9 Conclusion

9.1.1 General

9.1.1.1 The Proposed Helipad located at the rooftop of New Block of QMH is planned for emergency uses only. With the provision of a new helipad in QMH, it will help to maintain the speedy transfer of patients / organs to the hospital by helicopters and increase the flexibility for helicopter landings during medical emergencies. This EIA Report has provided an assessment of the potential environmental impacts associated with the construction and operation of the project with all helipad design information available at this stage. The assessment has been conducted in accordance with the EIA Study Brief (No. ESB-284/2015) under the EIAO for the Proposed Helipad, covering the below environmental issues:

- Air Quality Impact
- Noise Impact
- Waste Management
- Ecological Impact - Terrestrial
- Visual Impact

9.1.1.2 The findings of this EIA study has determined the likely nature and extent of environmental impacts and identified the suitable environmental control measures for incorporation into the design and operation of the Proposed Helipad to ensure compliance with environmental legislation and standards during the construction and operation of the Proposed Helipad. The Implementation Schedules for the recommended mitigation measures are presented in Section 10 of this EIA report.

9.1.1.3 A summary of environmental impact associated with the Project for each environmental aspect is provided in Appendix 9.1.

9.1.1.4 A summary of key assessment assumptions, limitation of assessment methodologies is provided in Appendix 9.2.

9.1.2 Key Environmental Outcomes and Recommendations

9.1.2.1 **Air Quality:** The construction dust generated during the construction of the Proposed is identified to be minimal, no specific construction dust monitoring is required while regular environmental audits and implementing relevant control measures as required in the Air Pollution Control (Construction Dust) Regulation are recommended to ensure proper dust control. In view of the less frequent HEMS and short operation duration, air quality impact from air pollutant emission during helicopter operation is identified insignificant.

9.1.2.2 **Construction Noise Impact:** The predicted construction noise impact of the Proposed Helipad and the cumulative construction noise impact on the representative NSR are both 67dB(A) which comply with the relevant construction

noise criterion. No adverse cumulative noise impact due to the construction of the Project and the New Block is anticipated.

9.1.2.3 **Helicopter Noise Impact:** The helicopter noise impacts on representative NSRs have been predicted and found complying with the daytime helicopter noise criterion after the adoption of noise mitigation measures as discussed in Section 4. Adverse daytime helicopter noise impact is not anticipated. There is no standard on emergency helicopter noise in evening and night periods. The review on overseas / international practices shows that the operations for HEMS during evening and night time periods should be exempted from the flight noise restrictions. However, residual noise from operation of the Proposed Helipad may be audible and cause concerns during evening and night hours from 7pm to 7am. Apart from this, the existing GFS's helicopter fleet will be replaced with seven new helicopters (Airbus H175), which will likely generate less noise in general. The replacement of the GFS helicopter fleet will be completed before the commencement of the operation of the Proposed Helipad. The location and the proposed flight sectors of the Proposed Helipad are carefully designed with various considerations including operational requirements of helicopter, flight safety and environmental impacts on the immediate surroundings. Through liaison with the GFS, steeper helicopter approaching and departure angles will be adopted. Noise barriers and noise reducers installed at the rooftop of New Block are recommended for the Proposed Helipad to reduce the noise impacts. Table 9.1 summarised the proposed noise barriers and noise reducers. All practicable noise mitigation measures have been exhausted and adopted in the Proposed Helipad to minimise the helicopter noise impacts.

Table 9.1 Summary of Noise Barriers and Noise Reducers

Location[1]	Noise Mitigation Measure	Barrier Height, m	Top Level[2], mPD
Roof edge at west	Noise Barrier	1.5 (Height) x 6 (Width)	286.4
Roof edge at west	Noise Barrier	4 (Height) x 48 (Width)	286.4
Roof edge at south-east	Noise Barrier	4 (Height) x 60 (Width)	286.4
Perimeter at roof edge / top edge of noise barrier / top edge of parapet wall at rooftop	Noise Reducer	-	-

Note:
1. Detail locations of noise barriers and noise reducers are presented in Figure 4.5.
2. The level of main roof of the New Block is 282.4mPD.

9.1.2.4 **Waste Management:** The project only involves the construction of a rooftop helipad, only limited amount of C&D materials are expected to be generated from the construction activities. No inert C&D materials will be produced but small amount of non-inert materials. Table 9.2 summarised the estimated waste generation from the construction of the Proposed Helipad. Good site practices are recommended to implement during the construction phase to avoid and minimise the waste generation and adopt waste recycling as far as practicable. Provided that the handling and disposal of the C&D material would be followed the relevant requirements as presented in Section 5, no adverse waste management related impact arising from the Project during the construction stage is anticipated.

Table 9.2 Summary of Waste Generation

Material Type	Source(s)	Handling	Disposal / Treatment	Estimated Quantity
C&D Materials	Construction of Helipad	Sort on-site into inert C&D material (public fill) and non-inert C&D waste	Inert C&D material reused as backfilling materials on-site/ disposed to public fill reception facilities for other beneficial uses	0 m^3
			Non-inert C&D waste (comprising timber, paper, plastics, etc.) to be recycled / disposed of at landfill	340.8 m^3
Chemical Waste	Cleansing fluids, solvent, lubrication oil and fuel from construction plant and equipment	Recycle on-site or by licensed companies and stored on-site in the designed containers	To Chemical Waste Treatment Centre or other licensed facility for treatment	< 1 litre
General Refuse	Waste paper, discarded containers, etc. generated from staff	Provide on-site refuse collection points	Disposal to landfill	0.3 m^3

9.1.2.5 **Ecological Impact - Terrestrial:** Given the nature of the operation of the Proposed Helipad, it is anticipated that there would only be ecological impact upon avifauna and bats. In addition to findings from the literature review, the site surveys concluded that the avifauna, in particular Black Kites were present in the vicinity of the Site. However, as the number of avifauna sighted within the proposed flight sectors were relatively low, it is anticipated there would be no adverse significant ecological impact arising from the construction and operation phases of the Proposed Helipad.

9.1.2.6 **Visual Impact:** No high mass lighting or floodlight will be installed, only limited light source from the perimeter lights on helipad and landing light of helicopter are identified. Given the highest altitude of the Proposed Helipad and no direct line of sight from the VSRs to the perimeter lights on helipad, adverse visual impact due the perimeter lights from the Proposed Helipad is not anticipated. The landing light of the helicopter will be switched on during approaching/ departure and only illuminate the helipad for landing purposes. With the short operation duration (i.e. 2 minutes) of the landing light, the visual impact is minimized.

The recommended good practices are proposed to alleviate the environmental impacts as shown in Section 10.

9.1.3 Estimated Population and Environmentally Sensitive Areas Protected

9.1.3.1 As discussed in Section 9.1.2.3, to avoid/ minimize environmental impacts (in particular helicopter noise impact) at the outset, the EIA considered numerous alternatives, which includes site selection, development options, optimization of flight sectors, types of helicopters, and diversion of helicopter service between other existing / planning hospitals. In addition, direct noise mitigation measures (e.g. noise barriers/ reducers) are proposed. It is therefore anticipated that the population in the vicinity of the Proposed Helipad (e.g. Pok Fu Lam, Sandy Bay and Kong Sin Wan Tsuen) would be protected from the helicopter noise impact.