></tr>
<tr><td>Dec – Feb</td><td>17:38 – 18:27</td><td>17:08 – 07:30 (on the following day)</td></tr>
<tr><td>Mar – May</td><td>18:27 – 19:03</td><td>17:57 – 07:30 (on the following day)</td></tr>
<tr><td>Jun – Aug</td><td>18:41 – 19:11</td><td>18:11 – 07:30 (on the following day)</td></tr>
<tr><td>Sep – Nov</td><td>17:38 – 18:40</td><td>17:08 – 07:30 (on the following day)</td></tr>
</table></td>
<td>To to avoid early disturbance to the night roost that could discourage and displace ardeid night roosting use</td>
<td>Contractor</td>
<td>Works sites adjoining to TUM Station</td>
<td>Construction Phase</td>
<td>EIAO-TM, EIAO Guidance Note. 3/2010</td>
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| | Notes:<br>(1) Reference was made to the sunset time in year 2021.<br>(2) Noisy construction activities should be ceased before the proposed time, except for contingent arrangement of concreting works due to uncontrollable issues. Such occurrence should be notified by the Contractor to Engineer/Engineer's Representative, Environmental Team Leader and Independent Environmental Checker on the same day of the occurrence. | | | | | |
| Table 8.17 | *Construction Works/ Activities within 100m from Ardeid Night Roost*<br><u>TUM Overrun Modification</u><br>Modification works that does not require the use of PME:<br>• Night-time activities should be avoided as far as practicable.<br>• Daytime construction activities within buffer zone should follow control of working hours (Table 8.16 of the EIA Report).<br>• Should night-time works be unavoidable, the following measures should be adopted: movable barrier; light control; and proper construction planning to arrange works in wet season as far as practicable.<br>Noisy modification works that require the use of PME:<br>• Night-time activities should be avoided.<br>• Daytime construction activities within buffer zone should follow control of working hours (Table 8.16 of the EIA Report).<br><br><u>Provision of Temporary Steel Platform</u><br>• Construction activities should be conducted during daytime.<br>• Any activities within buffer zone should follow control of working hours (Table 8.16 of the EIA Report).<br><br><u>Construction of Viaduct and Concreting works</u> | To to avoid early disturbance to the night roost that could discourage and displace ardeid night roosting use | Contractor | Works sites within 100m from Ardeid Night Roost | Construction Phase | EIAO-TM, EIAO Guidance Note. 3/2010 |

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| | • Any activities within buffer zone should follow control of working hours (Table 8.16 of the EIA Report).<br>• Concreting works should be limited to daytime under normal circumstances.<br>• In the event of a contingency event, a notice with justification and arrangement details should be prepared and recorded in the EM&A reports. Any observed change in the ardeid night roost and mitigation measures implemented and/or to be implemented should also be documented.<br><br><u>Maintenance Works at Tuen Mun Park</u><br>• When pruning of trees of the ardeids night roost is deemed necessary, it should only be conducted when no ardeids are perching on the trees. | | | | | |
| S8.9.6 | *Pre-Construction Bat Survey*<br>In the event that Chinese Fan-palm need to be felled, prior to the commencement of temporary works within Pui To Road (South) Rest Garden, pre-construction bat survey should be conducted to verify that no SNFB individuals are roosting within the Chinese Fan-palm trees. These roosting bats are relatively inactive during daytime, thus more susceptible to injury during tree-felling. Where roosting SNFB were observed, felling of the Chinese Fan-palm trees should be suspended until the SNFB has emerged (e.g. after sunset). It is recommended to conduct tree-felling works during suitable weather conditions (e.g. fine, non-rainy evenings) during which the bats would be relatively active and more likely to emerge. If there are any injured bats found within the works area at Pui To Road (South) Rest Garden, AFCD should be informed and the bats should be taken care immediately. Pruning the fronds of the Chinese Fan-palm can also be considered during night-time (when SNFB has emerged from the roost) as an exclusion measure to discourage their return to the tree and avoid subsequent injury of bats. As SNFB are relatively active throughout the year, no seasonal pattern | To verify that no SNFB individuals are roosting within the Chinese Fan-palm trees | Contractor | Pui To Road (South) Rest Garden | Construction phase | EIAO-TM, EIAO Guidance Note. 3/2010 |

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| | was observed. | | | | | |
| S8.9.7 to S8.9.8 | *Avoidance of Bird Collision*<br><br>Considering the commuting activity of birds in the vicinity, the potential bird collision should be avoided by using non-transparent panels as the noise enclosure, as well as adopting non-glaring tinted materials, or superimposing dark patterns at the majority of facade glazing along barriers and station structures, as per Guidelines on Design of Noise Barriers (EPD & HyD, 2003) and Practice Notes No. BSTR/PN/003 (Revision D) Noise Barriers with Transparent Panels (HyD, 2018), to avoid and minimise bird mortality from collision.<br><br>The bridge structure across the TMRC should also be well-illuminated to increase visibility for facilitating bird flight above or under the bridge and avoiding potential injury from collision. | To avoid and minimise bird mortality from collision | MTRCL | Viaduct and Stations | Detailed Design stage, Construction and Operation Phase | EIAO-TM , EIAO Guidance Note. 3/2010 , *Guidelines on Design of Noise Barriers (EPD & HyD, 2003)* and *Practice Notes No. BSTR/PN/003 (Revision E) Noise Barriers with Transparent Panels* (HyD, 2020) |
| S8.9.9 | *Reinstatement of Areas of Temporary Loss*<br><br>Temporary works sites and works areas would be reinstated and restored (e.g. at Pui To Road (South) Rest Garden and Wu Shan Recreation Playground) by reinstatement of landscape area and compensatory tree planting. Shade tolerant plants would also be planted at the shaded area under the viaduct. Reprovision of Chinese Fan-palm trees during the reinstatement could also provide roosting opportunities for SNFB. | To minimise the ecological impact | MTRCL and Contractor | All works sites/areas where applicable | Detailed Design and Construction phases | EIAO-TM , EIAO Guidance Note. 3/2010 |
| S8.9.10 | *Minimisation of Disturbance*<br><br>Mitigation measures should be implemented to minimise the disturbance impacts (e.g. noise, glare and dust) to the surrounding habitats and their associated wildlife arising from the construction activities, including but not limited to the following: | To minimise the disturbance impacts to the surrounding habitats and their associated wildlife arising from the construction activities | Contractor | All works sites/areas | Construction phase | EIAO-TM, EIAO Guidance Note. 3/2010 |

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| | • Noise mitigation measures by effective placing of site hoarding, temporary noise barriers and material stockpiles where practicable as screening, shut down of machines and plants that are in intermittent use, and the use of quality PME to limit noise emissions at source;<br>• Glare reduction measures such as restriction of construction hours, hoarding provision, night-time lighting control and avoidance of any directional lightings to the adjoining habitats and roosts to minimise the impact to nearby nocturnal fauna especially avifauna and bat; and<br>• Dust suppression measures (such as regular spraying of haul roads, proper storage of construction materials, and environmental control measures as stipulated in the Air Pollution Ordinance (Construction Dust) Regulation) to avoid and minimise emission and dispersal dust, which would cover vegetation and potentially discourage usage of nearby wildlife. | | | | | |
| S8.9.11 | *Control Glare / Lighting*<br>The overall reduction of glare during both construction and operational phases should also be considered. A balance between lighting for safety, and avoiding excessive lighting can be achieved through the use of directional lighting to avoid light spill into sensitive areas (e.g. the ardeid night roost), and control timing of lighting periods, particularly for the works site(s) located in proximity to the ardeid night roost in Tuen Mun Park, and during peak roosting season of ardeid (e.g. dry season), hence minimising the potential indirect impact on the community of the night-roosting ardeids. | To minimise the disturbance impacts to the surrounding habitats and their associated wildlife arising from the construction activities | Contractor | All works sites/areas | Construction phase | EIAO-TM, EIAO Guidance Note. 3/2010 |
| S8.9.13 | *Good Site Practice*<br>Recommendations for good site practices during the construction phase include: | To avoid adverse impacts arising from | Contractor | All works sites/areas | Construction phase | EIAO-TM, EIAO Guidance Note. 3/2010 |

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| | • Nomination of approved personnel, such as a site manager, to be responsible for implementation of good site practices, arrangements for waste collection and effective disposal to an appropriate facility;<br>• Training of site personnel in site cleanliness, concepts of waste reduction, reuse and recycling, proper waste management and chemical waste handling procedures;<br>• Provision of sufficient waste reception/ disposal points, and regular collection of waste;<br>• Adoption of appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;<br>• Provision of regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;<br>• Adoption of a recording system for the amount of wastes generated, recycled and disposed (including the disposal sites); and<br>• Preparation of Waste Management Plan (WMP), as part of the Environmental Management Plan (EMP). | the construction activities | | | | |
| **Ecology (Operational Phase)** | | | | | | |
| S8.9.12 | Subject to detailed design stage, an extent of about 85m long (starting from the southern end of existing overrun structure) and 1m high vertical non-transparent panels on top of parapet of viaduct would be established along the eastern side of the viaduct (Figure No. C1502/C/TME/ACM/M56/108 refers) which is adjacent to the ardeid night roost. The provision of this vertical panel on top of the parapet would be able to reach the height of the operating railway train windows, thus providing a shielding effect. | To minimize the potential disturbance from railway operation during night-time period | MTRCL, Contractor | Along the eastern side of the viaduct adjacent to the ardeid night roost | Detailed Design stage, Construction and Operational phases | EIAO-TM, EIAO Guidance Note. 3/2010 |

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| S8.9.14 | *Consideration of Ardeid Perching and Foraging Structures*<br><br>Incorporation of ardeid perching and foraging structures can be considered along the proposed alignment to further enhance and encourage ardeid usage upon the completion of construction. For instance, subject to detailed design, ledges can be added to the pier structure, where existing ardeids have been observed to perch on. These ledges can also be considered at a level closer to the water surface, which may further benefit their foraging opportunity. | To further enhance and encourage ardeid usage upon the completion of construction | MTRCL | Viaduct structures and Tuen Mun River Bridge | Detailed Design stage, Construction and Operational phases | - |
| S8.9.15 | *Overall Greening*<br><br>Further enhancement can be considered by incorporating vegetation / promoting landscape tree planting on the promenade along the TMRC, thus enhancing the overall greening, encouraging usage of ardeids along the riverbank upon completion of construction (e.g. provide shading from the vegetation, and provide perching opportunities) to enhance the overall ecological opportunities of the TMRC and its vicinity, considering the existing ardeid usage. | To enhance the overall ecological opportunities of the TMRC and its vicinity | MTRCL | All works sites/areas adjoining promenade along the TMRC | Detailed Design stage, Construction and Operational phases | - |
| **Landscape and Visual Impact (Construction Phase)** | | | | | | |
| Table 9.9 | CM1 - Trees unavoidably affected by the works should be transplanted as far as possible in accordance with DEVB TC(W) 4/2020 – Tree Preservation. | To minimize the landscape and visual impact on surrounding setting | Contractor | All works sites/areas | Construction phase | DEVB TC(W) 4/2020 – Tree Preservation |
| Table 9.9 | CM2 - Control of night-time lighting glare to prevent light overspill to the nearby VSRs and into the sky. Relevant best practices as suggested in the "Charter on External Lighting" and “Guidelines on Industry Best Practices for External Lighting Installations” promulgated by ENB shall be adopted. | To minimize the landscape and visual impact on surrounding setting | Contractor | All works sites/areas | Construction phase | EIAO-TM |
| Table 9.9 | CM3 - Erection of decorative screen hoarding which should be compatible with the surrounding setting. | To minimize the landscape and visual impact on surrounding setting | Contractor | All works sites/areas | Construction phase | EIAO-TM |

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| Table 9.9 | CM4 - Management of facilities on work sites by controlling the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. | To minimize the landscape and visual impact on surrounding setting | Contractor | All works sites/areas | Construction phase | - |
| Table 9.9 | CM5 - All hard and soft landscape areas disturbed temporarily during construction should be reinstated on like-to-like basis, to the satisfaction of the relevant Government Departments. | To minimize the landscape and visual impact on surrounding setting | Contractor | All works sites/areas where applicable | Construction and Operational phases | - |
| Table 9.9 | CM6 - Tree without impact from proposed works should be retained as far as possible in accordance with DEVB TC(W) 4/2020 – Tree Preservation. Any existing trees to be pruned by the Project should follow the Tree Management Practice Note No. 3: Tree Pruning issued by GLTMS of DEVB. | To minimize the landscape and visual impact on surrounding setting | Contractor | All works sites/areas | Construction phase | DEVB TC(W) 4/2020 |
| **Landscape and Visual Impact (Operational Phase)** | | | | | | |
| Table 9.10 | OM1 - Aesthetically pleasing design as regard to the form, material and finishes should be incorporated to Entrance, Plant Buildings, Ventilation Shafts and associated engineering facilities so as to blend in the structures to the adjacent landscape and visual context. | To blend in the structures to the adjacent landscape and visual context. | MTRCL | All aboveground structures | Detailed Design stage and Operational phase | - |
| Table 9.10 | OM2 - Tree Planting and shrub planting should be incorporated to provide screening to the Station building, viaduct and associated engineering facilities and serves as roadside amenity planting to provide ornamental value and enhance the landscape character of the streets | To provide ornamental value and enhance the landscape character of the streets. | MTRCL / LCSD (subject to the affected areas and related maintenance parties) | All works sites/areas where applicable | Detailed Design stage and Operational phase | - |
| Table 9.10 | OM3 - Roof Greening should be proposed to the roof area of the propose structures as far as practical to enhance the landscape quality of the structures and mitigate any potential visual impact on adjacent VSRs. | To enhance the landscape quality of the structures and mitigate any potential visual impact to adjacent VSRs. | MTRCL | Stations | Detailed Design stage and Operational phase | - |
| Table 9.10 | OM4 - Roadside soft landscape should be incorporated to the station buildings and associated engineering facilities. Shade tolerant plants with tall to medium height should be planted to under the viaduct to soften the hard building | To soften the hard building edges and provide screening. | HyD / LCSD | Stations | Detailed Design stage and Operational phase | HKPSG Chapter 4: Recreation, Open Space and Greening |

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| | edges and provide screening. | | | | | |
| Table 9.10 | OM5a - Provision of New Open Space for recreational use. | To provide recreational area for public. | LCSD | All works sites/areas where applicable | Detailed Design stage and Operational phase | HKPSG Chapter 4: Recreation, Open Space and Greening |
| Table 9.10 | OM5b - Provision of New hard and soft landscape area – provision of street furniture and tree pit planting along the pedestrian as streetscape improvement. | To provide soft landscape area for public. | HyD / LCSD | All works sites/areas where applicable | Detailed Design stage and Operational phase | - |
| Table 9.10 | OM6 - Compensatory tree planting should be provided in accordance with DEVB TC(W) 4/2020 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period. Compensatory shrub planting should be provided to compensate for the loss of shrub planting in amenity areas. | To compensate felled trees | MTRCL / HyD / LCSD (subject to the affected areas and related maintenance parties) | All works sites/areas where applicable | Detailed Design stage and Operational phase | DEVB TC(W) 4/2020 |
| **Cultural Heritage (Construction Phase)** | | | | | | |
| S10.7.1 | If there are any buildings / structures both at grade level and underground which were built on or before 1969 found within the works sites/ works areas during the excavation, the Project Proponent will alert AMO in an early stage or once identified. | To avoid/minimise impact on built heritage resources, if any | Contractor | All works sites/areas where applicable | Construction phase | EIAO-TM |
| S10.7.2 | The Contractor should inform the AMO in case of discovery of antiquities or supposed antiquities in the course of works, so that appropriate mitigation measures, if needed, can be timely formulated and implemented in agreement with AMO. | To avoid/minimise impact on archaeological resources, if any | Contractor | All works sites/areas where applicable | Construction phase | EIAO-TM |
| **Hazard to Life Assessment (Construction Phase)** | | | | | | |
| S11.9.16 | The following “Good Practices” are proposed to limit the number of causalities and/ or fatalities:<br>• Establishment of emergency response plans;<br>• Safety/ emergency response training and drills for all personnel; | To limit the number of causalities and/ or fatalities. | Contractor | Works Areas ID#9a and #9b | Construction phase | EIAO-TM |

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| | • Provision of fire protection equipment;<br>• Maintain the number of construction workers onsite to a minimum;<br>• Implement adequate safety measures and procedures that completely eliminate the possibility of dropping anything into the LPG compound due to hoisting and transportation of precast segments or any other activities;<br>• Hot work should be banned in the vicinity of the LPG Store, i.e. works areas ID#9a and #9b;<br>• Construction activities at works areas ID#9a and #9b should be considered to be ceased when testing / examination / inspection of the underground storage tanks are conducted at the LPG Store; and<br>• Keep close coordination with the LPG Store's owner and registered gas supply company on necessary precautionary measures to safeguard the LPG facilities during the construction phase of the Project. In particular, the delivery route and schedule of the LPG road tanker transportation should be fully understood, for preventing any interruption on the LPG delivery. | | | | | |