

Bags Installation Procedures

1. Double layer polypropylene bags shall be used to contain flame retardant grade expanded polystyrene (FR-EPS) beads for the filling operation. Bag sizes to be used shall be maximum 450mm width by 850mm length and minimum 150mm width by 150mm length, provided with a plastic strap to tighten the opening after filling with beads. A 3mm diameter nylon rope drawstring shall be attached at the open end for future easy lifting of the bags. For smaller size manholes and those that are congested with cables smaller size bags should be used to facilitate placement. Bags should be loosely filled to not more than 80% of its maximum capacity, so that they can be easily deformed to fit the available space inside the manholes.
2. Prior to placing bags the interior of the manhole should be cleaned and checked for any sharp projections or objects that may cause damage to the bags. These should be removed or repaired as appropriate.
3. Place bags on floor of manhole and under cables initially where space permits so as to prevent subsequent bending of the cables when bags are placed over them. The extent to which each bag is filled with FR-EPS beads should be adjusted to ensure that the bags may be placed under the cables without damaging them. Some cables are particularly prone to damage therefore care must be exercised when moving them. Note that it will not be necessary to remove bags under cables during routine maintenance.
4. Place bags either side of cables where space permits. The extent to which each bag is filled with FR-EPS beads should be adjusted to ensure that the bags can be placed beside the cables without damaging them but will provide support to the bags to be placed above the cables. Note that it may not be necessary to remove these bags during routine maintenance.
5. Place bags over cables, supported either side of cables by lower level bags.
6. Pay particular attention to careful placing of bags around joints/ splices/ other details.
7. For deep manholes (>600mm depth) place initial layers of bags vertically with drawstrings on top to make for easier retrieval.
8. The filling operation should continue with the bags placed in layers until the topmost layer is within 100mm of the underside of the manhole cover.
9. Particular care should be taken to avoid workers step on the cables which are very prone to damage, in particular feeder cable for detector loops, while placing the bags. Workers should also avoid stepping on the bags.

Bags Removal Procedures

1. Bags should be carefully removed layer by layer so as not to cause damage to the cables or equipment inside the manhole, and placed at an appropriate distance from the manhole so as not to hinder subsequent works.
2. Bags need only be removed to a level sufficient to allow for the maintenance works to the cables / equipment within the manhole. Bags at a lower level may be left undisturbed within the manhole.
3. The procedures for replacing the bags after completion of the maintenance works should follow the initial installation procedures.

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**SPACE REDUCTION FOR
E & M MANHOLES
(SHEET 2 OF 2)**

HIGHWAYS DEPARTMENT		
REFERENCE	DRAWING No.	CAD
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