

STUDY OF SEDIMENT EXCLUDER: A REVIEW

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Abstract—A tunnel-type sediment excluder is commonly used at the headwork of a canal for preventing excess sediment from entering the off-taking canal. In such excluders the sediment-laden water, which flows mainly near the bed, is made to flow through the tunnels provided at the canal bed. It may be then discharged back into the river downstream through the undersluice bays. Comparatively sediment-free water in the top layers is allowed to enter the canal. Presently, the only hydraulic principle utilized in its design is that energy loss is kept to a minimum and a minimum velocity of flow is ensured through the tunnel for the no deposition of the coarse material. In the present paper, established concepts of sediment transport are used to outline a procedure for the design of a tunnel-type sediment excluder when the river bed material is nonuniform in nature. The procedure suggested herein is illustrated with examples using the field data and the results obtained are compared with the available observations from the prototypes.