



## **R&D Technical Summary W5A-01/TS**

# **Trash Screens – Design and Operation Manual**

### **Background to R&D project**

The Environment Agency (EA) and other Operating Authorities use trash screens to prevent debris that is in the watercourse or river channel from reaching locations where it could accumulate and block the flow. Screens are also used to prevent access to some in-channel structures. Failures of trash screens either by inadequate design or operation can result in a constriction in the flow – this in turn can result in higher upstream water levels and an increased flood risk.

This manual is the result of some 15 years of research and development undertaken by the EA and its predecessor, the National Rivers Authority, on the design and operation of trash screens. It supersedes NRA Publication P-126 that describes Interim Guidance Notes for the Design and Operation of Trash Screens. The Interim Guidance was based on empirical data obtained primarily from the Home Counties of London and tested against a handful of other trash screen sites from across England and Wales. Phase 3 of the R&D Project on the Design and Operation of Trash Screen has involved monitoring and evaluation of screen installations across all eight EA Regions leading.

### **Results of R&D project**

The project objectives were to study a range of existing screens over an extended period of time to establish best practice and to evaluate key design parameters. This included reassessment of the Interim Guidance. No significant problems were found with the principles in the Interim Guidance Notes, which were then developed into the current more comprehensive manual.

### **R&D Outputs and their Use**

The manual is intended for use in the design and operation of new and existing screens on Flood Defence watercourses. “Design” includes the risk analysis of screen need. It is based on best practice at the time of issue and will require revision at a future date to enable any particular changes or new research to be incorporated. The manual is not prescriptive in its approach as it is recognised that usually only a balance of features (assessed using a risk-based approach) will be able to be incorporated in the final design. Each site will be unique and the designer will be required to use considerable engineering judgement during the stages of the screen development.

The manual aims to maximise screen effectiveness and minimise the ongoing maintenance requirement of these structures. It provides detailed analysis of screen size requirements and extensive guidance on the development of possible option arrangements. The functional requirements of a screen installation are described in detail.

Guidance is provided on operational functions, with emphasis on the development of written procedures and an auditable system for reports. Recommendations for effective reporting systems are provided that address both the operation of the screen and the maintenance of the asset.

The manual provides a design standard for any persons designing a trash screen within the Flood Defence context. It is intended as guidance to Agency staff and their reports, other operating authorities and riparian owners.

This R&D Technical Summary relates to R&D Project W5A-01 and the following R&D outputs:

R&D TECHNICAL SUMMARY W5A-01/TS

- **R&D Manual - *Trash Screens – Design and Operation*** Draft published June 2002

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The above outputs are available on the Environment Agency website ([www.environment-agency.gov.uk/floodresearch](http://www.environment-agency.gov.uk/floodresearch)). Copies are held by all EA Regional Information Centres and can be purchased from the EA's R&D Dissemination Centre, c/o WRc, Frankland Road, Blagrove, Swindon, Wiltshire SN5 8YF (Tel: (+44) 1793-865012; Fax: (+44) 1793-514562; email: [publications@wrplc.co.uk](mailto:publications@wrplc.co.uk)).

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