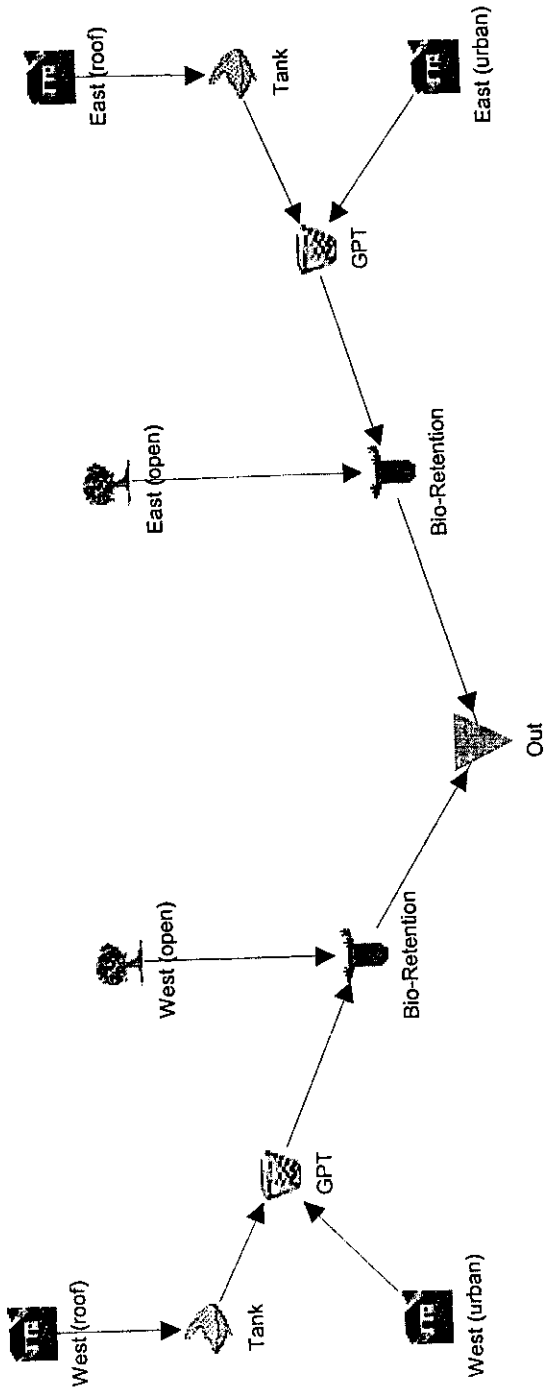

APPENDIX I
MUSIC MODELLING RESULTS (REVISED FOR DA)



23/10/03

Source nodes
, West (open) (ID = 1), East (open) (ID = 2), West (urban) (ID = 4), East (urban) (ID = 5), West (roof) (ID = 10), East (roof) (ID = 11)
Total Area (ha), 1.97, 0.19, 3.2, 0.32, 1.36, 0.14
Area Impervious (ha), 0.287982894736842, 0.027775, 1.61417543859649, 0.158582456140351, 1.36, 0.14
Area Shallow Soils (ha), 0, 0, 0, 0, 0, 0
Area Deep Soils (ha), 1.68201710526316, 0.162225, 1.58582456140351, 0.161417543859649, 0, 0
Field Capacity (mm), 150, 150, 150, 150, 150, 150
Infiltration Capacity coefficient, 100, 100, 100, 100, 100, 100
Infiltration Capacity exponent, 0.65, 0.65, 0.65, 0.65, 0.65, 0.65
Rainfall Threshold (mm), 1.5, 1.5, 1.5, 1.5, 1.5, 1.5
Shallow Soil Capacity (mm), 150, 150, 150, 150, 150, 150
Shallow Soil initial storage (mm), 37.5, 37.5, 37.5, 37.5, 37.5, 37.5
Deep Soil Capacity (mm), 400, 400, 400, 400, 400, 400
Deep Soil initial storage (mm), 100, 100, 100, 100, 100, 100
Groundwater Daily Recharge Rate (%), 0.55, 0.55, 0.55, 0.55, 0.55, 0.55
Groundwater Daily Drainage Rate (%), 0.65, 0.65, 0.65, 0.65, 0.65, 0.65
Groundwater Initial Depth (mm), 20, 25, 20, 20, 20, 20
Stormflow Total Suspended Solids Mean (log mg/L), 1.176, 1.176, 2, 2, 2, 2
Stormflow Total Suspended Solids Standard Deviation (log mg/L), 0.2, 0.2, 0.32, 0.32, 0.32, 0.32
Stormflow Total Suspended Solids Estimation Method, Mean, Mean, Mean, Mean, Mean, Mean
Stormflow Total Phosphorus Mean (log mg/L), -1.398, -1.398, -0.523, -0.523, -0.523, -0.523
Stormflow Total Phosphorus Standard Deviation (log mg/L), 0.22, 0.22, 0.25, 0.25, 0.25, 0.25
Stormflow Total Phosphorus Estimation Method, Mean, Mean, Mean, Mean, Mean, Mean
Stormflow Total Nitrogen Mean (log mg/L), -0.301, -0.301, 0.176, 0.176, 0.176, 0.176
Stormflow Total Nitrogen Standard Deviation (log mg/L), 0.24, 0.24, 0.19, 0.19, 0.19, 0.19
Stormflow Total Nitrogen Estimation Method, Mean, Mean, Mean, Mean, Mean, Mean
Baseflow Total Suspended Solids Mean (log mg/L), -1, -1, -1, -1, -1, -1
Baseflow Total Suspended Solids Standard Deviation (log mg/L), 0.13, 0.13, 0.17, 0.17, 0.17, 0.17
Baseflow Total Suspended Solids Estimation Method, Mean, Mean, Mean, Mean, Mean, Mean
Baseflow Total Phosphorus Mean (log mg/L), -1, -1, -1, -1, -1, -1
Baseflow Total Phosphorus Standard Deviation (log mg/L), 0.13, 0.13, 0.19, 0.19, 0.19, 0.19
Baseflow Total Phosphorus Estimation Method, Mean, Mean, Mean, Mean, Mean, Mean
Baseflow Total Nitrogen Mean (log mg/L), -1, -1, -1, -1, -1, -1
Baseflow Total Nitrogen Standard Deviation (log mg/L), 0.13, 0.13, 0.12, 0.12, 0.12, 0.12
Baseflow Total Nitrogen Estimation Method, Mean, Mean, Mean, Mean, Mean, Mean

USTM treatment nodes

, Tank (ID = 8), Tank (ID = 9), Bio-Retention (ID = 12), Bio-Retention (ID = 13)
Lo-flow bypass rate (cum/sec), 0, 0, 0, 0
Hi-flow bypass rate (cum/sec), 100, 100, 100, 100
Inlet pond volume, 0, 0, ,
Area (sqm), 1, 1, 4690, 400
Extended detention depth (m), 0.3, 0.3, 0.21, 0.25
Permanent pool volume (cum), 300, 36, ,
Proportion vegetated, 0.1, 0.1, ,
Equivalent pipe diameter (mm), 90, 90, ,
Orifice discharge coefficient, 0.6, 0.6, ,

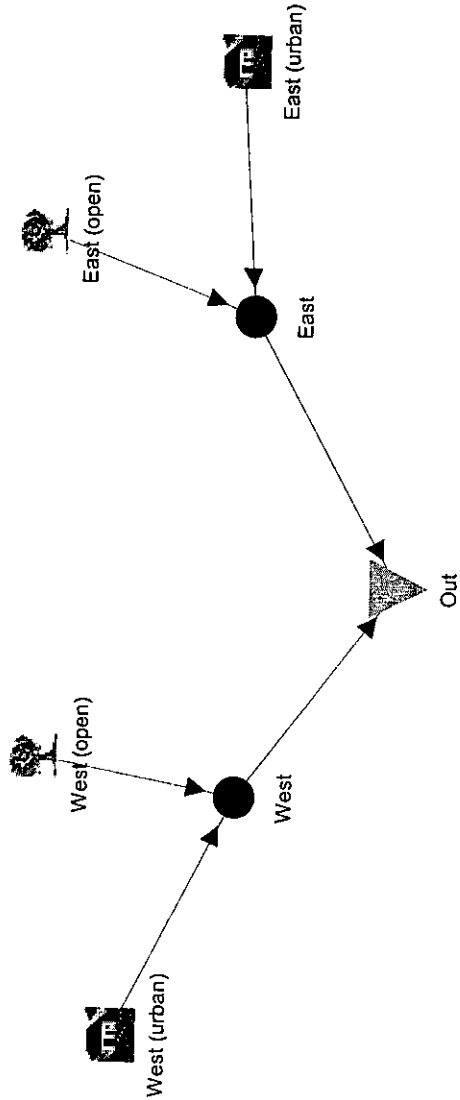
Overflow weir width (m), 2, 2, 5, 2
 Weir coefficient, 1.7, 1.7, 1.7, 1.7
 Number of CSTR cells, 2, 2, 3, 3
 Total Suspended Solids k (m/yr), 1000, 1000, 1000, 1000
 Total Suspended Solids C* (mg/L), 12, 12, 12, 12
 Total Suspended Solids C** (mg/L), 12, 12, ,
 Total Phosphorus k (m/yr), 500, 500, 500, 500
 Total Phosphorus C* (mg/L), 0.13, 0.13, 0.13, 0.13
 Total Phosphorus C** (mg/L), 0.13, 0.13, ,
 Total Nitrogen k (m/yr), 50, 50, 50, 50
 Total Nitrogen C* (mg/L), 1.3, 1.3, 1.3, 1.3
 Total Nitrogen C** (mg/L), 1.3, 1.3, ,
 Threshold hydraulic loading for C** (m/yr), 3500, 3500, ,
 Extraction for reuse, On, On, Off, Off
 Annual reuse demand (ML), 5.6, 0.9, ,
 Reuse scaling, Uniform, Uniform, ,
 Filter area (sqm), , , 780, 50
 Filter depth (m), , , 0.7, 1
 Filter particle effective diameter (mm), , , 5, 5
 Saturated hydraulic conductivity (mm/hr), , , 100, 100
 Voids ratio, , , 0.3, 0.3
 Length (m), , , ,
 Bed slope, , , ,
 Width (m), , , ,
 Top width (m), , , ,
 Vegetation height (m), , , ,
 Proportion of upstream impervious area treated, , , ,

Generic treatment nodes
 , GPT (ID = 6), GPT (ID = 7)
 Lo-flow bypass rate (cum/sec), 0, 0
 Hi-flow bypass rate (cum/sec), 100, 100
 Flow Transfer Function
 Input (cum/sec), 0, 0
 Output (cum/sec), 0, 0
 Input (cum/sec), 10, 10
 Output (cum/sec), 10, 10
 Input (cum/sec), ,
 Output (cum/sec), ,
 Input (cum/sec), ,
 Output (cum/sec), ,
 Input (cum/sec), ,
 Output (cum/sec), ,
 Input (cum/sec), ,
 Output (cum/sec), ,
 Input (cum/sec), ,
 Output (cum/sec), ,
 Input (cum/sec), ,
 Output (cum/sec), ,
 Input (cum/sec), ,
 Output (cum/sec), ,
 Input (cum/sec), ,
 Output (cum/sec), ,
 Gross Pollutant Transfer Function
 Input (kg/ML), 0, 0
 Output (kg/ML), 0, 0
 Input (kg/ML), 15, 15
 Output (kg/ML), 15, 15
 Input (kg/ML), ,
 Output (kg/ML), ,
 Input (kg/ML), ,
 Output (kg/ML), ,
 Input (kg/ML), ,
 Output (kg/ML), ,
 Input (kg/ML), ,
 Output (kg/ML), ,

Out

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	Flow (ML/yr)	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	Gross Pollutants (kg/yr)
Inflow	51.1	315	3.33	24.6	0.00
Outflow	0.00	0.00	0.00	0.00	0.00



23/10/03

Source nodes
, West (open) (ID = 1), East (open) (ID = 2), West (urban) (ID = 6), East
(urban) (ID = 7)
Total Area (ha), 1.97, 0.19, 4.56, 0.46
Area Impervious
(ha), 0.287982894736842, 0.027775, 2.9466, 0.297244736842105
Area Shallow Soils (ha), 0, 0, 0, 0
Area Deep Soils
(ha), 1.68201710526316, 0.162225, 1.6134, 0.162755263157895
Field Capacity (mm), 150, 150, 150, 150
Infiltration Capacity coefficient, 100, 100, 100, 100
Infiltration Capacity exponent, 0.65, 0.65, 0.65, 0.65
Rainfall Threshold (mm), 1.5, 1.5, 1.5, 1.5
Shallow Soil Capacity (mm), 150, 150, 150, 150
Shallow Soil initial storage (mm), 37.5, 37.5, 37.5, 37.5
Deep Soil Capacity (mm), 400, 400, 400, 400
Deep Soil initial storage (mm), 100, 100, 100, 100
Groundwater Daily Recharge Rate (%), 0.55, 0.55, 0.55, 0.55
Groundwater Daily Drainage Rate (%), 0.65, 0.65, 0.65, 0.65
Groundwater Initial Depth (mm), 20, 20, 20, 20
Stormflow Total Suspended Solids Mean (log mg/L), 1.176, 1.176, 2, 2
Stormflow Total Suspended Solids Standard Deviation (log
mg/L), 0.2, 0.2, 0.32, 0.32
Stormflow Total Suspended Solids Estimation
Method, Mean, Mean, Mean, Mean
Stormflow Total Phosphorus Mean (log mg/L), -1.398, -1.398, -0.523, -
0.523
Stormflow Total Phosphorus Standard Deviation (log
mg/L), 0.22, 0.22, 0.25, 0.25
Stormflow Total Phosphorus Estimation Method, Mean, Mean, Mean, Mean
Stormflow Total Nitrogen Mean (log mg/L), -0.301, -0.301, 0.176, 0.176
Stormflow Total Nitrogen Standard Deviation (log
mg/L), 0.24, 0.24, 0.19, 0.19
Stormflow Total Nitrogen Estimation Method, Mean, Mean, Mean, Mean
Baseflow Total Suspended Solids Mean (log mg/L), -1, -1, -1, -1
Baseflow Total Suspended Solids Standard Deviation (log
mg/L), 0.13, 0.13, 0.17, 0.17
Baseflow Total Suspended Solids Estimation Method, Mean, Mean, Mean, Mean
Baseflow Total Phosphorus Mean (log mg/L), -1, -1, -1, -1
Baseflow Total Phosphorus Standard Deviation (log
mg/L), 0.13, 0.13, 0.19, 0.19
Baseflow Total Phosphorus Estimation Method, Mean, Mean, Mean, Mean
Baseflow Total Nitrogen Mean (log mg/L), -1, -1, -1, -1
Baseflow Total Nitrogen Standard Deviation (log
mg/L), 0.13, 0.13, 0.12, 0.12
Baseflow Total Nitrogen Estimation Method, Mean, Mean, Mean, Mean

No USTM treatment nodes

No Generic treatment nodes

Other nodes
Out (ID = 3)
East (ID = 4)
West (ID = 5)

Links
, Drainage Link, Drainage Link, Drainage Link, Drainage Link, Drainage
Link, Drainage Link
Source node, West (urban) (ID = 6), West (open) (ID = 1), West (ID =
5), East (open) (ID = 2), East (urban) (ID = 7), East (ID = 4)
Target node, West (ID = 5), West (ID = 5), Out (ID = 3), East (ID =
4), East (ID = 4), Out (ID = 3)
Muskingum-Cunge Routing, Not Routed, Not Routed, Not Routed, Not
Routed, Not Routed, Not Routed
Muskingum K, , , , , ,

Muskingum theta,,,,,,

Out

Mean Annual Loads

	Flow (ML/yr)	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	Gross Pollutants (kg/yr)
Inflow	56.7	4.48E3	13.9	69.8	754
Outflow	0.00	0.00	0.00	0.00	0.00

Inflow

Outflow

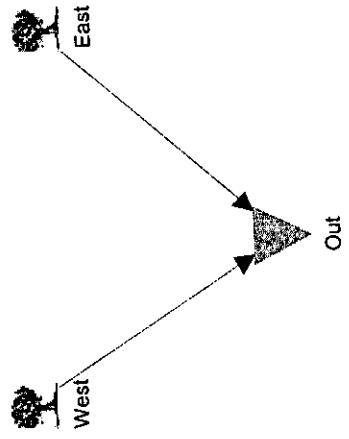
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All Data Statistics

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Inflow

	mean	median	maximum	minimum	10 %ile	90 %ile
Flow (cubic metres per second)	1.80E-3	160E-6	1.43	22.9E-6	46.0E-6	351E-6
[TSS] (mg/L)	3.96	0.100	92.3	100E-3	100E-3	0.100
TSS Load (kg/30 Minutes)	0.107	0.100	0.276	100E-3	100E-3	0.100
[TP] (mg/L)	0.155	0.100	1.41	100E-3	100E-3	0.100
TP Load (kg/30 Minutes)	0.255	28.7E-6	195	4.12E-6	8.28E-6	63.1E-6
[TN] (mg/L)	794E-6	28.7E-6	0.580	4.12E-6	8.28E-6	63.1E-6
TN Load (kg/30 Minutes)	3.98E-3	28.7E-6	3.12	4.12E-6	8.28E-6	63.1E-6
Gross Pollutant Load (kg/30 Minutes)	43.0E-3	0.00	17.8	0.00	0.00	0.00



23/10/03 .

Source nodes
,West (ID = 1),East (ID = 2)
Total Area (ha),6.5,0.67
Area Impervious (ha),0.316732456140351,0.0326478070175439
Area Shallow Soils (ha),0,0
Area Deep Soils (ha),6.18326754385965,0.637352192982456
Field Capacity (mm),150,150
Infiltration Capacity coefficient,100,100
Infiltration Capacity exponent,0.65,0.65
Rainfall Threshold (mm),1.5,1.5
Shallow Soil Capacity (mm),150,150
Shallow Soil initial storage (mm),37.5,37.5
Deep Soil Capacity (mm),400,400
Deep Soil initial storage (mm),100,100
Groundwater Daily Recharge Rate (%),0.55,0.55
Groundwater Daily Drainage Rate (%),0.65,0.65
Groundwater Initial Depth (mm),20,20
Stormflow Total Suspended Solids Mean (log mg/L),1.477,1.477
Stormflow Total Suspended Solids Standard Deviation (log mg/L),0.2,0.2
Stormflow Total Suspended Solids Estimation Method,Mean,Mean
Stormflow Total Phosphorus Mean (log mg/L),-0.921,-0.921
Stormflow Total Phosphorus Standard Deviation (log mg/L),0.22,0.22
Stormflow Total Phosphorus Estimation Method,Mean,Mean
Stormflow Total Nitrogen Mean (log mg/L),0.176,0.176
Stormflow Total Nitrogen Standard Deviation (log mg/L),0.24,0.24
Stormflow Total Nitrogen Estimation Method,Mean,Mean
Baseflow Total Suspended Solids Mean (log mg/L),-1,-1
Baseflow Total Suspended Solids Standard Deviation (log mg/L),0.13,0.13
Baseflow Total Suspended Solids Estimation Method,Mean,Mean
Baseflow Total Phosphorus Mean (log mg/L),-1,-1
Baseflow Total Phosphorus Standard Deviation (log mg/L),0.13,0.13
Baseflow Total Phosphorus Estimation Method,Mean,Mean
Baseflow Total Nitrogen Mean (log mg/L),-1,-1
Baseflow Total Nitrogen Standard Deviation (log mg/L),0.13,0.13
Baseflow Total Nitrogen Estimation Method,Mean,Mean

No USTM treatment nodes

No Generic treatment nodes

Other nodes
Out (ID = 3)

Links
,Drainage Link,Drainage Link
Source node,West (ID = 1),East (ID = 2)
Target node,Out (ID = 3),Out (ID = 3)
Muskingum-Cunge Routing,Not Routed,Not Routed
Muskingum K,,
Muskingum theta,,

Out

	Mean Annual Loads			Gross Pollutants (kg/yr)	
	Flow (ML/yr)	TSS (kg/yr)	TP (kg/yr)	TN (kg/yr)	
Inflow	28.8	564	3.26	29.1	0.00
Outflow	0.00	0.00	0.00	0.00	0.00

