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24th March 2011

Box Culvert Association statement
Box culvert design in accordance with Eurocode 2

Following withdrawal of BS5400 (Design of concrete bridges) and the relevant departmental standards BD37/01 (Loads for Highway Bridges) and BD31/01 (The Design of Buried Concrete Box and Portal Frame Structures) in March 2010 it has been the expectation that schemes that have commenced design after April 2010 should be to Eurocodes and with Specifications compatible with execution standards for concrete. At that time the use of BS8110 (Structural use of concrete) was also withdrawn.

Eurocodes and national annexes relating to bridges and buried structures have been available for some time; however, some published documents (PD's) which are complementary information to Eurocodes have yet to be published. We understand PD 6694-1 'Recommendations for the design of structures subject to traffic loading to BS EN 1997-1:2004' is due for publication in the first quarter of 2011. This document has only previously been out as a draft for comment and is not currently available for reference. The draft did however contain some comparable material to the content of the withdrawn BD31/01 in respect of buried structure load combinations. Whilst this document will not have the status of a Standard it will give some valuable guidance to designers.

Whilst it is possible to design to Eurocodes for buried structures and culverts from existing documents, this requires the designers to be fully qualified bridge and geotechnical Engineers who are able to understand the intent of Eurocode principles and correctly apply EC0, EC1, EC2 and EC7.

Currently there are no other published documents within Eurocodes that are comparable with the HA requirements for dealing with buried box concrete structures in the same way as the withdrawn standards.

Box Culvert Association members are proprietary manufacturers who have to date used the supporting guidance of BD31/01 to correctly interpret and implement the design intent of BS5400. BoxCA members therefore propose to await the publication of the recommendations of PD 6694-1 prior to changing design systems and offering Eurocode design.

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Hence we remain in a transition period between Eurocode and withdrawn standards as supporting documents have not kept pace with legislation. This position will remain for some time after the publication of PD 6694-1 as design systems will need to be changed and ratified prior to implementation.

In the meantime the specification requirements and possible use of using the withdrawn standards, BS5400, BD37/01 and BD31/01, for the design of schemes using buried box culvert sections under highway loadings is likely to remain with the local Approving Authority or Consulting Engineer in terms of a departure until at least the end of 2011.

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