



# BLACK SLUICE INTERNAL DRAINAGE BOARD

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## **SPECIFICATION** **FOR WORKS IN A BOARD'S MAINTAINED WATERCOURSE**

- GENERAL** 1. All pipes or units shall be laid in straight lines with manholes at each change of direction, level and size, and at any junction. Straight lengths of piping shall not exceed 30 metres between manholes unless agreed by the Board. For long culverts layout plans must be submitted for approval.
- PIPES** 2. Pipes shall be concrete, plastic or corrugated steel. Concrete pipes shall be to BS 5911. Plastic or corrugated steel pipes should be designed to meet Department of Transport specification for Highway Works. Pipes or units of any material shall be adequate to carry the anticipated loading and shall be installed to the manufacturer's instructions. The Board will not be responsible for specifying pipe or unit strengths. A separate land tile shall be laid next to long non-porous pipes.
- TRENCHES** 3. Trenches for pipes or units shall be excavated to a sufficient depth and width to enable the pipes or units to be adequately bedded and haunched with "as raised" or other suitable granular material.
- BEDDING** 4. Pipes or units are to be laid level so that each one is in contact with the bedding material throughout its length, and in a straight line between access points. After jointing, backfill material of "as raised" granular fill should be compacted in not more than 150mm layers to 150mm above the top of the pipes or units. Where the culvert passes under a public highway the conditions laid down by the Highways Authority shall be complied with.
- HEADWALLS** 5. Protection shall be given to the ends of the culverts or pipe outfalls by either:-
- a) A brick, blockwork or concrete vertical headwall minimum thickness 225mm, built on a proper foundation below the pipe or unit invert up to ground level. The sides of the headwall shall extend into each bank far enough to provide stability.
  - OR
  - b) Concrete filled bags, approved stone or slag pitching, minimum thickness 225mm, laid not steeper than 1:1 from watercourse bed level to at least 600mm above the top of the pipes. The pitching material shall be grouted in place and sealed around the pipe or unit ends.
  - OR
  - c) For pipes less than 225mm diameter, precast concrete or GRC headwalls and troughs may be used. The trough units shall extend from the pipe to below lowest water level as specified by the Board. No part of the structure shall protrude out of the bank in order not to impede cutting equipment. The headwall and troughs shall be secured in accordance with the manufacturer's instructions.
- MANHOLES** 6. Where manholes are to be incorporated in the culvert minimum internal dimensions shall be 1200mm diameter for pipes <600mm and 1800mm diameter for pipes >600mm. These structures shall be founded on suitable rafts of reinforced concrete not less than 150mm thick. Manholes shall be covered with reinforced concrete slabs with a clear opening of at least 600mm square or 600mm diameter. The opening shall be covered with a suitable removable cover giving the same clear opening.
- INSPECTIONS** 7. Board's officers shall be permitted to inspect the works at any time. Pipes shall not be overfilled until inspected and approved by a Board's officer.
- FLOWS** 8. The flow of water in the watercourse shall not be impeded at any time during the works. Temporary diversions are permitted in which case a similar size channel and/or pump shall be provided such that there is no increase in normal water level.
- OBSTRUCTIONS/DAMAGE**
9. Any siltation or materials obstructing the watercourse shall be cleared immediately, and any damage to banks or structures shall be made good, at the applicant's expense.