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*Editors*

Hin-Fatt Cheong

N Jothi Shankar

Eng-Soon Chan

Wun-Jern Ng

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## SEDIMENT TRANSPORT IN SEWERS WITH AND WITHOUT DEPOSITED BEDS

DR CHANDRAMOULLI NALLURI, DR AMINUDDIN AB. GHANI\*

Dept of Civil Engineering, University of Newcastle upon Tyne, NE1 7RU, UK

\*Currently with School of Civil Engineering, Universiti Sains Malaysia,  
Perak Branch Campus, 31750 Tronoh, Perak, Malaysia.

### ABSTRACT

New transport equations based on all important variables involved in the sediment transport process in pipes were derived using all the data from the present and other relevant studies. These new equations were compared with those adopted for sediment transport in sewers, and the approach to the design of sewers reassessed.

### INTRODUCTION

The present design practice of sewers aim for the conditions of no-deposition ("self-cleansing"). However, due to the intermittent nature of flow, deposition of solids in sewers can occur from time to time especially in the dry weather period. It is therefore highly desirable to have sediment transport equations which are applicable for both conditions in sewers, namely, rigid boundary (clean pipes) and loose boundary (pipes with deposited loose beds).

This paper highlights the sediment transport as bed load in pipes with rigid and loose boundaries and free surface flow. Using the newly derived equations, appraisals of the present design practice of sewers (usually either a constant velocity or shear stress) were made.

### BACKGROUND STUDIES

#### Clean Pipes

MAYERLE et al (1991) studied the bed load transport in clean pipes at limit deposition and the following equation was suggested: