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PRELIMINARY APPRAISAL AND COST ESTIMATION FOR NOISE MITIGATION

The selected roads have been subject to a more detailed investigation, including site survey to identify the feasibility of providing noise treatment in the light of the concerns of the Government, the number of dwellings likely to be protected and a site-specific noise calculation to determine the noise reduction and the effectiveness of the identified measures.

Appendix G gives the predicted noise levels at the first floor (above road level), mid-floor and top-floor, together with the input data without noise mitigation. Appendix H gives the corresponding predicted noise levels with the form(s) of mitigation measures identified, together with the number of dwellings protected.

The cost-effectiveness of the identified treatment has been estimated in terms of the number of dwellings to be protected and the noise reduction as measured at the mid-floor level (top-floor level for 2-storey buildings).

The cost has been based on the results of similar studies by ENPAC and the unit costs are listed in Table 5 below. These costs include capital and maintenance costs. A cost-effective analysis is given in Appendix I. Typical construction of barriers and enclosures adopted for the preliminary cost appraisal are:

3.5m high plain barrier: The barrier may be designed as free standing wall on reinforced concrete pads or shallow spread foundation. A simple, cost effective form of construction would be steel post with glassfibre reinforced concrete (GRC) panels.

7m high plain barrier: Where a barrier much in excess of 5m is required, it is found that comprehensive foundation works like extensive continuous footings and piled foundations are required for a free standing structure to resist the high wind load force generated on it, resulting in a substantial increase in construction cost. Typically, the 7m high barrier can be constructed of a steel portal frame with concrete planks and top 2m Paraglass.

Partial enclosure: A free standing partial enclosure would require piled foundations and would also need large structural frame members at close spacing to support the overhanging roof section of the partial enclosure. To minimize the loading of the structure, Paraglass wall and roof could be used.

Full enclosure: Full noise enclosure would consist of steel portal framework spanning both carriageways, supporting walls and roof made of Paraglass, and resting on piled foundations.

Table 5 Unit Costs for Noise Mitigation Measures

Type/Form	Description	Cost/linear meter (HK\$/m)
Plain Barrier 3.5m	Steel post with GRC panels	6,000
Plain Barrier 7.0m	Steel portal with concrete planks and top 2m Paraglass	50,000
Partial Enclosure	Enclosure over one lane, Paraglass wall and roof	71,000
Full Enclosure	Enclosure over up to four lanes, Paraglass walls and roof	180,000