

**Durability Enhancement and Aesthetic Appearance Guidelines for
Recessed Manhole Covers maintained by Utility Undertakings**

Purpose of the Paper

The purpose of this paper is to present members' consensus on enhancement measures to improve the durability of recessed manhole covers and to provide reference guidelines to utility undertakings ("UUs") on aesthetic acceptance standards for recessed matching covers.

Background

2. Defective and uneven recessed covers could pose risks to the public, particularly the elderly, and potentially lead to complaints or claims. In view of the high and rising number of UUs' defective recessed manhole covers occurred over the road network, it was discussed and suggested in the Joint Utilities Policy Group ("JUPG") meeting on 21 August 2025 to form a working group to properly deal with the issue, to identify the root causes, and to derive effective and practical solutions to improve the durability and serviceability of recessed covers.

3. Upon reviewing various defective recessed cover cases, several root causes were identified as follows:

- (i) inadequate skills and poor workmanship causing paving blocks within the covers prone to be loosened;
- (ii) lack of care in handling recessed covers during inspection and maintenance by utility undertakings, resulting in excessive vibration and disturbance to the sand bedding layer and paving blocks; and
- (iii) extreme weather conditions and heavy rainfall, leading to loss of sand bedding, etc.

4. On the other hand, according to HyD Guidance Notes RD/GN/044

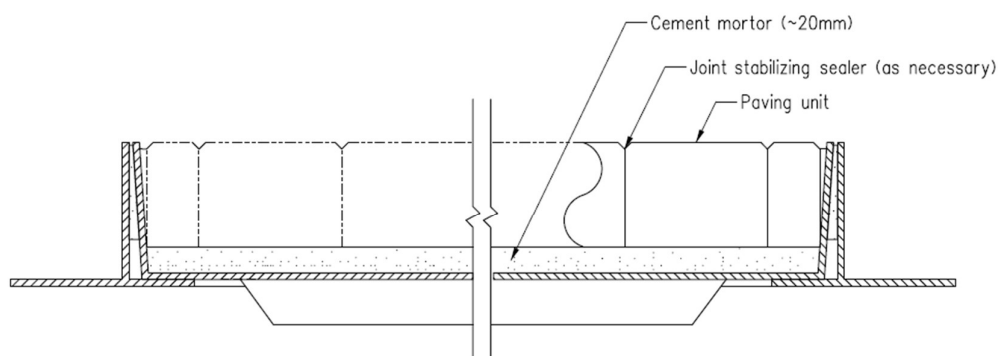
“Guidance Notes on Design and Construction of Pavements with Paving Units”, positions and orientations of manhole/utility pit covers shall be aligned as appropriate in order to provide a uniform laying pattern across and along a pavement. Achieving perfect continuity of the pattern between recessed matching covers and the abutting paving units demands meticulous workmanship and sometimes faces practical challenges. While maintaining the functional performance without compromising safety and serviceability concerns, some UUs suggested adopting a pragmatic and balanced approach, including measures to address recessed manhole covers with patterns not aligning with the abutting paving units, and permitting the use of alternative materials at difficult locations to improve durability and minimise public nuisance.

Enhancement Measures

A. Durability of Recessed Manhole Covers

5. A technical meeting among UUs and HyD was held on 29 September 2025 to discuss and explore enhancement measures on recessed covers. HyD shared the typical arrangement for recessed covers for ATC/E&M drawpit opening (i.e. HyD standard drawing no. H2185B) and some standard drawings for recessed covers used by other government departments (e.g. DS 1084B by DSD, WSD 7.50D by WSD). Some good practices and past experience for laying paving units in recessed matching covers as outlined in Section 6 of HyD Guidance Notes RD/GN/044 were also discussed.

6. Subsequent to the discussion and initial proposal as recommended in the above technical meeting, it was agreed in the Utility Technical Liaison Committee (“UTLC”) meeting on 5 November 2025 that the integrity of paving units in impervious recessed covers could be enhanced by **using cement mortar as bedding and adhesive materials in future maintenance or new installation** to address defective and uneven recessed covers with detached, loosened, extruded or subsided pavers. The recessed manhole cover frames should also have an adequate thickness to allow sufficient amount of cement mortar (~20mm thick) as bedding materials for properly supporting the paving units. **Joint stabilizing sealer could also be applied as necessary.** The above enhancement (see figure below) was agreed in the JUPG meeting held on 20 November 2025.



TYPICAL SECTION OF COVER AND FRAME

7. Since the cement mortar bedding would be covered up by pavers upon completion of works, UUs are requested to maintain proper site installation records and submit relevant progress photos, particularly during the time of application of cement mortar bedding, for HyD's information through the Audit Inspection Management System (for defect rectification works on existing recessed covers) or Excavation Permit Management System (for new installation) as appropriate.

8. UUs may consider using prefabricated recessed matching covers to shorten the site works duration or introduce other proprietary products or new materials to enhance durability and aesthetics of recessed covers. Stencil concrete with matching colour may also be considered an alternative solution. UUs shall submit drawings and/or relevant technical information to demonstrate how the design of the prefabricated recessed matching covers and proprietary products addresses defective or uneven recessed covers and enhances the overall aesthetics, as mentioned in the preceding paragraphs. Relevant job references and history on application of prefabricated covers outside Hong Kong will also be considered, subject to the review by the Regional Offices. If no precedent cases are available, a trial installation may be required to demonstrate the construction details and aesthetic acceptability of the proposed solution.

B. Colours and Laying Pattern

9. According to UTLC Paper Nos. 3/2000 and 3/2003, when HyD reconstructs a footpath with precast paving blocks, UUs are required to replace

their traditional manhole covers in the affected area by recessed manhole covers. As specified in HyD Guidance Notes RD/GN/044, the paving units laid in recessed matching covers should be in colours and patterns consistent with the abutting paving units and overall laying pattern of the pavement. Striking balance among various factors, including functional performance, public nuisance and overall pavement aesthetics, colours and laying pattern of paving units in recessed matching covers that **differ slightly** from those of abutting paving units may be considered as acceptable, **except those landmark locations with tourist attractions or under streetscape beautification works, or the condition of existing paving units already deteriorated.**

10. Aesthetic appearance acceptance standards for recessed matching covers are generally classified into the following groups, with photographs in **Annex A** illustrating different extents of variations in paver laying patterns and colours in existing recessed manhole covers for reference:

Group	Description
A	- pavers' laying pattern and colour <u>match</u> with surrounding pavement - good examples of achieving consistency in colour and laying pattern with surrounding pavement
B	- pavers' laying pattern and/or colour <u>differ slightly</u> from surrounding pavement - generally acceptable except those landmark locations and streetscape beautification area
C	- pavers' laying pattern and/or colour <u>differ</u> from surrounding pavement - should be re-laid for overall harmony with surrounding pavement, in particular existing pavers deteriorated

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Research and Development Division, Highways Department

Group A. Pavers' laying pattern and colour match with surrounding



Group B Pavers' laying pattern and/or colour differ slightly from surrounding



Group C Pavers' laying pattern and/or colour differ from surrounding

