

TABLE OF CONTENTS

FOREWORD	vi
GLOSSARY	vii
1. OBJECTIVES	1
1.1. Introduction	1
1.2. Approvals Process	1
1.3. Permanent Works	2
1.4. Inspection, Testing and Commissioning	3
1.5. Innovation	3
1.6. Copyright	3
1.7. Updates	3
2. DESIGN CONSIDERATIONS	4
2.1. Network Integration	4
2.2. Design Philosophy	4
2.3. Design Life	5
2.4. Investigations	5
2.5. Environmental Impact	5
2.5.1. Environmental Legislation	5
2.5.2. Cultural Heritage Permitting Requirements	5
2.6. Health and Safety in Design	6
2.7. Value Management and Value Engineering	6
2.8. Options Appraisal	7
2.8.1. Capital Cost (CAPEX)	7
2.8.2. Operational and Maintenance Cost (OPEX)	7
2.8.3. Economic Appraisal of Options	7
2.9. Drawings	8
2.9.1. Standard Drawings	8
2.9.2. Typical Drawings	8
2.10. Materials Selection	8
3. RAINFALL AND RUNOFF	9
3.1. Introduction	9
3.2. Design Storms	9
3.2.1. Design Return Period	9
3.2.2. Duration of Rainfall	10
3.2.3. Design storm duration	10
3.2.4. Rainfall Intensity Duration Frequency (IDF)	13
3.3. Rational Method	16
3.3.1. Runoff Coefficient	17
3.3.2. Flow calculation	19
3.4. Soil Conservation Service (SCS) Method	19
3.4.1. Curve Number	19
3.4.2. Flow calculation	22
3.5. Special considerations for mixed catchments	23
3.6. Flood volume calculations	23
4. STORM WATER SYSTEM DESIGN	25
4.1. System Planning	25
4.1.1. Commencing Design	25
4.1.2. System Performance and Recommended Design Return Period	26
4.1.3. Surface Flooding	26
4.1.4. Pipes Located Near to Structures and Buildings	26
4.2. Flow Attenuation	27
4.3. Design Parameters for Gravity Pipelines	28
4.3.1. Pipe Hydraulic Formulae	28
4.3.2. Pipe Hydraulic Design	30
4.3.3. Minor Friction Losses	30