

IAN 196/17

**Schemes in Design or Construction:
Handling of chamber access covers
that may be located in running
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There have been a number of failures of access covers where the hard shoulder has been converted to, or utilised as, a running lane. Similar failures have occurred where the hard shoulder is utilised as a running lane in roadworks.

Action required:

IAN 161/15 (extract reproduced below) introduced important changes to access cover locations in the Smart Motorway Programme and it established an option hierarchy.

The requirements of IAN 161/15 shall be applied to all:

- a) Smart Motorways and All Lane Running Schemes managed by Highways England including those currently in design or under construction and future schemes.
- b) other schemes eg extended slip roads, currently in design or under construction and future schemes where hard shoulders are to be used as running lanes.
- c) temporary road works where the hard shoulder is to be utilised as a running lane. Chapter 8 Guidance for Roadworks Para D6.2.8 also applies.

Relevant extract from IAN 161/15

2.11 Drainage and water quality

2.11.4 Chamber access covers in the carriageway shall be eliminated wherever practicable. Where it is not practicable to re-align an existing drainage network or provide side access chambers to locate their access covers in the verge, the following hierarchy of requirements shall be followed (where 1 is the preferred solution and 3 is the least desirable solution):

- 1. Plate over access cover points of existing chambers that are not essential for safe and efficient drainage maintenance operations. The existing chamber shall also be 'piped through' (pipework installed to complete the pipe run through the redundant chamber) and backfilled or removed and backfilled as appropriate. The plating should be flush with the bottom of the sub-base layer wherever possible. Those chambers that are of a catch-pit type shall be benched out.*
- 2. Re-locate access covers from the running lanes to the hardstrip, and rotate the cover and frame so that the gap between the trafficked side of the cover's frame and running lane is maximised.*
- 3. Where access covers cannot be practicably plated over or re-located from the running lanes, the cover and frame shall be rotated to maximise the distance of the cover's frame from the wheel tracks and the bedding of the cover and frames shall be constructed in accordance with the guidance provided in HA 104/09. **It is a departure from standard to have an access cover located in a running lane.***

2.11.5 All access covers in the carriageway (including hard strip) shall conform with advice in HA 104/09 paragraph 3.3 on higher category covers and frames, and provide the necessary skid resistance requirements. Chamber covers and frames shall be secured to ensure that they are not dislodged by a vehicle. All proposals for chambers in a carriageway, including plating over, shall be endorsed by the PSCRG and the decision process recorded in the DSR. Access covers should be avoided in highway conflict points of merges and diverges.

2.11.6 Plating shall be recorded in the drainage database (HADDMs), including details of the depth of the plating.

2.11.7 Where any re-alignment is undertaken or chambers in the verge introduced – the connecting piping shall be the same diameter to that of the main drain and there shall be an invert to invert connection that will enable a CCTV crawler camera to be driven into the buried [plated] chamber and look left and right.

2.11.8 Where a SM scheme includes major junction improvement works then guidance shall be sought from the Overseeing Organisation

Supplementary Guidance to IAN 161

The guidance below describes a decision support tree for treatment of existing carriageways that complies with IAN 161/15. This should always be used in conjunction with IAN 161//15

Decision Support Tree for treatment of existing chambers in the carriageway.

1. For new drainage network designs, chamber access covers and frames are not permitted to be located in a running lane.
2. If an existing chamber is being modified by a scheme then the decision tree as Figure 1 following applies. Note in no circumstances will access covers be permitted within the wheel track zone.
3. This decision tree also applies to the rest of the network where a chamber is identified as existing in a running lane.

Notes to Figure 1 – Decision Tree for chamber access covers retained within pavement

- a. This process applies to all access covers (whole or part) located in the carriageway pavement including its hardshoulder and hard strip(s).
- b. The “carriageway pavement” includes the full-depth carriageway pavement construction and any hardshoulder or hard strip. Also the entire area of entry and exit nosings shall be considered as being fully included. Where a hard strip of full-depth construction is provided it shall be considered up to and inclusive of 1.0m from the traffic side of the carriageway edge white line. Additionally, in central reserves the full area of emergency crossover points are to be included even where a reduced pavement structure is provided; but excluded are other hardened central reserve areas that do not have the full depth pavement construction of the adjacent carriageway.

- c. A 'simple chamber' for the purposes of this advice note is one that meets all the following criteria;
- No side connections i.e. one incoming pipe and one outgoing pipe only.
 - On removal of the chamber in question the resulting gap between adjacent remaining chambers on the same drainage run must be no greater than 200m.
 - Difference in incoming and outgoing pipe diameter must be no greater than 150mm.
 - The change in pipe direction is no greater than 22.5°.
- d. Where referenced, the Overseeing Organisation is considered to be inclusive of both Professional & Technical Solutions (PTS) and Operations Directorate. Where a Departure from Standard (DfS) is indicated within this process; PTS will require the DfS to be completed prior to the Designer certifying their design under the HD50 '*The Certification of Drainage Design*' process.
- e. The bedding of frames must adhere strictly to the details given in Sections 6, 8 and 9 of HA 104. This means that amendments will be required to the current MCDHW Vol 1 SHW, by way of a DfS to incorporate the HA 104 requirements; using scheme Appendices 0/1 and 0/2. This includes amendment to SHW clause 509.16 to clarify that these bedding requirements apply to all new or rebuilt chambers (as notes a and b), not just those covers adjusted and replaced that is covered by clause 509.18.
- f. All access covers in the carriageway pavement including hard strip shall provide the necessary skid resistance requirements, in accordance with SHW clause 507.9 and the advice in HA 104 clause 3.4.
- g. All drainage details are to be included in the drainage HADDMS database, including chamber treatments of plating over, piping through, side chambers etc.
- h. PTS will discuss alternative solutions to achieve a consensus prior to the submission of a DfS. These alternatives may include:
- i. a plated & buried chamber retained under the pavement around bridge piers where existing changes of direction provide pipe angles >22.5 degrees, and
 - ii. a retained buried benched chamber within the central reserve, but with rodding eye for jetting purposes.
- i. It will be acceptable for similar DfS to be amalgamated as a bulk DfS.
- j. Where reference is made to a location wholly between the wheel track zones within a running lane, additionally the area between the wheel track zone and the carriageway edge line and its hard strip is an equivalent area. For the purposes of this CHE memo, PTS will consider the wheel track zone as defined in IAN 161/15 clause 2.5.7 with 900mm wide zones (and not 600mm wide zones). Furthermore, special attention must be exercised if considering retaining an access cover within the entry and exit areas of junctions (both main line and slip road) as the combined, and individually wider, wheel track zones are not as simple as that described within SHW clause 903.21 or IAN161 clause 2.5.7.
- k. Further applicable advice can be found in IAN 161 '*Smart Motorways*' clauses 2.11.5 and 2.11.7.

- I. With reference to IAN 161 'Smart Motorways' clause 2.11.4, where access covers cannot be relocated, all access covers in the carriageway (including the hard strip) shall conform with advice in HA 104 paragraph 3.3 which states:

“The installation of higher category covers and frames such as E600 should be considered in applications where the chamber is located in the wheel path of a motorway, trunk road or other road carrying over 1,500 commercial vehicles per day in each direction. Such proposals should be discussed with the Overseeing Organisation. It should be noted that EN 124 is a minimum performance specification and if there is any doubt, a higher category cover and frame should be selected”.

This consideration of higher category covers and frames is also outlined in HA104/09.

It should however be borne in mind that increasing the duty of the “cover and frame” to a higher class such as E600 alone may not necessarily resolve the issue of failure and other ‘site specific’ factors may also need to be taken into consideration when making the choice. See also IAN 161 clause 2.11.5 and SHW clause 507.9.

Figure 1 – Decision Tree for chamber access covers retained within the pavement

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