ATTACHMENT B

Water Quantity Model Information

Existing Conditions

- DRAINS Information - Input & Output 100 year
- Catchment Plan

Proposed Conditions

- DRAINS Information - Input & Output 100 year
- Catchment Plan

Water Balance Model Information

Existing Conditions

- DRAINS Information - Input & Output 100 year
- Catchment Plan

Calculation Sheet

Job		Design	DC
		Date	Mar-17
		Checked	BC
		Date	28/03/2017
		Office	Sydney
		Job No	AA008765

Moorebank Avenue

MPW Stage 2 - EXISTING

ARCADIS Design & Consultancy for natural and built assets

URBAN DRAINAGE

Drainage Modelling for ABB site

DRAINS OUTPUT

March 2017

ARCADIS Design & Consultancy for natural and built assets

PROJECT	Moorebank Avenue	JOB No		AA008765	
TITLE	MPW Stage 2 - EXISTING	PREPARED	DC	DATE	28/03/2017
		CHECKED	BC	DATE	28/03/2017

DATA

DRAINS File Path:	F:\AA008765\D-Calculations\Civil\Stormwater\MPW_Stage2
DRAINS Version:	DRAINS Version 2017.06
Modeller's Name:	Darlan Castro
Description:	Drainage Modelling for ABB site

PIT / NODE DETAILS			Version 13												
Name	Type	Family	Size	Ponding	Pressure	Surface	Max Pond	Base	Blocking	x	y	Bolt-down	id	Part Full
				Volume	Change	Elev (m)	Depth (m)	Inflow	Factor			lid		Shock Loss
				(cu.m)	Coeff. Ku			(cu.m/s)						
EX G01	Node							0		304945.6	6243408.7		65741900	
EX Outlet 4	Node							0		304570.8	6243267		65745546	
PR Georges	Node							0		304687.5	6243541.7		65745606	
EX Out	Node							0		304716.9	6243647.6		65758814	
EX EXTERNA	Node					10		0		304978.1	6243313.8		67157330	
P_G02	OnGrade	Surface Inlet Pits	Unlimited Entry Pit		4	11.21		0	0.3	304842.6	6243180.7	No	109107796	1 x Ku
P Outlet_4	OnGrade	Junction Pits	Junction Pit 900x900		2	10.87		0	0.3	304683.8	6243261.3	No	109107800	1 x Ku
N_outlet4	Node					4.5		0		304646.5	6243262.5		109107832	
ABB	Node							0		304847.3	6243337.1		109107849	
EX ABB Outlet	Node							0		304639.9	6243427.5		109107858	
Coucnil_GIS_2	OnGrade	Surface Inlet Pits	Unlimited Entry Pit		2.5	10.3		0	0.3	304900	6243450.8	No	145689269	1 x Ku
N_GIS	Node					4.5		0		304772.5	6243454.2		109107886	
N_Roof_GO2	Node							0		304977.9	6243175		109107948	
Council_GIS_1	OnGrade	Surface Inlet Pits	Unlimited Entry Pit		2	10.81		0	0	304869.3	6243351.6	No	145689268	1 x Ku
Pit_M5_East	OnGrade	Surface Inlet Pits	Unlimited Entry Pit		2	10.5		0	0	304965.7	6243454.2	No	145689337	1 x Ku
M5_Surcharge	Sag	Surface Inlet Pits	Unlimited Entry Pit	2	4	7.77	2	0	0.5	304929.9	6243457.9	No	145689271	1 x Ku
N_M5	Node					4.5		0		304776.1	6243463.5		145689322	
N_G02_Bypass	Node							0		304663.4	6243326.9		145689636	
N543040	Node					10		0		304925.9	6243434.8		146411732	
N543042	Node					10		0		304922.1	6243423.8		146411735	

DETENTION BASIN DETAILS														
Name	Elev	Volume	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Length
Northern Wetland	6.7	0		Culvert	0.5					304921.2	6243444.6	No		
	6.8	0.097												
	6.9	1.615												
	7	8.081												
	7.1	22.563												
	7.2	44.499												
	7.3	73.929												
	7.4	110.825												
	7.5	155.224												
	7.6	207.403												
	7.7	267.679												
	7.8	336.64												
	7.9	416.2												
	8	507.087												
	8.1	608.703												
	8.2	720.795												
	8.3	844.051												
	8.4	979.209												
	8.5	1126.08												
	8.6	1284.85												
	8.7	1456.36												
	8.8	1641.39												
	8.9	1840.22												
	9	2053.13												
	9.1	2281.41												
	9.2	2527.52												
	9.3	2800.42												
	9.4	3135.34												
	9.5	3543.73												
	9.6	4022.71												
	9.7	4566.09												
	9.8	5173.66												
	9.9	5850.01												
	10	6610.17												
	10.1	7463.72												
	10.2	8422.82												
	10.3	9528.32												
	10.4	10876.9												
	10.5	12423.4												
	10.6	14125.1												
	10.7	15934.8												
	10.8	17824.7												
	10.9	19788.3												
	11	21825.3												

SUB-CATCHMENT DETAILS														
Name	Pit or	Total	Paved	Grass	Supp	Paved	Grass	Supp	Paved	Grass	Supp	Paved	Grass	Supp
	Node	Area	Area	Area	Area	Time	Time	Time	Length	Length	Length	Slope(%)	Slope	Slope
		(ha)	%	%	%	(min)	(min)	(min)	(m)	(m)	(m)	%	%	%
C EX G01	EX G01	2.8	50	50	0	5	5	0						
C EX EXTERNAL	EX EXTERNA	5.51	55	45	0	10	13	0						
C EX G02	P_G02	14.3	16.1	83.9	0	11	9	0	0	40	0	0.1	0.4	0
ABB_CATCHMEN	ABB	0.641	10	90	0	2	5	0						
Roof_GO2	N_Roof_GO2	0.4076	100	0	0	5	0	0						
EX_Bapaume	Council_GIS_1	2.76	12.1	87.9	0	8	9	0	0	80	0	0.1	0.4	0
M5_East	Pit_M5_East	0.6602	90	10	0	5	5	0						
M5_North	M5_Surcharge	1.078	20	80	0	5	8	0						
G02_Bypass	N_G02_Bypass	1.66	0	100	0	2	5	0	0	70	0	0.1	2	0
C_Northen_Wetlan	N543042	1.936	29	71	0	5	8	0						
PIPE DETAILS														
Name	From	To	Length	U/S IL	D/S IL	Slope	Type	Dia	I.D.	Rough	Pipe Is	No. Pipes	Chg From	At Chg
			(m)	(m)	(m)	(%)		(mm)	(mm)					
Pipe_G02	P_G02	P Outlet_4	186.27	9.66	6.82	1.52	RCP Class 2	900	900	0.3	New	1	P_G02	0
Outlet 4	P Outlet_4	N_outlet4	12.39	6.52	6.458	0.5	RCP Class 2	750	750	0.3	New	1	P Outlet_4	0
P_NW	Northern Wetland	Coucnil_GIS_2	41	6.8	6.595	0.5	RCP Class 2	300	300	0.3	NewFixed	1	Northern W	0
P_GIS02	Coucnil_GIS_2	N_GIS	368	6.54	4.5	0.55	RCP Class 2	600	600	0.6	New	1	Coucnil_GIS	0
P_GIS01	Council_GIS_1	Coucnil_GIS_2	256.9	9.5	8.215	0.5	RCP Class 2	600	600	0.6	New	1	Council_GIS	0
P_M5	Pit_M5_East	M5_Surcharge	10	6.49	6.44	0.5	RCP Class 2	600	600	0.6	New	1	Pit_M5_Eas	0
P_M5_Surcharge	M5_Surcharge	N_M5	414	6.4	4.5	0.46	RCP Class 2	750	750	0.6	New	1	M5_Surcha	0
DETAILS of SERVICES CROSSING PIPES														
Pipe	Chg	Bottom	Height of Service	Chg	Bottom	Height of S	Chg	Bottom	Height of S	etc				
	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	etc				
CHANNEL DETAILS														
Name	From	To	Type	Length	U/S IL	D/S IL	Slope	Base Width	L.B. Slope	R.B. Slope	Manning	Depth	Roofed	
				(m)	(m)	(m)	(%)	(m)	(1:?)	(1:?)	n	(m)		
OVERFLOW ROUTE DETAILS														
Name	From	To	Travel	Spill	Crest	Weir	Cross	Safe Depth	SafeDepth	Safe	Bed	D/S Area		id
			Time	Level	Length	Coeff. C	Section	Major Storr	Minor Storr	DxV	Slope	Contributing		
			(min)	(m)	(m)			(m)	(m)	(sq.m/sec)	(%)	%		
F EX G01	EX G01	N543040	3				Dummy used to mo	0.2	0.05	0.6	1	0		65747166
F Outlet 4	EX Outlet 4	EX ABB Outlet	2				Dummy used to mo	0.2	0.05	0.6	1	0		65745605
F EX Georges	PR Georges	EX Out	0.1				Dummy used to mo	0.2	0.05	0.6	1	0		65760256
F EXTERNAL	EX EXTERNA	Council_GIS_1	2				Dummy used to mo	0.3	0.3	0.6	1	0		67157332
OF_G02	P_G02	ABB	2				Dummy used to mo	0.2	0.05	0.6	1	0		109107866
F EX G02	P Outlet_4	N_outlet4	2				Dummy used to mo	0.2	0.05	0.6	1	0		65745584
EX Channel	N_outlet4	EX Outlet 4	2				Dummy used to mo	0.2	0.05	0.6	1	0		109107834
ABB_Site	ABB	EX ABB Outlet	2				Dummy used to mo	0.2	0.05	0.6	1	0		109107911
OF EXABB	EX ABB Outlet	PR Georges	2				Dummy used to mo	0.2	0.05	0.6	1	0		109107853
OF_ABB_WEIR	Northern Wetland	ABB	3	9.66			Dummy used to mo	0.2	0.05	0.6	1	0		109107939
Weir_NW	Northern Wetland	M5_Surcharge	3	8.3	1.55	1.6	Dummy used to mo	0.2	0.05	0.6	1	0		109107938
OF_GIS	N_GIS	N_M5	2				Dummy used to mo	0.2	0.05	0.6	1	0		109107916
OF_Moorebank Rd	N_Roof_GO2	P_G02	6				Dummy used to mo	0.3	0.3	0.6	1	0		109107951
OF_Council_GIS_1	Council_GIS_1	ABB	2				Dummy used to mo	0.2	0.05	0.6	1	0		109107900

OF_M5_East	Pit_M5_East	Northern Wetland	3				Dummy used to mo	0.2	0.05	0.6	1	0		145689624
OF_M5	N_M5	PR Georges	2				Dummy used to mo	0.2	0.05	0.6	1	0		109107922
OF_G02_Bypass	N_G02_Bypass	N_outlet4	2				Dummy used to mo	0.2	0.05	0.6	1	0		145689638
NW_Inflow	N543040	Northern Wetland	0.1				Dummy used to mo	0.2	0.05	0.6	1	0		146411743
OF_Northen_Wetla	N543042	N543040	0.1				Dummy used to mo	0.2	0.05	0.6	1	0		146411738
PIPE COVER DETAILS														
Name	Type	Dia (mm)	Safe Cover (m)	Cover (m)										
Pipe_G02	RCP Class 2	900	0.6	0.58	Unsafe									
Outlet 4	RCP Class 2	750	0.6	-2.77	Unsafe									
P_NW	RCP Class 2	300	0.6	-0.43	Unsafe									
P_GIS02	RCP Class 2	600	0.6	-0.64	Unsafe									
P_GIS01	RCP Class 2	600	0.6	0.66										
P_M5	RCP Class 2	600	0.6	0.68										
P_M5_Surcharge	RCP Class 2	750	0.6	-0.81	Unsafe									
This model has no pipes with non-return valves														

ARCADIS Design & Consultancy for natural and built assets

PROJECT	Moorebank	JOB No		AA008765	
		PREPARED	DC	DATE	28/03/2017
TITLE	100 YEAR	CHECKED	BC	DATE	28/03/2017

DRAINS File Path:	F:\AA008765\D-Calculations\Civil\Stormwater\MPW_Stage2
DRAINS Version:	DRAINS Version 2017.06
Modeller's Name:	Darlan Castro
Description:	Drainage Modelling for ABB site

DRAINS results prepared from Version 2017.06

RESULTS 100 YEAR ARI

PIT / NODE DETAILS — Version 8

Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
P_G02	11.19		3.319		0.02	2.191	Inlet Capacity
P Outlet_4	8.39		0		2.48	0	None
N_outlet4	4.5		0.45				
Coucnil_GIS_2	8.65		0		1.65		None
N_GIS	5.01		0				
Council_GIS_1	10.81		2.705		0	2.13	Outlet System
Pit_M5_East	9.16		0.374		1.34	0	None
M5_Surcharge	9.14	9.38	1.032	1.1	0		Outlet System
N_M5	5.13		0.623				

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
C EX G01	1.471	0.789	0.682	5	5	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
C EX EXTERNAL	2.238	1.442	0.844	10	13	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
C EX G02	3.255	0.889	2.833	11	28.51	0	AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1
ABB_CATCHME	0.317	0.036	0.281	2	5	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
Roof_GO2	0.24	0.24	0	5	0	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
EX_Bapaume	0.501	0.139	0.468	8	38.57	0	AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1
M5_East	0.374	0.35	0.024	5	5	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
M5_North	0.483	0.118	0.365	5	8	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
G02_Bypass	0.45	0	0.45	2	21.84	0	AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1
C_Northen_We	0.888	0.307	0.582	5	8	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1

Outflow Volumes for Total Catchment (8.91 impervious + 22.8 pervious = 31.8 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff %)	Impervious Run cu.m (Runoff %	Pervious Runoff cu.m (Runoff %)
AR&R 100 year	5929.31	3331.70 (56.2%	1574.64 (94.6%	1757.06 (41.2%)
AR&R 100 year	11427.04	8038.26 (70.3%	3117.27 (97.2%	4920.99 (59.9%)
AR&R 100 year	14865.07	10825.39 (72.8	4081.97 (97.9%	6743.42 (63.1%)
AR&R 100 year	19556.28	14533.59 (74.3	5398.31 (98.4%	9135.28 (64.9%)
AR&R 100 year	22146.26	16582.55 (74.9	6125.03 (98.6%	10457.51 (65.6%)
AR&R 100 year	26147.9	19678.79 (75.3	7247.86 (98.8%	12430.93 (66.1%)
AR&R 100 year	29268.94	22026.81 (75.3	8123.65 (98.9%	13903.16 (66.0%)
AR&R 100 year	44387.24	32225.53 (72.6	12365.83 (99.3	19859.70 (62.2%)
AR&R 100 year	51993.62	36141.28 (69.5	14500.09 (99.4	21641.19 (57.9%)
AR&R 100 year	58399.74	40119.69 (68.7	16297.42 (99.5	23822.27 (56.7%)
AR&R 100 year	78188.09	48173.86 (61.6	21850.25 (99.6	26323.61 (46.8%)

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm
Pipe_G02	1.445	4.25	10.134	8.389	AR&R 100 year, 12 hours storm, average 15.3 mm/h, Zone 1
Outlet 4	1.445	3.37	7.297	7.156	AR&R 100 year, 12 hours storm, average 15.3 mm/h, Zone 1
P_NW	0.183	2.59	8.737	8.648	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
P_GIS02	0.623	2.43	8.028	5.01	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
P_GIS01	0.603	2.39	10.741	8.717	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P_M5	0.374	1.32	9.144	9.141	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P_M5_Surcharg	1.038	2.63	8.026	5.126	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
F EX G01	1.471	1.471	0	0.102	0.11	24.39	1.06	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
F Outlet 4	1.786	1.786	0	0.111	0.12	26.18	1.11	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
F EX Georges	7.498	7.498	0	0.198	0.32	43.6	1.61	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
F EXTERNAL	2.238	2.238	0	0.122	0.14	28.34	1.17	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
OF_G02	2.191	2.191	-1	0.12	0.14	27.98	1.18	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
F EX G02	0	0	0	0	0	0	0	
EX Channel	1.786	1.786	0	0.111	0.12	26.18	1.11	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
ABB_Site	4.253	4.253	0	0.158	0.22	35.52	1.39	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
OF EXABB	5.883	5.883	0	0.18	0.27	40.01	1.51	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
OF_ABB_WEIR	0	0	0	0	0	0	0	
Weir_NW	0.839	0.839	0	0.081	0.07	20.25	0.91	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
OF_GIS	0.623	0.623	0	0.071	0.06	18.28	0.85	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1
OF_Moorebank	0.24	0.24	0	0.049	0.03	13.79	0.64	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
OF_Council_GIS	2.13	2.13	0	0.119	0.14	27.8	1.16	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1
OF_M5_East	0	0	0	0	0	0	0	
OF_M5	1.66	1.66	0.012	0.107	0.12	25.46	1.09	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1
OF_G02_Bypas	0.45	0.45	0	0.062	0.05	16.48	0.78	AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1
NW_Inflow	2.191	2.191	0	0.12	0.14	27.98	1.18	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1
OF_Northen_W	0.888	0.888	0	0.083	0.08	20.61	0.92	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q	Max Q	Max Q
			Total	Low Level	High Level
Northern Wetla	8.79	1614.5	1.022	0.183	0.839

CONTINUITY CHECK for AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1

Node	Inflow	Outflow	Storage Change	Difference
	(cu.m)	(cu.m)	(cu.m)	%
EX G01	1614.22	1614.22	0	0
EX Outlet 4	5046.64	5046.64	0	0
PR Georges	16352.32	16351.59	0	0
EX Out	16350.79	16350.79	0	0
EX EXTERNA	3229.86	3229.86	0	0
P_G02	7328.61	7328.79	0	0
P Outlet_4	4285.67	4285.47	0	0
N_outlet4	5046.65	5046.65	0	0
ABB	5905.62	5905.62	0	0
EX ABB Outlet	10952.25	10952.26	0	0
Northern Wetla	2638.51	2460.35	178.17	0
Coucnil_GIS_2	3036.39	3017.15	0	0.6
N_GIS	3017.15	3016.39	0	0
N_Roof_GO2	280.21	280.21	0	0
Council_GIS_1	4553.68	4538.38	0	0.3
Pit_M5_East	439.21	439.05	0	0
M5_Surcharge	2400.24	2415.73	0	-0.6
N_M5	5416.67	5415.89	0	0
N_G02_Bypass	761.18	761.18	0	0
N543040	2638.51	2638.51	0	0
N543042	1024.29	1024.29	0	0

Run Log for ExistingUltimateLumped_rev01.drn run at 14:29:38 on 28/3/2017

No water upwelling from any pit.

Freeboard was less than 0.15m at M5_Surcharge Council_GIS_1 P_G02

Flows were safe in all overflow routes.

The following overflow routes carried water uphill (adding energy): Weir_NW OF_Council_GIS_1 OF_G0

These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.

ARCADIS Design & Consultancy for natural and built assets

PROJECT	Moorebank	JOB No		AA008765	
		PREPARED	DC	DATE	28/03/2017
TITLE	20 YEAR	CHECKED	BC	DATE	28/03/2017

DRAINS File Path:	F:\AA008765\D-Calculations\Civil\Stormwater\MPW_Stage2
DRAINS Version:	DRAINS Version 2017.06
Modeller's Name:	Darlan Castro
Description:	Drainage Modelling for ABB site

DRAINS results prepared from Version 2017.06

RESULTS 10 YEAR ARI

PIT / NODE DETAILS				Version 8								
Name	Max HGL	Max Pond	Max Surface	Max Pond	Min	Overflow	Constraint					
		HGL	Flow Arriving	Volume	Freeboard	(cu.m/s)						
			(cu.m/s)	(cu.m)	(m)							
P_G02	11.19		2.037		0.02	0.585	Inlet Capacity					
P Outlet_4	8.39		0		2.48	0	None					
N_outlet4	4.5		0.249									
Coucnil_GIS_	8.45		0		1.85		None					
N_GIS	5.01		0									
Council_GIS_	10.81		1.849		0	1.263	Inlet Capacity					
Pit_M5_East	7.3		0.271		3.2	0	None					
M5_Surcharg	7.19	7.89	0.352	0.1	0.58		Inlet Capacity					
N_M5	4.98		0.609									

SUB-CATCHMENT DETAILS												
Name	Max	Paved	Grassed	Paved	Grassed	Supp.	Due to Storm					
	Flow Q	Max Q	Max Q	Tc	Tc	Tc						
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)						
C EX G01	1.074	0.584	0.49	5	5	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C EX EXTERI	1.563	1.086	0.509	10	13	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C EX G02	1.867	0.788	1.205	11	27.75	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
ABB_CATCHI	0.229	0.027	0.202	2	5	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
Roof_GO2	0.17	0.17	0	5	0	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
EX_Bapaume	0.286	0.125	0.181	8	37.42	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
M5_East	0.271	0.248	0.023	5	5	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
M5_North	0.351	0.09	0.261	5	8	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
G02_Bypass	0.249	0	0.249	2	24.62	0	AR&R 10 year, 1 hour storm, average 47.6 mm/h, Zone 1					
C_Northen_W	0.651	0.234	0.416	5	8	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					

Outflow Volumes for Total Catchment (8.91 impervious + 22.8 pervious = 31.8 total ha)

Storm	Total Rainfall	Total Runoff	Impervious Ru	Pervious Runoff
	cu.m	cu.m (Runoff	cu.m (Runoff	cu.m (Runoff %)
AR&R 10 yea	4061.98	1538.60 (37.9	1050.67 (92.2	487.92 (16.7%)
AR&R 10 yea	7829.18	4473.22 (57.1	2107.73 (95.9	2365.49 (42.0%)
AR&R 10 yea	10191.33	6276.59 (61.6	2770.54 (96.9	3506.05 (47.8%)
AR&R 10 yea	13378.51	8472.12 (63.3	3664.85 (97.6	4807.27 (49.9%)
AR&R 10 yea	15119.89	9710.59 (64.2	4153.47 (97.9	5557.12 (51.1%)
AR&R 10 yea	17790.04	11452.85 (64.	4902.71 (98.2	6550.15 (51.2%)
AR&R 10 yea	19860.32	12743.74 (64.	5483.60 (98.4	7260.14 (50.8%)
AR&R 10 yea	29758.72	18321.51 (61.	8261.04 (98.9	10060.47 (47.0%)
AR&R 10 yea	34639.13	20384.14 (58.	9630.53 (99.1	10753.60 (43.2%)
AR&R 10 yea	38693.96	22778.29 (58.	10768.22 (99.	12010.06 (43.1%)
AR&R 10 yea	50826.71	25935.47 (51.	14172.67 (99.	11762.80 (32.2%)

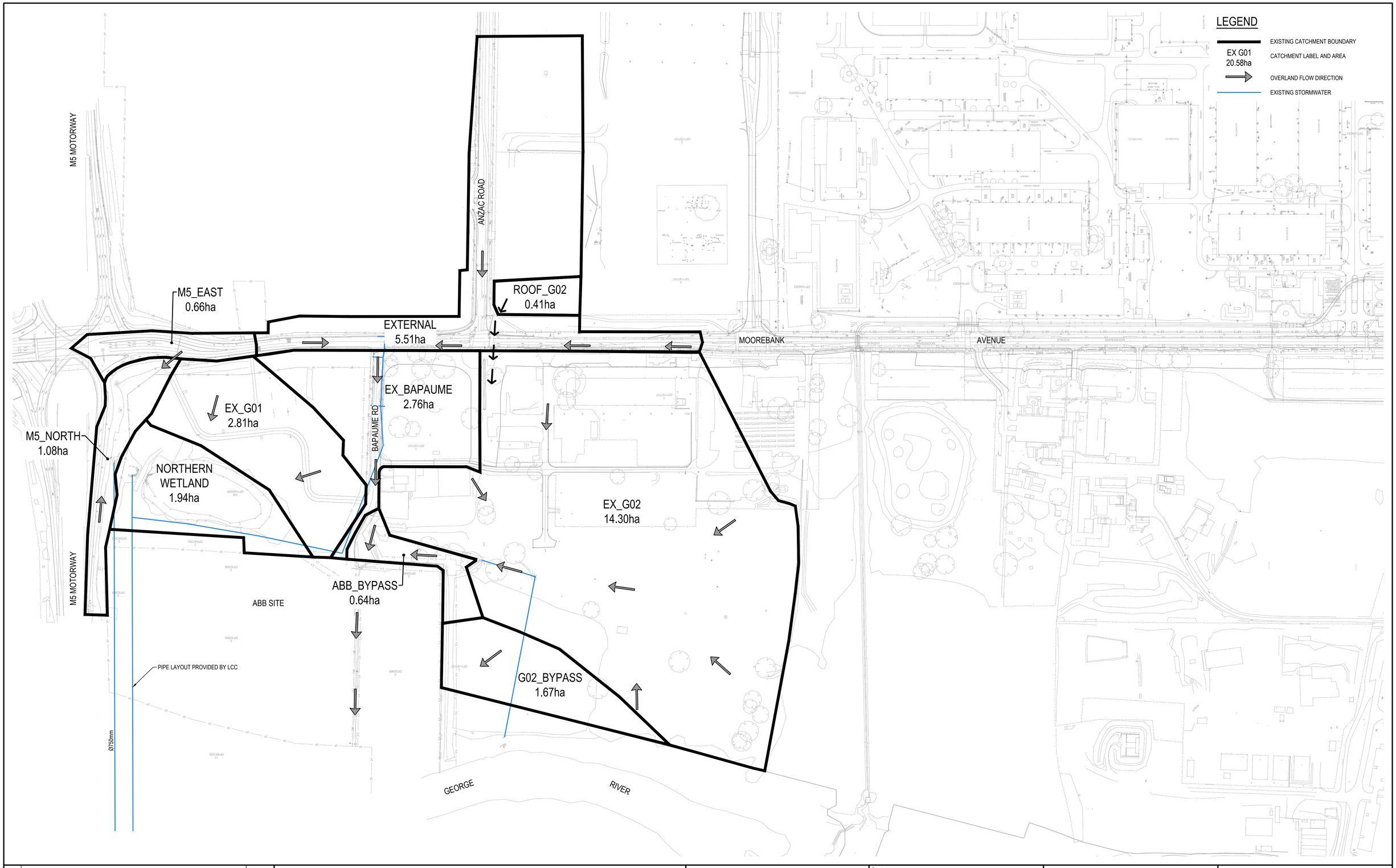
PIPE DETAILS						
Name	Max Q	Max V	Max U/S	Max D/S	Due to Storm	
	(cu.m/s)	(m/s)	HGL (m)	HGL (m)		
Pipe_G02	1.445	4.25	10.134	8.389	AR&R 10 year, 45 minutes storm, average 56.2 mm/h, Zone 1	
Outlet 4	1.445	3.37	7.297	7.156	AR&R 10 year, 45 minutes storm, average 56.2 mm/h, Zone 1	
P_NW	0.179	2.54	8.502	8.448	AR&R 10 year, 1 hour storm, average 47.6 mm/h, Zone 1	
P_GIS02	0.609	2.39	7.88	5.006	AR&R 10 year, 2 hours storm, average 31.3 mm/h, Zone 1	
P_GIS01	0.597	2.37	10.596	8.715	AR&R 10 year, 15 minutes storm, average 98.6 mm/h, Zone 1	
P_M5	0.27	0.96	7.211	7.194	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
P_M5_Surcha	0.614	2.07	6.94	4.978	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	

CHANNEL DETAILS				
Name	Max Q	Max V	Due to Storm	
	(cu.m/s)	(m/s)		

OVERFLOW ROUTE DETAILS								
Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
F EX G01	1.074	1.074	0	0.089	0.09	21.87	0.98	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
F Outlet 4	1.683	1.683	0	0.108	0.12	25.64	1.09	AR&R 10 year, 45 minutes storm, average 56.2 mm/h, Zone 1
F EX Georges	4.339	4.339	0	0.159	0.22	35.7	1.41	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
F EXTERNAL	1.563	1.563	0	0.105	0.11	24.92	1.08	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
OF_G02	0.585	0.585	0	0.07	0.06	17.92	0.83	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
F EX G02	0	0	0	0	0	0	0	
EX Channel	1.683	1.683	0	0.108	0.12	25.64	1.09	AR&R 10 year, 45 minutes storm, average 56.2 mm/h, Zone 1
ABB_Site	1.885	1.885	0	0.113	0.13	26.54	1.14	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
OF EXABB	3.479	3.479	2.9728E+26	0.145	0.19	33.01	1.33	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
OF_ABB_WE	0	0	0	0	0	0	0	
Weir_NW	0.277	0.277	0	0.052	0.03	14.33	0.67	AR&R 10 year, 1.5 hours storm, average 37.4 mm/h, Zone 1
OF_GIS	0.609	0.609	0	0.071	0.06	18.28	0.83	AR&R 10 year, 2 hours storm, average 31.3 mm/h, Zone 1
OF_Moorebar	0.17	0.17	0	0.043	0.02	12.53	0.58	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
OF_Council_(	1.263	1.263	0	0.096	0.1	23.13	1.02	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
OF_M5_East	0	0	0	0	0	0	0	
OF_M5	1.169	1.169	0	0.093	0.09	22.59	0.99	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
OF_G02_Byp	0.249	0.249	0	0.05	0.03	13.97	0.64	AR&R 10 year, 1 hour storm, average 47.6 mm/h, Zone 1
NW_Inflow	1.552	1.552	0	0.105	0.11	24.92	1.07	AR&R 10 year, 2 hours storm, average 31.3 mm/h, Zone 1
OF_Northen_	0.651	0.651	0	0.073	0.06	18.64	0.85	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q	Max Q	Max Q
			Total	Low Level	High Level
Northern Wetl	8.53	1177.1	0.457	0.179	0.277
CONTINUITY CHECK for AR&R 10 year, 1 hour storm, average 47.6 mm/h, Zone 1					
Node	Inflow	Outflow	Storage Chan	Difference	
	(cu.m)	(cu.m)	(cu.m)	%	
EX G01	1000.56	1000.56	0	0	
EX Outlet 4	4036.24	4036.24	0	0	
PR Georges	9546.51	9545.78	0	0	
EX Out	9545.05	9545.05	0	0	
EX EXTERNA	2025.98	2025.98	0	0	
P_G02	4163.67	4163.92	0	0	
P Outlet_4	3629.79	3630.75	0	0	
N_outlet4	4036.25	4036.25	0	0	
ABB	1722.95	1722.95	0	0	
EX ABB Outle	5759.18	5759.18	0	0	
Northern Wetl	1603.48	1490.55	112.93	0	
Coucnil_GIS_	2783.96	2765.76	0	0.7	
N_GIS	2765.76	2765.06	0	0	
N_Roof_GO2	190.01	190.01	0	0	
Council_GIS_	2756.73	2756.91	0	0	
Pit_M5_East	293.4	292.83	0	0.2	
M5_Surcharg	1055.34	1051.39	0	0.4	
N_M5	3802.43	3801.72	0	0	
N_G02_Bypa	405.5	405.5	0	0	
N543040	1603.48	1603.48	0	0	
N543042	602.92	602.92	0	0	
Run Log for ExistingUltimateLumped_rev01.drn run at 14:23:20 on 28/3/2017					
No water upwelling from any pit.					
Freeboard was less than 0.15m at Council_GIS_1 P_G02					
The maximum flow in the following overflow routes is unsafe: NW_Inflow, OF_Northen_Wetland, Weir_NW, OF_M5, OF_GIS, ABB_Site, OF_Council_GIS_1, OF_G02, OF EXABB, EX Ch					
The following overflow routes carried water uphill (adding energy): Weir_NW OF_Council_GIS_1 OF_G02					
These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.					



Issue	Description	Date
01	ISSUE FOR DISCUSSION	

100mm on Original

0 50 100 150 200m

1 : 2000

Client: SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE; TACTICAL GROUP

Status: PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

		Current Issue Signatures	
Scales	1 : 2000	Drawn M.DULAY	
Original Size	A1	Designed	
Height Datum	AHD	Checked	
Grid	MGA	Approved	
Filename:	LPMW-ARC-CV-SKC-0163-ExistingCatchment.dwg		

Project: MPW INTERMODAL TERMINAL FACILITY - STAGE 2
LAND PREPARATION
MAIN WORKS

Title: EXISTING CATCHMENT

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 5, 141 Walker St
NORTH SYDNEY NSW 2060
ABN 76 104 485 289
Tel No: +61 2 8907 9000
Fax No: +61 2 8907 9001
arcadis.com

Project No. AA009335

Drawing No. LPMW-ARC-CV-SKC-0163- Issue 01

Date Plotted: 28 Mar 2017 - 11:30AM File Name: F:\AA009335\1_LPMW\CV\SKC\LPMW-ARC-CV-SKC-0163-ExistingCatchment.dwg

Proposed Conditions

- DRAINS Information - Input & Output 100 year
- Catchment Plan

Calculation Sheet

Job		Design	DC
		Date	Mar-17
		Checked	BC
		Date	28/03/2017
		Office	Sydney
		Job No	AA008765

Moorebank

MPW Stage2

Proposed

ARCADIS Design & Consultancy for natural and built assets

URBAN DRAINAGE

Drainage Modelling for ABB site

DRAINS OUTPUT

March 2017

ARCADIS Design & Consultancy for natural and built assets

PROJECT	Moorebank	JOB No		AA008765	
TITLE	MPW Stage2	PREPARED	DC	DATE	28/03/2017
		CHECKED	BC	DATE	28/03/2017

DATA

DRAINS File Path:	F:\AA008765\D-Calculations\Civil\Stormwater\MPW_Stage2
DRAINS Version:	DRAINS Version 2017.06
Modeller's Name:	Darlan Castro
Description:	Drainage Modelling for ABB site

PIT / NODE DETAILS			Version 13												
Name	Type	Family	Size	Ponding	Pressure	Surface	Max Pond	Base	Blocking	x	y	Bolt-down	id	Part Full
				Volume	Change	Elev (m)	Depth (m)	Inflow	Factor			lid		Shock Loss
				(cu.m)	Coeff. Ku			(cu.m/s)						
A01/02	OnGrade	Standard Pits	1.8m lintel		4.5	14.003		0	0.3	308097	6242111.6	No	122408342	1 x Ku
A01/01	OnGrade	Standard Pits	1.8m lintel		0.8	13.858		0	0.3	308104.6	6242122	No	122408343	1 x Ku
B01/03	OnGrade	Standard Pits	1.8m lintel		1.6	13.586		0	0.3	308112.6	6242137.9	No	122408346	1 x Ku
B01/04	Sag	Standard Pits	3.6m lintel sag	2.495	1.6	13.401	0.12	0	0.5	308132.3	6242138.3	No	122408347	1 x Ku
B01/05	OnGrade	Standard Pits	1.8m lintel		1.1	13.509		0	0.3	308146.9	6242150	No	122408348	1 x Ku
B01/06	OnGrade	Standard Pits	1.8m lintel		0.8	13.433		0	0.3	308156	6242181	No	122408349	1 x Ku
B01/07	OnGrade	Standard Pits	1.8m lintel		0.8	13.33		0	0.3	308158.6	6242201.4	No	122408350	1 x Ku
B01/08	OnGrade	Standard Pits	1.8m lintel		1.6	13.226		0	0.3	308160.9	6242221.9	No	122408351	1 x Ku
G01/03	Sag	Standard Pits	3.6m lintel sag	1	2.8	13.141	0.15	0	0.5	308162.9	6242242	No	122408388	1 x Ku
G01/04	Sag	Standard Pits	2.4m lintel sag	6.956	1.6	13.943	0.12	0	0.5	308110.6	6242246.4	No	122408389	1 x Ku
G01/05	OnGrade	Standard Pits	1.8m lintel		1.8	12.51		0	0.3	307981.3	6242277.4	No	142603810	1 x Ku
Council_GIS_1	OnGrade	Special	Unlimited		2	10.81		0	0.3	307949.3	6242303.2	Yes	145689268	1 x Ku
Coucnil_GIS_2	OnGrade	Special	Unlimited		2.5	10.3		0	0.3	308014	6242526.4	No	145689269	1 x Ku
PR GIS	Node					4.5		0		307749.9	6242533.5		65745606	
B01/02	OnGrade	Standard Pits	1.8m lintel		4.5	15.038		0	0.3	308053.1	6242147	No	122408344	1 x Ku
B01/01	OnGrade	Standard Pits	1.8m lintel		0.8	14.26		0	0.3	308083.9	6242141.6	No	122408345	1 x Ku
B02/01	OnGrade	Standard Pits	1.8m lintel		4.5	13.564		0	0.3	308174.3	6242218.5	No	122408352	1 x Ku
C02/01	Sag	Standard Pits	2.4m lintel sag	1	4.5	14.634	0.15	0	0.5	308151.5	6241909.6	No	122408362	1 x Ku
C02/02	OnGrade	Standard Pits	1.8m lintel		2.5	14.852		0	0.3	308127.9	6241915.5	No	122408363	1 x Ku
C01/01	OnGrade	Standard Pits	1.8m lintel		0.8	14.738		0	0.3	308129.1	6241938.6	No	122408353	1 x Ku
C01/02	OnGrade	Standard Pits	1.8m lintel		0.8	14.595		0	0.3	308132.3	6241967.4	No	122408354	1 x Ku
C01/03	OnGrade	Standard Pits	1.8m lintel		0.8	14.459		0	0.3	308135.7	6241994.3	No	122408355	1 x Ku
C01/04	OnGrade	Standard Pits	1.8m lintel		1.3	14.347		0	0.3	308138.5	6242016.5	No	122408356	1 x Ku
C01/05	OnGrade	Standard Pits	1.8m lintel		1.1	14.195		0	0.3	308138.3	6242039.9	No	122408357	1 x Ku
C01/06	OnGrade	Standard Pits	1.8m lintel		0.8	14.025		0	0.3	308141	6242063.4	No	122408358	1 x Ku
C01/07	OnGrade	Standard Pits	1.8m lintel		1.3	13.821		0	0.3	308141	6242081.3	No	122408359	1 x Ku
C01/08	Sag	Standard Pits	2.4m lintel sag	3.77	1.8	13.531	0.15	0	0.5	308127	6242101.1	No	122408360	1 x Ku
C01/09	Sag	Standard Pits	2.4m lintel sag	2.629	0.9	13.583	0.11	0	0.5	308128.2	6242119.8	No	122408361	1 x Ku
D01/01	OnGrade	Standard Pits	1.8m lintel		4.5	14.719		0	0.3	308160.2	6241987.2	No	122408364	1 x Ku
D01/02	OnGrade	Standard Pits	1.8m lintel		0.8	14.576		0	0.3	308163.8	6242015.6	No	122408365	1 x Ku
D01/03	OnGrade	Standard Pits	1.8m lintel		0.8	14.429		0	0.3	308167.5	6242044.6	No	122408366	1 x Ku
D01/04	OnGrade	Standard Pits	1.8m lintel		1.1	14.293		0	0.3	308171.3	6242071.6	No	122408367	1 x Ku
D01/05	OnGrade	Standard Pits	1.8m lintel		1.2	14.169		0	0.3	308180.3	6242088.8	No	122408368	1 x Ku
E01/03	Sag	Standard Pits	3.6m lintel sag	1.751	1.8	14.025	0.107	0	0.5	308195.5	6242096.7	No	122408371	1 x Ku
E01/04	Sag	Standard Pits	2.4m lintel sag	1	0.8	14.049	0.1	0	0.5	308192.1	6242114.8	No	122408372	1 x Ku
F01/05	OnGrade	Standard Pits	1.8m lintel		1.9	13.895		0	0.3	308190.1	6242131.8	No	122408382	1 x Ku
F01/06	OnGrade	Standard Pits	1.8m lintel		1.6	13.838		0	0.3	308184.3	6242152	No	122408383	1 x Ku
F01/07	OnGrade	Standard Pits	1.8m lintel		0.8	13.761		0	0.3	308185.4	6242175.4	No	122408384	1 x Ku
F01/08	OnGrade	Standard Pits	1.8m lintel		0.8	13.591		0	0.3	308188.1	6242209.8	No	122408385	1 x Ku
G01/01	Sag	Standard Pits	3.6m lintel sag	5.074	2.6	13.465	0.183	0	0.5	308191.4	6242239.2	No	122408386	1 x Ku
G01/02	Sag	Standard Pits	2.4m lintel sag	3.256	0.8	13.474	0.15	0	0.5	308176.8	6242240.9	No	122408387	1 x Ku
EX01/01	OnGrade	Standard Pits	1.8m lintel		4.5	15.289		0	0.3	308447.9	6242089.6	No	122408373	1 x Ku
EX01/02	OnGrade	Standard Pits	1.8m lintel		0.8	14.915		0	0.3	308371.1	6242100.7	No	122408374	1 x Ku
EX01/03	OnGrade	Junction Pits	Junction Pit 900x900		1.8	14.639		0	0	308316.8	6242108.7	No	122408375	1 x Ku
F01/01	OnGrade	Standard Pits	1.8m lintel		0.8	14.436		0	0.3	308283.9	6242113.6	No	122408378	1 x Ku
F01/02	OnGrade	Standard Pits	1.8m lintel		1.5	14.318		0	0.3	308257.6	6242117.3	No	122408379	1 x Ku
F01/03	OnGrade	Standard Pits	1.8m lintel		0.8	14.136		0	0.3	308227.8	6242121.6	No	122408380	1 x Ku
F01/04	OnGrade	Standard Pits	1.8m lintel		1.2	13.972		0	0.3	308201.5	6242125.4	No	122408381	1 x Ku
EX02/01	OnGrade	Special	Unlimited		0.8	14.434		0	0.3	308316	6242096.1	No	122408376	1 x Ku
EX03/01	Sag	Standard Pits	2.4m lintel sag	1	4.5	14.537	0.12	0	0.5	308321	6242113	No	122408377	1 x Ku
G02/01	Sag	Standard Pits	2.4m lintel sag	1	4.5	13.69	0.12	0	0.5	308112.3	6242256.2	No	122408399	1 x Ku
G03/01	OnGrade	Standard Pits	1.8m lintel		4.5	11.664		0	0.3	307966	6242268.6	No	122408400	1 x Ku
G03/02	OnGrade	Standard Pits	1.8m lintel		2.2	11.197		0	0.3	307958.9	6242270.4	No	122408401	1 x Ku
G01/06	OnGrade	Standard Pits	1.8m lintel		2.2	12		0	0.3	307954.6	6242272.8	No	142603815	1 x Ku
G01/07	OnGrade	Standard Pits	1.8m lintel		1.2	11.4		0	0.3	307941.9	6242199	No	142603827	1 x Ku
G01/08	OnGrade	Standard Pits	1.8m lintel		1.2	10.99		0	0.3	307919.7	6242180.5	No	142603828	1 x Ku
G01/09	OnGrade	Standard Pits	1.8m lintel		0.5	10.9		0	0.3	307845	6242194.8	No	142603829	1 x Ku
G01/10	OnGrade	Standard Pits	1.8m lintel		4	10.6		0	0.3	307691.9	6242218.4	No	142603830	1 x Ku
N639861	Node					4.5		0		307675.1	6242240.8		142950528	
H01/01	OnGrade	Standard Pits	1.8m lintel		4.5	14.008		0	0.3	308201.1	6242327	No	122408402	1 x Ku
H01/02	OnGrade	Standard Pits	1.8m lintel		1.6	13.842		0	0.3	308198.3	6242301.9	No	122408403	1 x Ku
H01/03	OnGrade	Standard Pits	1.8m lintel		0.8	13.643		0	0.3	308195	6242272	No	122408404	1 x Ku
I01/01	OnGrade	Standard Pits	1.8m lintel		4.5	14.093		0	0.3	308168.9	6242327.9	No	122408405	1 x Ku
I01/02	OnGrade	Standard Pits	1.8m lintel		0.8	13.618		0	0.3	308166.5	6242289.2	No	122408406	1 x Ku
I01/03	Sag	Surface Inlet Pits	V Grate 900x900	1	0.8	13.41	0.1	0	0.5	308165.7	6242269.1	No	122408407	1 x Ku
I01/04	Sag	Surface Inlet Pits	V Grate 900x900	1	1.1	13.219	0.1	0	0.5	308164.3	6242252.4	No	122408408	1 x Ku
J01/01	OnGrade	Standard Pits	1.8m lintel		4.5	14.055		0	0.3	308203.8	6242390.9	No	122408409	1 x Ku

J01/02	Sag	Standard Pits	2.4m lintel sag	13.379	2.3	13.762	0.15	0	0.5	308207	6242423.7	No	122408410	1 x Ku
J01/03	Sag	Standard Pits	2.4m lintel sag	13.603	4	13.838	0.15	0	0.5	308183.6	6242425.9	No	122408411	1 x Ku
J01/05	OnGrade	Junction Pits	Junction Pit 900x900		2	11.5		0	0	308169.6	6242492.2	No	122408413	1 x Ku
J01/06	OnGrade	Junction Pits	Junction Pit 900x900		2	10.5		0	0	308150.2	6242533.4	No	145689337	1 x Ku
M5_Surcharge	Sag	Special	Unlimited	2	4	7.77	1.1	0	0.5	308076	6242541.2	No	145689271	1 x Ku
PR_M5	Node					4.5		0		307757.1	6242552.7		145689322	
J01/04	OnGrade	Standard Pits	1.8m lintel		1.4	14.184		0	0.3	308176.3	6242393.2	No	122408412	1 x Ku
J03/01	OnGrade	Standard Pits	3.6m lintel		4.5	14.755		0	0.3	308196.2	6242472.2	No	122408416	1 x Ku
J04/01	OnGrade	Standard Pits	1.8m lintel		4.5	14.87		0	0.3	308220.8	6242463.4	No	122408417	1 x Ku
Z01/01	OnGrade	Special	Unlimited		2.1	14.3		0	0.3	308195.6	6242089.5	No	122408418	1 x Ku
Z04/01	OnGrade	Special	Unlimited		3	14.81		0	0.3	308264.9	6242121.5	No	122408421	1 x Ku
Z02/01	OnGrade	Special	Unlimited		2.3	14.608		0	0.3	308255.5	6242088.9	No	126836626	1 x Ku
E01/02	Sag	Standard Pits	3.6m lintel sag	15.276	1.6	13.886	0.231	0	0	308256.5	6242097.4	No	126836615	1 x Ku
Z03/01	OnGrade	Special	Unlimited		2.4	14.5		0	0.3	308282	6242091	No	126836627	1 x Ku
E01/01	OnGrade	Standard Pits	3.6m lintel		2	14.167		0	0	308279.9	6242098.6	No	126836614	1 x Ku
PRABB	Node					10		0		307705.6	6242371.3		142603807	
ABB	Node					10.529		0		307907.7	6242321.9		142603951	
Pit125474	OnGrade	Special	Unlimited		2.5	11.5		0	0.3	308073.9	6242414.7	No	142950574	1 x Ku
G04/02	OnGrade	Standard Pits	2.4m lintel		0.8	11.2		0	0.3	307969.2	6242297.8	No	142950549	1 x Ku
G04/01	OnGrade	Standard Pits	2.4m lintel		0.8	11.5		0	0.3	307959.7	6242287.4	No	122408390	1 x Ku
PR Georges	Node					10		0		307667.8	6242578.2		154532517	
PR_Out	Node					10		0		307694.2	6242729.1		154532524	
DETENTION BASIN DETAILS														
Name	Elev	Volume	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Length
PR OSD 4	11	0		None						308093.8	6242414.3	No		
	11.1	709												
	11.5	3547												
	12	7094												
Northern Wetland	6.7	0		Culvert	0.5					308056.1	6242526	No		
	6.8	0.097												
	6.9	1.615												
	7	8.081												
	7.1	22.563												
	7.2	44.499												
	7.3	73.929												
	7.4	110.825												
	7.5	155.224												
	7.6	207.403												
	7.7	267.679												
	7.8	336.64												
	7.9	416.2												
	8	507.087												
	8.1	608.703												
	8.2	720.795												
	8.3	844.051												
	8.4	979.209												
	8.5	1126.08												
	8.6	1284.85												
	8.7	1456.36												
	8.8	1641.39												
	8.9	1840.22												
	9	2053.13												

	9.1	2281.41												
	9.2	2527.52												
	9.3	2800.42												
	9.4	3135.34												
	9.5	3543.73												
	9.6	4022.71												
	9.7	4566.09												
	9.8	5173.66												
	9.9	5850.01												
	10	6610.17												
	10.1	7463.72												
	10.2	8422.82												
	10.3	9528.32												
	10.4	10876.9												
	10.5	12423.4												
	10.6	14125.1												
	10.7	15934.8												
	10.8	17824.7												
	10.9	19788.3												
	11	21825.3												
	11.1	23938.1												
	11.2	26119.1												
	11.3	28371.5												
	11.4	30693.8												
	11.5	33088.6												
	11.6	35555.4												
	11.7	38093.5												
	11.8	40701.6												
	11.9	43378.4												
	12	46126.8												
SUB-CATCHMENT DETAILS														
Name	Pit or	Total	Paved	Grass	Supp	Paved	Grass	Supp	Paved	Grass	Supp	Paved	Grass	Supp
	Node	Area	Area	Area	Area	Time	Time	Time	Length	Length	Length	Slope(%)	Slope	Slope
		(ha)	%	%	%	(min)	(min)	(min)	(m)	(m)	(m)	%	%	%
C A01/02	A01/02	0.0317	90	10	0	5	7	0						
C A01/01	A01/01	0.0691	90	10	0	5	7	0						
C B01/03	B01/03	0.1087	90	10	0	5	7	0						
C B01/04	B01/04	0.202	90	10	0	5	7	0						
C B01/05	B01/05	0.0495	90	10	0	5	7	0						
C B01/06	B01/06	0.0514	90	10	0	5	7	0						
C B01/07	B01/07	0.0678	90	10	0	5	7	0						
C B01/08	B01/08	0.0692	90	10	0	5	7	0						
C G01/03	G01/03	0.1434	90	10	0	5	7	0						
C G01/04	G01/04	0.1389	90	10	0	5	7	0						
Cat410248	G01/05	0.2736	90	10	0	5	7	0						
C B01/02	B01/02	0.0449	90	10	0	5	7	0						
C B01/01	B01/01	0.0631	90	10	0	5	7	0						
C B02/01	B02/01	0.054	90	10	0	5	7	0						
C C02/01	C02/01	0.1393	90	10	0	5	7	0						
C C02/02	C02/02	0.1118	90	10	0	5	7	0						
C C01/01	C01/01	0.0559	90	10	0	5	7	0						
C C01/02	C01/02	0.1016	90	10	0	5	7	0						
C C01/03	C01/03	0.093	90	10	0	5	7	0						
C C01/04	C01/04	0.0767	90	10	0	5	7	0						
C C01/05	C01/05	0.0787	90	10	0	5	7	0						
C C01/06	C01/06	0.0813	90	10	0	5	7	0						
C C01/07	C01/07	0.0584	90	10	0	5	7	0						
C C01/08	C01/08	0.1382	90	10	0	5	7	0						
C C01/09	C01/09	0.0692	90	10	0	5	7	0						
C D01/01	D01/01	0.0354	90	10	0	5	7	0						
C D01/02	D01/02	0.034	90	10	0	5	7	0						
C D01/03	D01/03	0.0356	90	10	0	5	7	0						
C D01/04	D01/04	0.033	90	10	0	5	7	0						

C D01/05	D01/05	0.0251	90	10	0	5	7	0						
C E01/03	E01/03	0.0795	90	10	0	5	7	0						
C E01/04	E01/04	0.0723	90	10	0	5	7	0						
C F01/05	F01/05	0.0517	90	10	0	5	7	0						
C F01/06	F01/06	0.073	90	10	0	5	7	0						
C F01/07	F01/07	0.0317	90	10	0	5	7	0						
C F01/08	F01/08	0.1029	90	10	0	5	7	0						
C G01/01	G01/01	0.1969	90	10	0	5	7	0						
C G01/02	G01/02	0.0972	90	10	0	5	7	0						
C EX01/01	EX01/01	0.068	90	10	0	5	7	0						
C EX01/02	EX01/02	0.102	90	10	0	5	7	0						
C F01/01	F01/01	0.0123	90	10	0	5	7	0						
C F01/02	F01/02	0.0314	90	10	0	5	7	0						
C F01/03	F01/03	0.0393	90	10	0	5	7	0						
C F01/04	F01/04	0.0378	90	10	0	5	7	0						
C EX02/01	EX02/01	0.2468	90	10	0	7	9	0						
C EX03/01	EX03/01	0.1107	90	10	0	5	7	0						
C G02/01	G02/01	0.0482	90	10	0	5	7	0						
C G03/01	G03/01	0.0437	90	10	0	5	7	0						
C G03/02	G03/02	0.0451	90	10	0	5	7	0						
C H01/01	H01/01	0.142	90	10	0	5	7	0						
C H01/02	H01/02	0.0987	90	10	0	5	7	0						
C H01/03	H01/03	0.0954	90	10	0	5	7	0						
C I01/01	I01/01	0.0814	90	10	0	5	7	0						
C I01/02	I01/02	0.1045	90	10	0	5	7	0						
C I01/03	I01/03	0.0632	90	10	0	5	7	0						
C I01/04	I01/04	0.0543	90	10	0	5	7	0						
C J01/01	J01/01	0.0605	90	10	0	5	7	0						
C J01/02	J01/02	0.1547	90	10	0	5	7	0						
C J01/03	J01/03	0.1387	90	10	0	5	7	0						
M5_North	M5_Surcharge	1.0185	20	80	0	5	8	0						
C J01/04	J01/04	0.0423	90	10	0	5	7	0						
C J03/01	J03/01	0.2977	90	10	0	8	10	0						
C J04/01	J04/01	0.1298	90	10	0	5	7	0						
C Z01/01	Z01/01	0.3356	60	40	0	7	9	0						
C Z04/01	Z04/01	0.1302	70	30	0	8	10	0						
C Z02/01	Z02/01	0.3618	60	40	0	7	9	0						
C E01/02	E01/02	0.0745	90	10	0	5	7	0						
C Z03/01	Z03/01	2.6378	20	80	0	14	16	0						
C E01/01	E01/01	0.0536	90	10	0	5	7	0						
C_ABB	ABB	0.46	10	90	0	2	8	0						
C G04/02	G04/02	0.0248	90	10	0	5	7	0						
C G04/01	G04/01	0.1452	90	10	0	5	7	0						
C PR G01	PR OSD 4	3.28	100	0	0	5	0	0						
C_Northen_Wetlan	Northern Wetland	1.936	29	71	0	5	8	0						
PIPE DETAILS														
Name	From	To	Length	U/S IL	D/S IL	Slope	Type	Dia	I.D.	Rough	Pipe Is	No. Pipes	Chg From	At Chg
			(m)	(m)	(m)	(%)		(mm)	(mm)					
P A01/02	A01/02	A01/01	12.933	12.741	12.575	1.28	RCP Class 2	450	450	0.6	New	1	A01/02	0
P A01/01	A01/01	B01/03	17.769	12.525	12.246	1.57	RCP Class 2	450	450	0.6	New	1	A01/01	0
P B01/03	B01/03	B01/04	19.721	12.171	11.733	2.22	RCP Class 2	525	525	0.6	New	1	B01/03	0
P B01/04	B01/04	B01/05	18.725	11.433	11.34	0.5	RCP Class 2	825	825	0.6	New	1	B01/04	0
P B01/05	B01/05	B01/06	32.292	11.29	11.128	0.5	RCP Class 2	825	825	0.6	New	1	B01/05	0
P B01/06	B01/06	B01/07	20.585	11.078	10.975	0.5	RCP Class 2	825	825	0.6	New	1	B01/06	0
P B01/07	B01/07	B01/08	20.643	10.945	10.842	0.5	RCP Class 2	825	825	0.6	New	1	B01/07	0
P B01/08	B01/08	G01/03	20.17	10.767	10.388	1.88	RCP Class 2	900	900	0.6	New	1	B01/08	0

P G01/03	G01/03	G01/04	52.466	10.338	10.128	0.4	Box Culverts	1.5W x 0.6H		0.3	NewFixed	2	G01/03	0
P G01/04	G01/04	G01/05	123	10.09	9.721	0.3	Box Culverts	1.5W x 0.6H		0.3	NewFixed	2	G01/04	0
P_GIS BYPASS	G01/05	Council_GIS_1	54.5	9.703	9.54	0.3	RCP Class 2	600	600	0.6	New	1	G01/05	0
P G01/05	G01/05	G01/06	34.74	10	9.68	0.92	RCP Class 2	900	900	0.6	New	1	G01/05	0
P_GIS01	Council_GIS_1	Coucnil_GIS_2	256.9	9.5	8.215	0.5	RCP Class 2	600	600	0.6	New	1	Council_GIS	0
P_GIS02	Coucnil_GIS_2	PR GIS	368	6.54	4.5	0.55	RCP Class 2	600	600	0.6	New	1	Coucnil_GIS	0
P B01/02	B01/02	B01/01	31.291	13.905	13.093	2.59	RCP Class 2	375	375	0.6	New	1	B01/02	0
P B01/01	B01/01	B01/03	28.852	13.043	12.321	2.5	RCP Class 2	375	375	0.6	New	1	B01/01	0
P B02/01	B02/01	B01/08	13.823	12.32	11.217	7.98	RCP Class 2	450	450	0.6	New	1	B02/01	0
P C02/01	C02/01	C02/02	24.314	13.457	13.336	0.5	RCP Class 2	375	375	0.6	New	1	C02/01	0
P C02/02	C02/02	C01/01	23.219	13.286	13.17	0.5	RCP Class 2	375	375	0.6	New	1	C02/02	0
P C01/01	C01/01	C01/02	28.938	13.12	12.975	0.5	RCP Class 2	375	375	0.6	New	1	C01/01	0
P C01/02	C01/02	C01/03	27.149	12.945	12.809	0.5	RCP Class 2	375	375	0.6	New	1	C01/02	0
P C01/03	C01/03	C01/04	22.327	12.779	12.668	0.5	RCP Class 2	375	375	0.6	New	1	C01/03	0
P C01/04	C01/04	C01/05	23.432	12.618	12.501	0.5	RCP Class 2	375	375	0.6	New	1	C01/04	0
P C01/05	C01/05	C01/06	23.636	12.451	12.332	0.5	RCP Class 2	375	375	0.6	New	1	C01/05	0
P C01/06	C01/06	C01/07	17.946	12.257	12.168	0.5	RCP Class 2	450	450	0.6	New	1	C01/06	0
P C01/07	C01/07	C01/08	24.198	12.118	11.997	0.5	RCP Class 2	450	450	0.6	New	1	C01/07	0
P C01/08	C01/08	C01/09	18.755	11.847	11.753	0.5	RCP Class 2	600	600	0.6	New	1	C01/08	0
P C01/09	C01/09	B01/04	18.938	11.678	11.583	0.5	RCP Class 2	675	675	0.6	New	1	C01/09	0
P D01/01	D01/01	D01/02	28.61	13.424	13.281	0.5	RCP Class 2	450	450	0.6	New	1	D01/01	0
P D01/02	D01/02	D01/03	29.288	13.251	13.105	0.5	RCP Class 2	450	450	0.6	New	1	D01/02	0
P D01/03	D01/03	D01/04	27.192	13.055	12.919	0.5	RCP Class 2	450	450	0.6	New	1	D01/03	0
P D01/04	D01/04	D01/05	19.469	12.869	12.267	3.09	RCP Class 2	450	450	0.6	New	1	D01/04	0
P D01/05	D01/05	E01/03	17.104	12.217	12.131	0.5	RCP Class 2	450	450	0.6	New	1	D01/05	0
P E01/03	E01/03	E01/04	18.368	11.681	11.589	0.5	RCP Class 2	900	900	0.6	New	1	E01/03	0
P E01/04	E01/04	F01/05	17.199	11.539	11.453	0.5	RCP Class 2	900	900	0.6	New	1	E01/04	0
P F01/05	F01/05	F01/06	20.953	11.303	11.199	0.5	RCP Class 2	1050	1070	0.6	New	1	F01/05	0
P F01/06	F01/06	F01/07	23.439	11.149	11.031	0.5	RCP Class 2	1050	1070	0.6	New	1	F01/06	0
P F01/07	F01/07	F01/08	34.565	10.981	10.809	0.5	RCP Class 2	1050	1070	0.6	New	1	F01/07	0
P F01/08	F01/08	G01/01	29.561	10.759	10.611	0.5	RCP Class 2	1050	1070	0.6	New	1	F01/08	0
P G01/01	G01/01	G01/02	14.704	10.561	10.487	0.5	Box Culverts	1.5W x 0.6H		0.3	NewFixed	2	G01/01	0
P G01/02	G01/02	G01/03	13.907	10.437	10.368	0.5	Box Culverts	1.5W x 0.6H		0.3	NewFixed	2	G01/02	0
P EX01/01	EX01/01	EX01/02	77.574	14.07	13.682	0.5	RCP Class 2	375	375	0.6	New	1	EX01/01	0
P EX01/02	EX01/02	EX01/03	54.923	13.652	13.119	0.97	RCP Class 2	375	375	0.6	New	1	EX01/02	0
P EX01/03	EX01/03	F01/01	33.253	13.044	12.495	1.65	RCP Class 2	450	450	0.6	New	1	EX01/03	0
P F01/01	F01/01	F01/02	26.554	12.465	12.332	0.5	RCP Class 2	450	450	0.6	New	1	F01/01	0
P F01/02	F01/02	F01/03	30.099	12.182	12.032	0.5	RCP Class 2	600	600	0.6	New	1	F01/02	0
P F01/03	F01/03	F01/04	26.614	12.002	11.869	0.5	RCP Class 2	600	600	0.6	New	1	F01/03	0
P F01/04	F01/04	F01/05	13.056	11.819	11.753	0.51	RCP Class 2	600	600	0.6	New	1	F01/04	0
P EX02/01	EX02/01	EX01/03	12.715	13.158	13.094	0.5	RCP Class 2	450	450	0.6	New	1	EX02/01	0
P EX03/01	EX03/01	EX01/03	6.015	13.283	13.094	3.14	RCP Class 2	450	450	0.6	New	1	EX03/01	0
P G02/01	G02/01	G01/04	9.989	12.3	12.2	1	RCP Class 2	375	375	0.6	New	1	G02/01	0
P G03/01	G03/01	G03/02	7.326	10.401	9.995	5.54	RCP Class 2	375	375	0.6	New	1	G03/01	0
P G03/02	G03/02	G01/06	17.06	9.945	9.418	3.09	RCP Class 2	375	375	0.6	New	1	G03/02	0
P G01/06	G01/06	G01/07	83.58	8	7.582	0.5	RCP Class 2	1200	1200	0.6	New	1	G01/06	0
P G01/07	G01/07	G01/08	24.9	7.54	7.416	0.5	RCP Class 2	1200	1200	0.6	New	1	G01/07	0
P G01/08	G01/08	G01/09	75.25	7.37	6.994	0.5	RCP Class 2	1200	1200	0.6	New	1	G01/08	0
P G01/09	G01/09	G01/10	145.76	6.95	6.221	0.5	RCP Class 2	1200	1200	0.6	New	1	G01/09	0
P G01/10	G01/10	N639861	20	4.6	4.5	0.5	RCP Class 2	1200	1200	0.6	New	1	G01/10	0
P H01/01	H01/01	H01/02	25.29	12.876	12.623	1	RCP Class 2	375	375	0.6	New	1	H01/01	0
P H01/02	H01/02	H01/03	30.056	12.473	12.28	0.64	RCP Class 2	525	525	0.6	New	1	H01/02	0
P H01/03	H01/03	G01/01	32.996	12.25	11.136	3.38	RCP Class 2	525	525	0.6	New	1	H01/03	0
P I01/01	I01/01	I01/02	38.732	12.877	12.413	1.2	RCP Class 2	375	375	0.6	New	1	I01/01	0
P I01/02	I01/02	I01/03	20.096	12.363	12.178	0.92	RCP Class 2	375	375	0.6	New	1	I01/02	0
P I01/03	I01/03	I01/04	16.802	12.103	11.922	1.08	RCP Class 2	450	450	0.6	New	1	I01/03	0
P I01/04	I01/04	G01/03	10.482	11.872	10.963	8.67	RCP Class 2	450	450	0.6	New	1	I01/04	0
P J01/01	J01/01	J01/02	32.996	12.969	12.54	1.3	RCP Class 2	375	375	0.6	New	1	J01/01	0
P J01/02	J01/02	J01/03	23.502	12.39	12.272	0.5	RCP Class 2	525	525	0.6	New	1	J01/02	0
P145345	J01/03	J01/05	107	10.415	7.74	2.5	RCP Class 2	525	525	0.6	New	1	J01/03	0
P145344	J01/05	J01/06	42.8	7.688	7.26	1	RCP Class 2	525	525	0.6	New	1	J01/05	0
P145266	J01/06	M5_Surcharge	78	7.22	6.44	1	RCP Class 2	525	525	0.6	New	1	J01/06	0
P_M5_Surcharge	M5_Surcharge	PR_M5	414	6.4	4.5	0.46	RCP Class 2	750	750	0.6	New	1	M5_Surcha	0
P J01/03	J01/04	J01/03	33.508	12.438	12.27	0.5	RCP Class 2	375	375	0.6	New	1	J01/04	0
P J03/01	J03/01	J01/03	48.024	13.284	12.372	1.9	RCP Class 2	375	375	0.6	New	1	J03/01	0
P J04/01	J04/01	J01/02	41.979	13.476	12.54	2.23	RCP Class 2	375	375	0.6	New	1	J04/01	0
P Z01/01	Z01/01	E01/03	7.226	12.278	12.206	1	RCP Class 2	375	375	0.6	New	1	Z01/01	0
P Z04/01	Z04/01	F01/02	8.354	12.491	12.407	1.01	RCP Class 2	375	375	0.6	New	1	Z04/01	0
P Z02/01	Z02/01	E01/02	8.513	12.596	12.511	1	RCP Class 2	375	375	0.6	New	1	Z02/01	0
P E01/02	E01/02	E01/03	60.979	12.136	11.831	0.5	RCP Class 2	750	750	0.6	New	1	E01/02	0
P Z03/01	Z03/01	E01/01	7.912	12.433	12.354	1	RCP Class 2	750	750	0.6	New	1	Z03/01	0
P E01/01	E01/01	E01/02	23.49	12.304	12.186	0.5	RCP Class 2	750	750	0.6	New	1	E01/01	0
P140127	Pit125474	G04/02	250	9.55	8.3	0.5	RCP Class 2	900	900	0.6	New	1	Pit125474	0
P G04/02	G04/02	G04/01	20.5	8.262	8.16	0.5	RCP Class 2	900	900	0.6	New	1	G04/02	0
P G04/01	G04/01	G01/06	16.2	8.121	8.04	0.5	RCP Class 2	900	900	0.6	New	1	G04/01	0
P_NW	Northern Wetland	Coucnil_GIS_2	41	6.8	6.595	0.5	RCP Class 2	300	300	0.6	NewFixed	1	Northern W	0

DETAILS of SERVICES CROSSING PIPES														
Pipe	Chg	Bottom	Height of Service	Chg	Bottom	Height of S	Chg	Bottom	Height of S	etc				
	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	etc				

CHANNEL DETAILS														
Name	From	To	Type	Length	U/S IL	D/S IL	Slope	Base Width	L.B. Slope	R.B. Slope	Manning	Depth	Roofed	
				(m)	(m)	(m)	(%)	(m)	(1:?)	(1:?)	n	(m)		

OVERFLOW ROUTE DETAILS														
Name	From	To	Travel	Spill	Crest	Weir	Cross	Safe Depth	SafeDepth	Safe	Bed	D/S Area		id
			Time	Level	Length	Coeff. C	Section	Major Storr	Minor Storr	DxV	Slope	Contributing		
			(min)	(m)	(m)			(m)	(m)	(sq.m/sec)	(%)	%		
F A01/02	A01/02	C01/08	0.4				8 m wide road (half	0.2	0.15	0.4	1.4	40		122408579
F A01/01	A01/01	C01/09	0.262867				8 m wide road (half	0.2	0.15	0.4	1.3	80		122408580
F B01/03	B01/03	B01/04	0.221256				8 m wide road (half	0.2	0.15	0.4	2.2	30		122408583
F B01/04	B01/04	B01/05	0.211689				Dummy used to mo	0.2	0.05	0.4	0.4	30		122408584
F B01/05	B01/05	B01/06	0.361911				8 m wide road (half	0.2	0.15	0.4	1.2	100		122408585
F B01/06	B01/06	B01/07	0.228722				8 m wide road (half	0.2	0.15	0.4	0.8	50		122408586
F B01/07	B01/07	B01/08	0.229367				8 m wide road (half	0.2	0.15	0.4	0.8	50		122408587
F B01/08	B01/08	G01/03	0.224111				8 m wide road (half	0.2	0.15	0.4	1	30		122408588
F G01/03	G01/03	G01/04	0.583344				Dummy used to mo	0.2	0.05	0.4	1	30		122408624
F G01/04	G01/04	G01/05	1.74644				Dummy used to mo	0.2	0.05	0.4	1	30		122408625
OF G01/05	G01/05	G04/01	1.73339				Dummy used to mo	0.2	0.05	0.4	1	30		142603944
OF_PR_GIS	PR GIS	PR_M5	0.1				Dummy used to mo	0.3	0.3	0.6	1	0		154532513
F B01/02	B01/02	B01/01	0.347744				8 m wide road (half	0.2	0.15	0.4	2.49	100		122408581
F B01/01	B01/01	B01/03	0.320578				8 m wide road (half	0.2	0.15	0.4	2.4	60		122408582
F B02/01	B02/01	G01/02	0.251122				8 m wide road (half	0.2	0.15	0.4	1	50		122408589
F C02/01	C02/01	D01/01	0.867356				Dummy used to mo	0.2	0.05	0.4	0.5	30		122408599
F C02/02	C02/02	C01/01	0.257989				8 m wide road (half	0.2	0.15	0.4	0.5	100		122408600
F C01/01	C01/01	C01/02	0.321533				8 m wide road (half	0.2	0.15	0.4	0.8	60		122408590
F C01/02	C01/02	C01/03	0.301656				8 m wide road (half	0.2	0.15	0.4	0.8	70		122408591
F C01/03	C01/03	C01/04	0.248078				8 m wide road (half	0.2	0.15	0.4	0.8	80		122408592
F C01/04	C01/04	C01/05	0.260867				8 m wide road (half	0.2	0.15	0.4	0.9	80		122408593
F C01/05	C01/05	C01/06	0.262867				8 m wide road (half	0.2	0.15	0.4	1	80		122408594
F C01/06	C01/06	C01/07	0.200011				8 m wide road (half	0.2	0.15	0.4	1.6	100		122408595
F C01/07	C01/07	C01/08	0.276967				8 m wide road (half	0.2	0.15	0.4	1.16	30		122408596
F C01/08	C01/08	C01/09	0.208389				Dummy used to mo	0.2	0.05	0.4	1	30		122408597
F C01/09	C01/09	B01/04	0.5197				Dummy used to mo	0.2	0.05	0.4	0.1	20		122408598
F D01/01	D01/01	D01/02	0.317889				8 m wide road (half	0.2	0.15	0.4	1	100		122408601
F D01/02	D01/02	D01/03	0.325422				8 m wide road (half	0.2	0.15	0.4	1	100		122408602
F D01/03	D01/03	D01/04	0.3023				8 m wide road (half	0.2	0.15	0.4	1	100		122408603
F D01/04	D01/04	D01/05	0.22				8 m wide road (half	0.2	0.15	0.4	1	100		122408604
F D01/05	D01/05	E01/03	0.1926				8 m wide road (half	0.2	0.15	0.4	0.83	30		122408605
F E01/03	E01/03	E01/04	0.204089				Dummy used to mo	0.2	0.05	0.4	1	30		122408608

F E01/04	E01/04	F01/05	0.1911				Dummy used to mo	0.2	0.05	0.4	0.5	30	122408609
F F01/05	F01/05	F01/06	0.237133				8 m wide road (half	0.2	0.15	0.4	1.1	50	122408618
F F01/06	F01/06	F01/07	0.260544				8 m wide road (half	0.2	0.15	0.4	1.2	80	122408619
F F01/07	F01/07	F01/08	0.3841				8 m wide road (half	0.2	0.15	0.4	1	100	122408620
F F01/08	F01/08	G01/01	0.328456				8 m wide road (half	0.2	0.15	0.4	0.43	30	122408621

F G01/01	G01/01	G01/02	0.163378				Dummy used to mo	0.2	0.05	0.4	1	30		122408622
F G01/02	G01/02	G01/03	0.154522				Dummy used to mo	0.2	0.05	0.4	1	30		122408623
F EX01/01	EX01/01	EX01/02	0.861933				8 m wide road (half	0.2	0.15	0.4	1	100		122408610
F EX01/02	EX01/02	EX03/01	0.7996				8 m wide road (half	0.2	0.15	0.4	1	100		122408611
F F01/01	F01/01	F01/02	0.295044				8 m wide road (half	0.2	0.15	0.4	1	100		122408614
F F01/02	F01/02	F01/03	0.334433				8 m wide road (half	0.2	0.15	0.4	1	100		122408615
F F01/03	F01/03	F01/04	0.295711				8 m wide road (half	0.2	0.15	0.4	1	100		122408616
F F01/04	F01/04	F01/05	0.1483				8 m wide road (half	0.2	0.15	0.4	0.6	70		122408617
F EX02/01	EX02/01	E01/01	0.469822				8 m wide road (half	0.2	0.15	0.4	1.2	100		122408612
F EX03/01	EX03/01	F01/01	0.426967				Dummy used to mo	0.2	0.05	0.4	0.3	30		122408613
F G02/01	G02/01	G01/05	1.73339				Dummy used to mo	0.2	0.05	0.4	1	30		122408627
F G03/01	G03/01	G03/02	0.1				8 m wide road (half	0.2	0.15	0.4	1	100		122408628
F G03/02	G03/02	G04/01	0.189556				8 m wide road (half	0.2	0.15	0.4	2.5	40		122408629
OF G01/06	G01/06	ABB	1.73339				Dummy used to mo	0.2	0.05	0.4	1	30		142603958
OF G01/07	G01/07	G01/08	1.73339				Dummy used to mo	0.2	0.05	0.4	1	30		142950661
OF G01/08	G01/08	G01/09	1.73339				Dummy used to mo	0.2	0.05	0.4	1	30		142950672
OF G01/09	G01/09	G01/10	1.73339				Dummy used to mo	0.2	0.05	0.4	1	30		142950683
OF G01/10	G01/10	N639861	1.73339				Dummy used to mo	0.2	0.05	0.4	1	30		142950694
OF_South EASEM	N639861	PRABB	2				Dummy used to mo	0.3	0.3	0.6	1	0		154532508
F H01/01	H01/01	H01/02	0.281				8 m wide road (half	0.2	0.15	0.4	1.4	100		122408630
F H01/02	H01/02	H01/03	0.333956				8 m wide road (half	0.2	0.15	0.4	0.7	100		122408631
F H01/03	H01/03	G01/01	0.366622				8 m wide road (half	0.2	0.15	0.4	0.54	30		122408632
F I01/01	I01/01	I01/02	0.430356				8 m wide road (half	0.2	0.15	0.4	1.6	100		122408633
F I01/02	I01/02	I01/03	0.223611				8 m wide road (half	0.2	0.15	0.4	0.6	100		122408634
F I01/03	I01/03	I01/04	0.186689				8 m wide road (half	0.2	0.15	0.4	1	100		122408635
F I01/04	I01/04	G01/03	0.116467				8 m wide road (half	0.2	0.15	0.4	1	100		122408636
F J01/01	J01/01	J01/02	0.367278				8 m wide road (half	0.2	0.15	0.4	0.95	30		122408637
F J01/02	J01/02	J01/03	0.261133				Dummy used to mo	0.2	0.05	0.4	1	30		122408638
F J01/03	J01/03	M5_Surcharge	0.111111				Dummy used to mo	0.2	0.05	0.4	1	30		122408639
OF_PR_M5	PR_M5	PR Georges	2				Dummy used to mo	0.3	0.3	0.6	1	0		154532518
F J01/04	J01/04	J01/03	0.371556				8 m wide road (half	0.2	0.15	0.4	1.3	30		122408640
F J03/01	J03/01	J01/03	0.533978				8 m wide road (half	0.2	0.15	0.4	3.7	0		122408641
F J04/01	J04/01	J01/02	0.467556				8 m wide road (half	0.2	0.15	0.4	2.63	20		122408642
F Z01/01	Z01/01	E01/03	0.1				Dummy used to mo	0.2	0.05	0.4	1	0		122408643
F Z04/01	Z04/01	F01/02	0.1				Dummy used to mo	0.2	0.05	0.4	1	0		122408646
F Z02/01	Z02/01	E01/02	0.116733				Dummy used to mo	0.2	0.05	0.4	1.5	0		122408644
F E01/02	E01/02	E01/03	0.4219				Dummy used to mo	0.2	0.05	0.4	1	30		122408607
F Z03/01	Z03/01	E01/01	0.1				Dummy used to mo	0.2	0.05	0.4	1	0		122408645
F E01/01	E01/01	E01/02	0.451033				8 m wide road (half	0.2	0.15	0.4	0.98	15		122408606
OF_PR_ABB	PRABB	PR Georges	2				Dummy used to mo	0.3	0.3	0.6	1	0		154532510
ABB_Site	ABB	PRABB	1.73339				Dummy used to mo	0.2	0.05	0.4	1	30		145689411
OF G04/02	G04/02	ABB	1.73339				Dummy used to mo	0.2	0.05	0.4	1	30		142950590
OF G04/01	G04/01	ABB	1.73339				Dummy used to mo	0.2	0.05	0.4	1	30		142603952
OF561722	PR OSD 4	Pit125474	0.1	11.3			Dummy used to mo	0.2	0.05	0.4	1	30		142950727
Weir_NW	Northern Wetland	M5_Surcharge	0.1	8.2	8	1.6	Dummy used to mo	0.2	0.05	0.4	1	0		145689327
OF_ABB_WEIR	Northern Wetland	ABB	0.1	9.66			Dummy used to mo	0.2	0.05	0.4	1	0		145689325
OF_PR_Georges	PR Georges	PR_Out	2				Dummy used to mo	0.3	0.3	0.6	1	0		154532523

PIPE COVER DETAILS

Name	Type	Dia (mm)	Safe Cover (m)	Cover (m)	
P A01/02	RCP Class 2	450	0.6	0.77	
P A01/01	RCP Class 2	450	0.6	0.84	
P B01/03	RCP Class 2	525	0.6	0.85	
P B01/04	RCP Class 2	825	0.6	1.08	
P B01/05	RCP Class 2	825	0.6	1.33	
P B01/06	RCP Class 2	825	0.6	1.47	
P B01/07	RCP Class 2	825	0.6	1.5	
P B01/08	RCP Class 2	900	0.6	1.49	
P G01/03	Box Culverts	0	0.6	2.15	
P G01/04	Box Culverts	0	0.6	2.14	
P_GIS BYPASS	RCP Class 2	600	0.6	0.62	
P G01/05	RCP Class 2	900	0.6	1.35	
P_GIS01	RCP Class 2	600	0.6	0.66	
P_GIS02	RCP Class 2	600	0.6	-0.64	Unsafe
P B01/02	RCP Class 2	375	0.6	0.72	
P B01/01	RCP Class 2	375	0.6	0.81	
P B02/01	RCP Class 2	450	0.6	0.75	
P C02/01	RCP Class 2	375	0.6	0.77	
P C02/02	RCP Class 2	375	0.6	1.16	
P C01/01	RCP Class 2	375	0.6	1.21	
P C01/02	RCP Class 2	375	0.6	1.24	
P C01/03	RCP Class 2	375	0.6	1.27	
P C01/04	RCP Class 2	375	0.6	1.28	
P C01/05	RCP Class 2	375	0.6	1.28	
P C01/06	RCP Class 2	450	0.6	1.16	
P C01/07	RCP Class 2	450	0.6	1.04	
P C01/08	RCP Class 2	600	0.6	1.04	
P C01/09	RCP Class 2	675	0.6	1.09	
P D01/01	RCP Class 2	450	0.6	0.8	
P D01/02	RCP Class 2	450	0.6	0.83	
P D01/03	RCP Class 2	450	0.6	0.88	
P D01/04	RCP Class 2	450	0.6	0.93	
P D01/05	RCP Class 2	450	0.6	1.4	
P E01/03	RCP Class 2	900	0.6	1.37	
P E01/04	RCP Class 2	900	0.6	1.47	
P F01/05	RCP Class 2	1070	0.6	1.44	
P F01/06	RCP Class 2	1070	0.6	1.53	
P F01/07	RCP Class 2	1070	0.6	1.63	
P F01/08	RCP Class 2	1070	0.6	1.68	
P G01/01	Box Culverts	0	0.6	2.25	
P G01/02	Box Culverts	0	0.6	2.12	
P EX01/01	RCP Class 2	375	0.6	0.8	
P EX01/02	RCP Class 2	375	0.6	0.85	
P EX01/03	RCP Class 2	450	0.6	1.1	
P F01/01	RCP Class 2	450	0.6	1.48	
P F01/02	RCP Class 2	600	0.6	1.46	
P F01/03	RCP Class 2	600	0.6	1.46	
P F01/04	RCP Class 2	600	0.6	1.5	
P EX02/01	RCP Class 2	450	0.6	0.78	
P EX03/01	RCP Class 2	450	0.6	0.76	
P G02/01	RCP Class 2	375	0.6	0.98	
P G03/01	RCP Class 2	375	0.6	0.79	
P G03/02	RCP Class 2	375	0.6	0.84	
P G01/06	RCP Class 2	1200	0.6	2.53	
P G01/07	RCP Class 2	1200	0.6	2.29	
P G01/08	RCP Class 2	1200	0.6	2.33	
P G01/09	RCP Class 2	1200	0.6	2.66	
P G01/10	RCP Class 2	1200	0.6	-1.29	Unsafe
P H01/01	RCP Class 2	375	0.6	0.72	
P H01/02	RCP Class 2	525	0.6	0.79	
P H01/03	RCP Class 2	525	0.6	0.82	
P I01/01	RCP Class 2	375	0.6	0.79	
P I01/02	RCP Class 2	375	0.6	0.82	
P I01/03	RCP Class 2	450	0.6	0.8	
P I01/04	RCP Class 2	450	0.6	0.86	
P J01/01	RCP Class 2	375	0.6	0.68	
P J01/02	RCP Class 2	525	0.6	0.8	
P145345	RCP Class 2	525	0.6	2.85	
P145344	RCP Class 2	525	0.6	2.67	
P145266	RCP Class 2	525	0.6	0.76	

P_M5_Surcharge	RCP Class 2	750	0.6	-0.81	Unsafe										
P J01/03	RCP Class 2	375	0.6	0.99											
P J03/01	RCP Class 2	375	0.6	0.81											
P J04/01	RCP Class 2	375	0.6	0.81											
P Z01/01	RCP Class 2	375	0.6	1.41											
P Z04/01	RCP Class 2	375	0.6	1.5											
P Z02/01	RCP Class 2	375	0.6	0.97											
P E01/02	RCP Class 2	750	0.6	0.91											
P Z03/01	RCP Class 2	750	0.6	1											
P E01/01	RCP Class 2	750	0.6	0.89											
P140127	RCP Class 2	900	0.6	0.24	Unsafe										
P G04/02	RCP Class 2	900	0.6	1.53											
P G04/01	RCP Class 2	900	0.6	1.67											
P_NW	RCP Class 2	300	0.6	-0.43	Unsafe										
This model has no pipes with non-return valves															

ARCADIS Design & Consultancy for natural and built assets

PROJECT	Moorebank	JOB No		AA008765	
		PREPARED	DC	DATE	28/03/2017
TITLE	100 YEAR	CHECKED	BC	DATE	28/03/2017

DRAINS File Path:	F:\AA008765\D-Calculations\Civil\Stormwater\MPW_Stage2
DRAINS Version:	DRAINS Version 2017.06
Modeller's Name:	Darlan Castro
Description:	Drainage Modelling for ABB site

DRAINS results prepared from Version 2017.06

RESULTS 100 YEAR ARI

PIT / NODE DETAILS				Version 8							
Name	Max HGL	Max Pond	Max Surface	Max Pond	Min	Overflow	Constraint				
		HGL	Flow Arriving	Volume	Freeboard	(cu.m/s)					
			(cu.m/s)	(cu.m)	(m)						
A01/02	13.41		0.018		0.6	0	None				
A01/01	13.38		0.038		0.47	0.002	Inlet Capacity				
B01/03	13.31		0.061		0.28	0.01	Inlet Capacity				
B01/04	13.25	13.52	0.135	2.1	0.15	0.022	Inlet Capacity				
B01/05	13.13		0.046		0.38	0.004	Inlet Capacity				
B01/06	13.01		0.032		0.42	0	None				
B01/07	12.91		0.038		0.42	0.001	Inlet Capacity				
B01/08	12.81		0.04		0.41	0.002	Inlet Capacity				
G01/03	12.68	13.24	0.082	0.4	0.46	0	Inlet Capacity				
G01/04	12.31	14.06	0.077	6	1.64	0.03	Inlet Capacity				
G01/05	11.93		0.181		0.58	0.087	Inlet Capacity				
Council_GIS_1	11.11		0		0		Outlet System				
Coucnil_GIS_2	8.17		0		2.13		None				
PR GIS	5		0								
B01/02	14.06		0.025		0.98	0	None				
B01/01	13.33		0.035		0.93	0.001	Inlet Capacity				
B02/01	12.83		0.03		0.74	0	Inlet Capacity				
C02/01	14.75	14.78	0.078	0.9	0	0.069	Outlet System				
C02/02	14.78		0.062		0.07	0.011	Inlet Capacity				
C01/01	14.74		0.042		0	0.033	Outlet System				
C01/02	14.59		0.084		0	0.067	Inlet Capacity				
C01/03	14.46		0.119		0	0.099	Outlet System				
C01/04	14.35		0.141		0	0.118	Outlet System				
C01/05	14.19		0.158		0	0.129	Inlet Capacity				
C01/06	13.99		0.168		0.04	0.083	Inlet Capacity				
C01/07	13.82		0.109		0.01	0.073	Inlet Capacity				
C01/08	13.5	13.68	0.132	3.2	0.03	0.063	Inlet Capacity				
C01/09	13.34	13.69	0.092	2.3	0.25	0.05	Inlet Capacity				
D01/01	14.55		0.089		0.17	0.025	Inlet Capacity				
D01/02	14.37		0.042		0.2	0.003	Inlet Capacity				
D01/03	14.41		0.021		0.02	0.004	Inlet Capacity				
D01/04	14.25		0.021		0.05	0	None				
D01/05	14.05		0.014		0.12	0	None				
E01/03	13.93	14.13	0.582	1.5	0.1	0.492	Inlet Capacity				
E01/04	13.74	14.15	0.514	0.9	0.31	0.477	Inlet Capacity				
F01/05	13.65		0.492		0.25	0.397	Inlet Capacity				
F01/06	13.43		0.416		0.41	0.322	Inlet Capacity				
F01/07	13.2		0.329		0.56	0.238	Inlet Capacity				
F01/08	13.04		0.26		0.55	0.164	Inlet Capacity				
G01/01	12.85	13.63	0.198	3.6	0.61	0	Inlet Capacity				
G01/02	12.73	13.6	0.054	2.1	0.74	0	Inlet Capacity				
EX01/01	14.81		0.038		0.48	0.001	Inlet Capacity				
EX01/02	14.74		0.058		0.17	0.008	Inlet Capacity				
EX01/03	14.48		0		0.16		None				
F01/01	14.16		0.028		0.28	0	None				
F01/02	13.96		0.017		0.36	0	None				
F01/03	13.83		0.022		0.3	0	None				
F01/04	13.74		0.021		0.23	0	None				
EX02/01	14.43		0.123		0.01	0.058	Inlet Capacity				
EX03/01	14.53	14.66	0.07	0.9	0.01	0.021	Inlet Capacity				
G02/01	12.44	13.77	0.027	0.4	1.25	0	Inlet Capacity				
G03/01	10.55		0.024		1.12	0	None				
G03/02	10.14		0.025		1.06	0	None				
G01/06	9.29		0		2.71	0	None				
G01/07	8.67		0		2.73	0	None				
G01/08	8.38		0		2.61	0	None				
G01/09	7.81		0		3.09	0	None				
G01/10	6.06		0		4.54	0	None				
N639861	5.26		0								
H01/01	13.12		0.079		0.89	0.021	Inlet Capacity				
H01/02	12.94		0.076		0.91	0.017	Inlet Capacity				
H01/03	12.89		0.07		0.75	0.013	Inlet Capacity				
I01/01	13.08		0.045		1.02	0.004	Inlet Capacity				
I01/02	12.87		0.062		0.75	0.01	Inlet Capacity				
I01/03	12.79	13.47	0.045	0.4	0.62	0	Inlet Capacity				
I01/04	12.74	13.27	0.03	0.2	0.48	0	Inlet Capacity				
J01/01	13.16		0.034		0.9	0	Inlet Capacity				
J01/02	12.71	13.91	0.103	11.5	1.05	0.035	Inlet Capacity				
J01/03	10.94	13.99	0.161	11.7	2.9	0.092	Inlet Capacity				
J01/05	8.79		0		2.71		None				
J01/06	8.41		0		2.09		None				
M5_Surcharge	7.8	8.28	0.543	0.5	0		Outlet System				
PR_M5	5.08		0.596								
J01/04	12.55		0.024		1.63	0	None				
J03/01	13.62		0.144		1.13	0.051	Inlet Capacity				
J04/01	13.72		0.072		1.15	0.016	Inlet Capacity				
Z01/01	14.14		0.157		0.16	0	None				
Z04/01	14.01		0.061		0.8	0	None				
Z02/01	14.42		0.17		0.18	0	None				
E01/02	14.1	14.12	0.581	13.1	0	0.555	Outlet System				

Z03/01	14.48		0.838		0.02	0.154	Inlet Capacity					
E01/01	14.17		0.186		0	0.553	Outlet System					
Pit125474	9.91		0.282		1.59		None					
G04/02	9.3		0.014		1.9	0	None					
G04/01	9.29		0.168		2.21	0.067	Inlet Capacity					
SUB-CATCHMENT DETAILS												
Name	Max	Paved	Grassed	Paved	Grassed	Supp.	Due to Storm					
	Flow Q	Max Q	Max Q	Tc	Tc	Tc						
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)						
C A01/02	0.018	0.017	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C A01/01	0.038	0.037	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C B01/03	0.06	0.058	0.003	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C B01/04	0.112	0.107	0.005	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C B01/05	0.028	0.026	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C B01/06	0.029	0.027	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C B01/07	0.038	0.036	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C B01/08	0.039	0.037	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C G01/03	0.08	0.076	0.004	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C G01/04	0.077	0.074	0.004	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
Cat410248	0.152	0.145	0.007	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C B01/02	0.025	0.024	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C B01/01	0.035	0.033	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C B02/01	0.03	0.029	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C C02/01	0.078	0.074	0.004	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C C02/02	0.062	0.059	0.003	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C C01/01	0.031	0.03	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C C01/02	0.057	0.054	0.003	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C C01/03	0.052	0.049	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C C01/04	0.043	0.041	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C C01/05	0.044	0.042	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C C01/06	0.045	0.043	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C C01/07	0.032	0.031	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C C01/08	0.077	0.073	0.004	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C C01/09	0.039	0.037	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C D01/01	0.02	0.019	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C D01/02	0.019	0.018	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C D01/03	0.02	0.019	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C D01/04	0.018	0.017	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C D01/05	0.014	0.013	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C E01/03	0.044	0.042	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C E01/04	0.04	0.038	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C F01/05	0.029	0.027	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C F01/06	0.041	0.039	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C F01/07	0.018	0.017	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C F01/08	0.057	0.055	0.003	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C G01/01	0.11	0.104	0.005	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C G01/02	0.054	0.052	0.003	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C EX01/01	0.038	0.036	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C EX01/02	0.057	0.054	0.003	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C F01/01	0.007	0.007	0	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C F01/02	0.017	0.017	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C F01/03	0.022	0.021	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C F01/04	0.021	0.02	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C EX02/01	0.123	0.115	0.009	7	9	0	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1					
C EX03/01	0.062	0.059	0.003	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C G02/01	0.027	0.026	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C G03/01	0.024	0.023	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C G03/02	0.025	0.024	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C H01/01	0.079	0.075	0.004	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C H01/02	0.055	0.052	0.003	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C H01/03	0.053	0.051	0.003	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C I01/01	0.045	0.043	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C I01/02	0.058	0.055	0.003	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C I01/03	0.035	0.034	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C I01/04	0.03	0.029	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C J01/01	0.034	0.032	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C J01/02	0.086	0.082	0.004	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C J01/03	0.077	0.074	0.004	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
M5_North	0.456	0.111	0.345	5	8	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1					
C J01/04	0.024	0.022	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C J03/01	0.144	0.132	0.012	8	10	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1					
C J04/01	0.072	0.069	0.003	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C Z01/01	0.157	0.102	0.055	7	9	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1					
C Z04/01	0.061	0.045	0.016	8	10	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1					
C Z02/01	0.17	0.11	0.06	7	9	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1					
C E01/02	0.041	0.039	0.002	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C Z03/01	0.838	0.202	0.646	14	16	0	AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1					
C E01/01	0.03	0.028	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C_ABB	0.2	0.025	0.175	2	8	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1					
C G04/02	0.014	0.013	0.001	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C G04/01	0.081	0.077	0.004	5	7	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C PR G01	1.932	1.932	0	5	0	0	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C_Northen_We	0.888	0.307	0.582	5	8	0	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1					
Outflow Volumes for Total Catchment (10.3 impervious + 5.61 pervious = 15.9 total ha)												
Storm	Total Rainfall	Total Runoff	Impervious Run	Pervious Runoff								
	cu.m	cu.m (Runoff %	cu.m (Runoff %	cu.m (Runoff %)								
AR&R 100 year	2977.69	2324.91 (78.1%	1826.70 (94.6%	498.21 (47.6%)								
AR&R 100 year	5738.64	4882.88 (85.1%	3616.28 (97.2%	1266.60 (62.7%)								
AR&R 100 year	7465.21	6440.99 (86.3%	4735.39 (97.9%	1705.59 (64.9%)								
AR&R 100 year	9821.13	8544.97 (87.0%	6262.46 (98.4%	2282.51 (66.1%)								
AR&R 100 year	11121.81	9704.03 (87.3%	7105.56 (98.6%	2598.47 (66.4%)								
AR&R 100 year	13131.43	11484.48 (87.5	8408.19 (98.8%	3076.29 (66.6%)								
AR&R 100 year	14698.81	12863.65 (87.5	9424.02 (98.9%	3439.63 (66.5%)								

AR&R 100 year	22291.19	19228.71 (86.3	14345.35 (99.3	4883.36 (62.3%)								
AR&R 100 year	26111.1	22146.05 (84.8	16820.67 (99.4	5325.38 (58.0%)								
AR&R 100 year	29328.24	24807.96 (84.6	18906.99 (99.5	5900.97 (57.2%)								
AR&R 100 year	39265.92	31816.26 (81.0	25349.39 (99.6	6466.86 (46.8%)								
PIPE DETAILS												
Name	Max Q	Max V	Max U/S	Max D/S	Due to Storm							
	(cu.m/s)	(m/s)	HGL (m)	HGL (m)								
P A01/02	0.042	0.27	13.398	13.384	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P A01/01	0.076	0.48	13.38	13.308	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P B01/03	0.167	0.77	13.28	13.25	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P B01/04	0.685	1.28	13.146	13.133	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P B01/05	0.707	1.32	13.057	13.011	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P B01/06	0.719	1.35	12.95	12.913	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P B01/07	0.747	1.4	12.849	12.811	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P B01/08	0.792	1.25	12.707	12.683	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P G01/03	2.592	1.44	12.388	12.308	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P G01/04	2.654	1.47	12.131	11.93	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P_GIS BYPASS	0.601	2.13	11.517	11.107	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P G01/05	2.128	3.5	10.905	10.505	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P_GIS01	0.601	2.37	10.649	8.718	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P_GIS02	0.596	2.37	7.619	5	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1							
P B01/02	0.025	1.73	13.976	13.33	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P B01/01	0.058	0.66	13.319	13.308	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P B02/01	0.049	0.31	12.823	12.811	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P C02/01	0.06	0.54	14.747	14.777	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P C02/02	0.094	0.85	14.729	14.738	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P C01/01	0.113	1.03	14.71	14.592	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P C01/02	0.142	1.29	14.547	14.459	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P C01/03	0.174	1.58	14.417	14.347	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P C01/04	0.207	1.87	14.272	14.193	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P C01/05	0.255	2.31	14.1	13.986	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P C01/06	0.299	1.88	13.902	13.815	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P C01/07	0.336	2.12	13.641	13.498	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P C01/08	0.4	1.42	13.377	13.337	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P C01/09	0.434	1.21	13.289	13.25	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P D01/01	0.071	0.44	14.409	14.372	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1							
P D01/02	0.113	0.71	14.366	14.408	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P D01/03	0.141	0.89	14.381	14.246	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P D01/04	0.161	1.01	14.211	14.046	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P D01/05	0.187	1.18	13.97	13.929	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P E01/03	1.148	1.8	13.774	13.742	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1							
P E01/04	1.176	1.85	13.667	13.648	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1							
P F01/05	1.487	1.65	13.456	13.432	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P F01/06	1.453	1.62	13.254	13.198	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P F01/07	1.503	1.67	13.103	13.036	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1							
P F01/08	1.561	1.74	12.932	12.853	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1							
P G01/01	1.815	1.01	12.741	12.73	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P G01/02	1.846	1.03	12.694	12.683	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P EX01/01	0.045	0.4	14.783	14.741	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P EX01/02	0.099	0.9	14.728	14.476	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P EX01/03	0.261	1.64	14.323	14.16	AR&R 100 year, 45 minutes storm, average 82.1 mm/h, Zone 1							
P F01/01	0.285	1.79	14.082	13.956	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P F01/02	0.326	1.15	13.879	13.835	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P F01/03	0.331	1.17	13.79	13.741	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P F01/04	0.342	1.21	13.665	13.648	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P EX02/01	0.142	0.89	14.423	14.476	AR&R 100 year, 45 minutes storm, average 82.1 mm/h, Zone 1							
P EX03/01	0.131	0.82	14.509	14.476	AR&R 100 year, 45 minutes storm, average 82.1 mm/h, Zone 1							
P G02/01	0.026	4.13	12.34	12.308	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P G03/01	0.024	2.25	10.459	10.136	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P G03/02	0.05	2.26	10.041	9.514	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P G01/06	2.16	2.19	8.975	8.667	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P G01/07	2.154	2.58	8.371	8.375	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P G01/08	2.155	3.18	8.063	7.809	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P G01/09	2.162	3.13	7.655	6.977	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P G01/10	2.161	2.88	5.569	5.256	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P H01/01	0.058	1.69	13.006	12.935	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P H01/02	0.115	0.59	12.916	12.894	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P H01/03	0.168	0.77	12.877	12.853	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P I01/01	0.049	1.89	12.983	12.87	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P I01/02	0.095	0.86	12.849	12.794	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1							
P I01/03	0.136	0.86	12.769	12.743	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P I01/04	0.165	1.04	12.706	12.683	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P J01/01	0.033	1.47	13.065	12.712	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P J01/02	0.152	2.26	12.573	12.517	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P145345	0.333	5.08	10.595	8.794	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P145344	0.341	1.57	8.577	8.413	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P145266	0.343	1.58	8.196	7.801	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P_M5_Surcharg	0.852	2.34	7.345	5.076	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P J01/03	0.023	1.81	12.502	12.372	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P J03/01	0.093	2.26	13.434	12.523	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P J04/01	0.056	2.08	13.586	12.712	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P Z01/01	0.158	1.43	13.969	13.929	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P Z04/01	0.075	0.67	13.971	13.957	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1							
P Z02/01	0.169	1.53	14.16	14.102	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1							
P E01/02	0.991	2.24	14.007	13.929	AR&R 100 year, 2 hours storm, average 46.1 mm/h, Zone 1							
P Z03/01	0.745	1.69	14.21	14.167	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1							
P E01/01	0.764	1.73	14.114	14.102	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1							
P140127	0.282	3.11	9.73	9.297	AR&R 100 year, 9 hours storm, average 18.2 mm/h, Zone 1							
P G04/02	0.3	0.47	9.297	9.295	AR&R 100 year, 12 hours storm, average 15.3 mm/h, Zone 1							
P G04/01	0.32	0.5	9.294	9.29	AR&R 100 year, 12 hours storm, average 15.3 mm/h, Zone 1							
P_NW	0.151	2.13	8.193	8.169	AR&R 100 year, 45 minutes storm, average 82.1 mm/h, Zone 1							
CHANNEL DETAILS												
Name	Max Q	Max V			Due to Storm							
	(cu.m/s)	(m/s)										

OVERFLOW ROUTE DETAILS												
Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm				
F A01/02	0	0.031	0	0.077	0.08	1.22	0.97	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F A01/01	0.002	0.032	4.826	0.079	0.08	1.27	0.97	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F B01/03	0.01	0.044	0	0.08	0.1	1.31	1.25	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F B01/04	0.022	0.027	0	0.026	0.01	8.53	0.25	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F B01/05	0.004	0.03	0	0.078	0.07	1.25	0.92	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F B01/06	0	0.019	0	0.073	0.05	1.06	0.72	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F B01/07	0.001	0.021	0	0.074	0.06	1.11	0.75	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F B01/08	0.002	0.026	0	0.077	0.06	1.22	0.82	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F G01/03	0	0.023	0	0.02	0.01	6.74	0.34	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F G01/04	0.03	0.067	0	0.03	0.01	10.02	0.44	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF G01/05	0.087	0.107	5.451	0.035	0.02	11.09	0.52	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
OF_PR_GIS	0.596	0.596	0	0.07	0.06	18.1	0.83	AR&R 100 year, 1.5 hours storm, average 54.9 mm/h, Zone 1				
F B01/02	0	0.035	0	0.073	0.1	1.09	1.31	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F B01/01	0.001	0.037	0	0.075	0.1	1.15	1.27	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F B02/01	0	0.027	0	0.078	0.07	1.25	0.84	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F C02/01	0.069	0.074	0	0.035	0.01	11.09	0.36	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F C02/02	0.011	0.042	0	0.098	0.06	1.92	0.64	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F C01/01	0.033	0.066	0	0.105	0.09	2.15	0.84	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F C01/02	0.067	0.103	0	0.12	0.11	2.65	0.9	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F C01/03	0.099	0.131	0	0.13	0.12	2.97	0.93	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F C01/04	0.118	0.149	0	0.132	0.13	3.03	1.01	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F C01/05	0.129	0.159	0	0.133	0.14	3.06	1.06	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F C01/06	0.083	0.108	0	0.11	0.13	2.31	1.21	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F C01/07	0.073	0.09	0	0.109	0.11	2.29	1.02	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F C01/08	0.063	0.072	0	0.031	0.01	10.2	0.45	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F C01/09	0.05	0.064	0	0.045	0.01	13.07	0.2	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F D01/01	0.025	0.041	0	0.089	0.08	1.61	0.86	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F D01/02	0.003	0.021	0	0.072	0.06	1.04	0.82	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F D01/03	0.004	0.021	0	0.072	0.06	1.04	0.81	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F D01/04	0	0.014	0	0.064	0.05	0.77	0.78	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F D01/05	0	0.013	0	0.064	0.05	0.79	0.72	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F E01/03	0.492	0.498	0	0.065	0.05	17.02	0.8	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F E01/04	0.477	0.481	0	0.074	0.05	18.82	0.61	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F F01/05	0.397	0.406	0	0.177	0.22	5.34	1.22	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F F01/06	0.322	0.327	0	0.166	0.2	4.8	1.19	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F F01/07	0.238	0.257	0	0.158	0.17	4.34	1.06	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F F01/08	0.164	0.174	0	0.161	0.11	4.51	0.69	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F G01/01	0	0.016	0	0.018	0.01	5.84	0.32	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F G01/02	0	0.024	0	0.02	0.01	6.74	0.35	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F EX01/01	0.001	0.057	5.523	0.098	0.09	1.9	0.9	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F EX01/02	0.008	0.068	0	0.103	0.1	2.06	0.93	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F F01/01	0	0.017	0	0.068	0.05	0.93	0.79	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F F01/02	0	0.022	0	0.073	0.06	1.09	0.81	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F F01/03	0	0.021	0	0.072	0.06	1.04	0.83	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F F01/04	0	0.02	0	0.077	0.05	1.22	0.64	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F EX02/01	0.058	0.079	0	0.105	0.11	2.13	1.02	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F EX03/01	0.021	0.023	0	0.026	0.01	8.53	0.21	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F G02/01	0	0.046	0	0.026	0.01	8.83	0.39	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F G03/01	0	0.025	0	0.076	0.06	1.18	0.84	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F G03/02	0	0.032	0	0.072	0.09	1.04	1.27	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF G01/06	0	0.06	0	0.029	0.01	9.73	0.42	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF G01/07	0	0	4.824	0	0	0	0					
OF G01/08	0	0	0	0	0	0	0					
OF G01/09	0	0	0	0	0	0	0					
OF G01/10	0	0	0	0	0	0	0					
OF_South EASE	2.161	2.161	0	0.12	0.14	27.98	1.16	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F H01/01	0.021	0.075	5.114	0.101	0.11	2.01	1.07	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F H01/02	0.017	0.068	0	0.109	0.09	2.26	0.79	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F H01/03	0.013	0.045	0	0.099	0.07	1.95	0.67	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F I01/01	0.004	0.061	0	0.093	0.1	1.74	1.12	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F I01/02	0.01	0.045	0	0.098	0.07	1.92	0.7	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F I01/03	0	0.03	0	0.081	0.07	1.34	0.84	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F I01/04	0	0.08	0	0.108	0.1	2.24	0.94	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F J01/01	0	0.026	0	0.078	0.06	1.25	0.81	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F J01/02	0.035	0.057	0	0.028	0.01	9.43	0.43	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F J01/03	0.092	0.223	0	0.047	0.03	13.43	0.64	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
OF_PR_M5	1.415	1.415	0	0.1	0.11	24.03	1.05	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F J01/04	0	0.023	0	0.071	0.07	1.02	0.94	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F J03/01	0.051	0.051	10.011	0.077	0.12	1.22	1.6	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F J04/01	0.016	0.032	0	0.071	0.09	1.02	1.31	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F Z01/01	0	0	5.5	0	0	0	0					
F Z04/01	0	0	0	0	0	0	0					
F Z02/01	0	0	0	0	0	0	0					
F E01/02	0.555	0.562	0	0.069	0.06	17.74	0.82	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F Z03/01	0.154	0.154	0	0.041	0.02	12.17	0.57	AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1				
F E01/01	0.553	0.556	5.051	0.195	0.25	6.23	1.28	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
OF_PR_ABB	2.28	2.28	0	0.123	0.14	28.52	1.18	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
ABB_Site	0.24	0.24	0	0.049	0.03	13.79	0.64	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
OF G04/02	0	0.06	0	0.029	0.01	9.73	0.42	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF G04/01	0.067	0.115	0	0.036	0.02	11.27	0.53	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
OF561722	0.282	0.282	0	0.052	0.04	14.33	0.68	AR&R 100 year, 9 hours storm, average 18.2 mm/h, Zone 1				
Weir_NW	0.102	0.102	0	0.035	0.02	11.09	0.49	AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1				
OF_ABB_WEIR	0	0	0	0	0	0	0					
OF_PR_George	3.464	3.464	0	0.145	0.19	33.01	1.32	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
DETENTION BASIN DETAILS												
Name	Max WL	MaxVol	Max Q	Max Q	Max Q							
			Total	Low Level	High Level							
PR OSD 4	11.48	3403.3	0.282	0	0.282							
Northern Wetla	8.24	770	0.253	0.151	0.102							
CONTINUITY CHECK for AR&R 100 year, 1 hour storm, average 69.7 mm/h, Zone 1												

Node	Inflow	Outflow	Storage Change	Difference
	(cu.m)	(cu.m)	(cu.m)	%
A01/02	21.09	21.06	0	0.1
A01/01	67.02	67.07	0	-0.1
B01/03	210.83	210.58	0	0.1
B01/04	997.16	997.24	0	0
B01/05	1030.17	1031.17	0	-0.1
B01/06	1065.36	1066.57	0	-0.1
B01/07	1111.67	1111.22	0	0
B01/08	1193.13	1194.56	0	-0.1
G01/03	4694.64	4706.82	0	-0.3
G01/04	4831.23	4850.96	0	-0.4
G01/05	5032.95	5050.69	0	-0.4
Council_GIS_1	1708.24	1712.89	0	-0.3
Coucnil_GIS_2	2652.4	2656.69	0	-0.2
PR GIS	2656.69	2656.32	0	0
B01/02	29.87	29.83	0	0.1
B01/01	71.81	71.5	0	0.4
B02/01	35.92	35.88	0	0.1
C02/01	92.66	92.62	0	0
C02/02	152.21	151.93	0	0.2
C01/01	189.12	189.25	0	-0.1
C01/02	256.84	256.64	0	0.1
C01/03	318.51	318.3	0	0.1
C01/04	369.32	369.12	0	0.1
C01/05	421.47	421.38	0	0
C01/06	475.46	475.34	0	0
C01/07	514.19	513.79	0	0.1
C01/08	605.72	605.11	0	0.1
C01/09	651.19	652.22	0	-0.2
D01/01	38.33	38.1	0	0.6
D01/02	60.72	60.86	0	-0.2
D01/03	84.54	85.38	0	-1
D01/04	107.33	107.99	0	-0.6
D01/05	124.69	124.7	0	0
E01/03	2022.13	2026.44	0	-0.2
E01/04	2074.53	2077	0	-0.1
F01/05	2623.47	2624.93	0	-0.1
F01/06	2673.49	2676.08	0	-0.1
F01/07	2697.17	2700.58	0	-0.1
F01/08	2769.03	2773.75	0	-0.2
G01/01	3126.99	3133.9	0	-0.2
G01/02	3198.55	3203.32	0	-0.1
EX01/01	45.23	45.17	0	0.1
EX01/02	113.02	112.94	0	0.1
EX01/03	349.05	348.75	0	0.1
F01/01	358.42	358.14	0	0.1
F01/02	459.94	460.25	0	-0.1
F01/03	486.39	486.78	0	-0.1
F01/04	511.93	512.08	0	0
EX02/01	164.15	164.03	0	0.1
EX03/01	74.94	74.88	0	0.1
G02/01	32.06	32.01	0	0.2
G03/01	29.07	29.07	0	0
G03/02	59.07	59.03	0	0.1
G01/06	3566.61	3572.64	0	-0.2
G01/07	3572.64	3581.89	0	-0.3
G01/08	3581.89	3590.08	0	-0.2
G01/09	3590.08	3604.9	0	-0.4
G01/10	3604.9	3617.77	0	-0.4
N639861	3617.77	3617.73	0	0
H01/01	94.46	94.37	0	0.1
H01/02	160.03	159.66	0	0.2
H01/03	223.12	222.26	0	0.4
I01/01	54.15	54.07	0	0.1
I01/02	123.58	123.13	0	0.4
I01/03	165.17	165.33	0	-0.1
I01/04	201.45	201.37	0	0
J01/01	40.24	40.13	0	0.3
J01/02	229.18	229.42	0	-0.1
J01/03	547.69	547.99	0	-0.1
J01/05	539.13	539.12	0	0
J01/06	539.12	539.3	0	0
M5_Surcharge	1144.08	1148.12	0	-0.4
PR_M5	3804.07	3803.69	0	0
J01/04	28.14	28.08	0	0.2
J03/01	197.99	197.92	0	0
J04/01	86.34	86.15	0	0.2
Z01/01	200.71	200.57	0	0.1
Z04/01	80.76	80.92	0	-0.2
Z02/01	216.38	216.12	0	0.1
E01/02	1639.41	1643.98	0	-0.3
Z03/01	1335.75	1336.24	0	0
E01/01	1371.89	1373.73	0	-0.1
PRABB	3861.18	3861.14	0	0
ABB	244.34	244.34	0	0
Pit125474	63.76	61.52	0	3.5
G04/02	78.01	87.37	0	-12
G04/01	224.09	225.73	0	-0.7
PR OSD 4	2254.86	63.8	2191.08	0
Northern Wetla	1024.29	1017.01	7.28	0
PR Georges	7655.59	7655.1	0	0
PR_Out	7644.54	7644.54	0	0
Run Log for Proposed_Rev01_DC.drn run at 15:17:39 on 28/3/2017				

Upwelling occurred at E01/02 E01/01 C01/03 C01/01

Freeboard was less than 0.15m at M5_Surcharge Z03/01 EX03/01 EX02/01 E01/03 D01/05 D01/04 D01/03 C02/02 C02/01 C01/08 C01/07 C01/06 C01/05 C01/04 C01/02

Flows were safe in all overflow routes.

The following overflow routes carried water uphill (adding energy): Weir_NW OF561722 F B01/08 F C01/08 F E01/02 F E01/03 F F01/08 F J01/02

These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.

ARCADIS Design & Consultancy for natural and built assets

PROJECT	Moorebank	JOB No		AA008765	
		PREPARED	DC	DATE	28/03/2017
TITLE	20 YEAR	CHECKED	BC	DATE	28/03/2017

DRAINS File Path:	F:\AA008765\D-Calculations\Civil\Stormwater\MPW_Stage2
DRAINS Version:	DRAINS Version 2017.06
Modeller's Name:	Darlan Castro
Description:	Drainage Modelling for ABB site

DRAINS results prepared from Version 2017.06

RESULTS 10 YEAR ARI

PIT / NODE DETAILS				Version 8								
Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint					
A01/02	12.85		0.013		1.16	0	None					
A01/01	12.66		0.028		1.2	0	None					
B01/03	12.43		0.044		1.16	0.003	Inlet Capacity					
B01/04	12.04	13.51	0.086	1.6	1.37	0	Inlet Capacity					
B01/05	11.86		0.02		1.65	0	None					
B01/06	11.72		0.021		1.71	0	None					
B01/07	11.65		0.028		1.68	0	None					
B01/08	11.59		0.028		1.64	0	None					
G01/03	11.51	13.22	0.058	0.3	1.63	0	Inlet Capacity					
G01/04	11.29	14.06	0.057	6	2.65	0.01	Inlet Capacity					
G01/05	11.07		0.121		1.44	0.042	Inlet Capacity					
Council_GIS_	10.43		0		0.38		None					
Coucnil_GIS_	7.73		0		2.57		None					
PR GIS	4.99		0									
B01/02	14.03		0.018		1	0	None					
B01/01	13.19		0.026		1.07	0	None					
B02/01	12.45		0.022		1.12	0	None					
C02/01	14.7	14.78	0.057	0.9	0	0.03	Outlet System					
C02/02	14.69		0.045		0.16	0.004	Inlet Capacity					
C01/01	14.62		0.027		0.12	0	None					
C01/02	14.53		0.041		0.07	0.003	Inlet Capacity					
C01/03	14.35		0.04		0.11	0.002	Inlet Capacity					
C01/04	14.09		0.033		0.26	0	Inlet Capacity					
C01/05	13.62		0.032		0.57	0	Inlet Capacity					
C01/06	13.04		0.033		0.98	0	Inlet Capacity					
C01/07	12.8		0.024		1.02	0	None					
C01/08	12.37	13.66	0.056	2.5	1.16	0	Inlet Capacity					
C01/09	12.16	13.67	0.028	1.3	1.42	0	Inlet Capacity					
D01/01	13.59		0.044		1.13	0.003	Inlet Capacity					
D01/02	13.41		0.015		1.17	0	None					
D01/03	13.23		0.014		1.2	0	None					
D01/04	13.05		0.013		1.24	0	None					
D01/05	12.56		0.01		1.61	0	None					
E01/03	12.53	14.08	0.032	0.5	1.5	0	Inlet Capacity					
E01/04	12.34	14.14	0.029	0.6	1.71	0	Inlet Capacity					
F01/05	12.23		0.021		1.66	0	None					
F01/06	12.04		0.03		1.8	0	Inlet Capacity					
F01/07	11.85		0.013		1.91	0	None					
F01/08	11.72		0.042		1.87	0.003	Inlet Capacity					
G01/01	11.61	13.57	0.086	1.6	1.85	0	Inlet Capacity					
G01/02	11.54	13.58	0.04	1.5	1.94	0	Inlet Capacity					
EX01/01	14.22		0.028		1.07	0	None					
EX01/02	13.85		0.042		1.07	0.003	Inlet Capacity					
EX01/03	13.39		0		1.25		None					
F01/01	12.84		0.005		1.6	0	None					
F01/02	12.59		0.013		1.73	0	None					
F01/03	12.42		0.016		1.72	0	None					
F01/04	12.31		0.015		1.66	0	None					
EX02/01	13.44		0.092		1	0	None					
EX03/01	13.52	14.66	0.048	0.8	1.01	0	Inlet Capacity					
G02/01	12.41	13.76	0.02	0.3	1.28	0	Inlet Capacity					
G03/01	10.52		0.018		1.14	0	None					
G03/02	10.1		0.018		1.09	0	None					
G01/06	8.94		0		3.06	0	None					
G01/07	8.42		0		2.98	0	None					
G01/08	8.18		0		2.81	0	None					
G01/09	7.65		0		3.25	0	None					
G01/10	5.64		0		4.96	0	None					
N639861	5.12		0									
H01/01	13.05		0.058		0.96	0.009	Inlet Capacity					
H01/02	12.68		0.049		1.16	0.005	Inlet Capacity					
H01/03	12.47		0.043		1.17	0.003	Inlet Capacity					
I01/01	13.03		0.033		1.06	0	Inlet Capacity					
I01/02	12.57		0.043		1.05	0.003	Inlet Capacity					
I01/03	12.33	13.45	0.029	0.2	1.08	0	Inlet Capacity					
I01/04	12.1	13.26	0.022	0.2	1.12	0	Inlet Capacity					
J01/01	13.13		0.025		0.92	0	None					
J01/02	12.67	13.9	0.069	9.3	1.09	0	Inlet Capacity					
J01/03	10.91	13.99	0.083	11.3	2.93	0	Inlet Capacity					
J01/05	8.08		0		3.42		None					
J01/06	7.63		0		2.87		None					
M5_Surcharg	7.1	8.11	0.332	0.3	0.67		Inlet Capacity					
PR_M5	4.97		0.559									
J01/04	12.53		0.017		1.65	0	None					
J03/01	13.59		0.107		1.17	0.027	Inlet Capacity					
J04/01	13.7		0.053		1.17	0.006	Inlet Capacity					
Z01/01	12.63		0.115		1.67	0	None					
Z04/01	12.68		0.044		2.13	0	None					
Z02/01	13.02		0.123		1.59	0	None					
E01/02	12.88	13.92	0.03	0.9	1	0	Inlet Capacity					

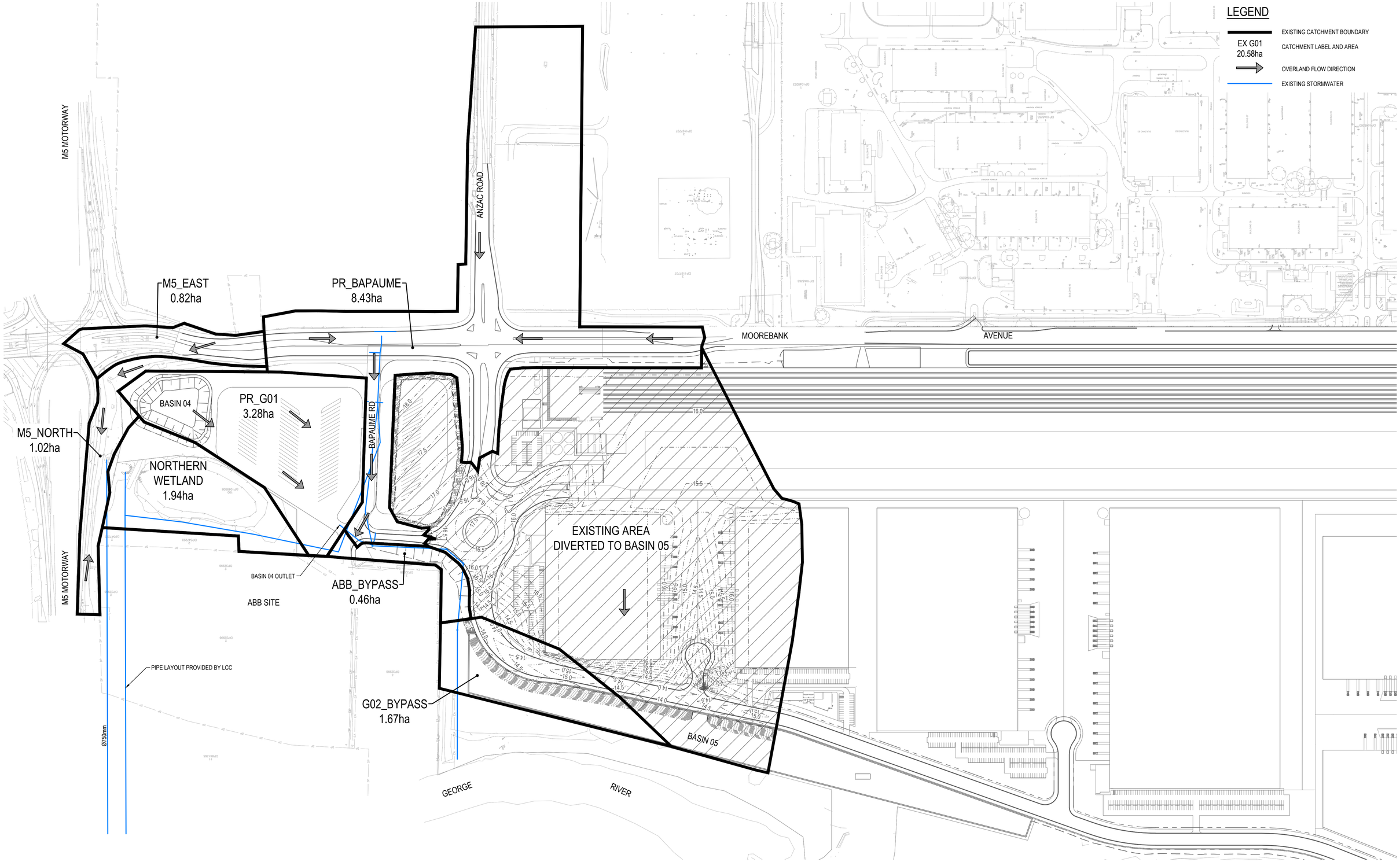
Z03/01	13.31		0.555		1.19	0	None					
E01/01	13.1		0.022		1.07	0	None					
Pit125474	9.76		0.115		1.74		None					
G04/02	8.94		0.01		2.26	0	None					
G04/01	8.94		0.101		2.56	0.024	Inlet Capacity					
SUB-CATCHMENT DETAILS												
Name	Max	Paved	Grassed	Paved	Grassed	Supp.	Due to Storm					
	Flow Q	Max Q	Max Q	Tc	Tc	Tc						
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)						
C A01/02	0.013	0.012	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C A01/01	0.028	0.026	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C B01/03	0.044	0.041	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C B01/04	0.082	0.076	0.006	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C B01/05	0.02	0.019	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C B01/06	0.021	0.019	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C B01/07	0.028	0.025	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C B01/08	0.028	0.026	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C G01/03	0.058	0.054	0.005	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C G01/04	0.057	0.052	0.004	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
Cat410248	0.111	0.103	0.009	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C B01/02	0.018	0.017	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C B01/01	0.026	0.024	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C B02/01	0.022	0.02	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C C02/01	0.057	0.052	0.004	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C C02/02	0.045	0.042	0.004	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C C01/01	0.023	0.021	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C C01/02	0.041	0.038	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C C01/03	0.038	0.035	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C C01/04	0.031	0.029	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C C01/05	0.032	0.03	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C C01/06	0.033	0.031	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C C01/07	0.024	0.022	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C C01/08	0.056	0.052	0.004	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C C01/09	0.028	0.026	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C D01/01	0.014	0.013	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C D01/02	0.014	0.013	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C D01/03	0.014	0.013	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C D01/04	0.013	0.012	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C D01/05	0.01	0.009	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C E01/03	0.032	0.03	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C E01/04	0.029	0.027	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C F01/05	0.021	0.019	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C F01/06	0.03	0.027	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C F01/07	0.013	0.012	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C F01/08	0.042	0.039	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C G01/01	0.08	0.074	0.006	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C G01/02	0.04	0.037	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C EX01/01	0.028	0.026	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C EX01/02	0.042	0.038	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C F01/01	0.005	0.005	0	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C F01/02	0.013	0.012	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C F01/03	0.016	0.015	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C F01/04	0.015	0.014	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C EX02/01	0.092	0.085	0.007	7	9	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C EX03/01	0.045	0.042	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C G02/01	0.02	0.018	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C G03/01	0.018	0.016	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C G03/02	0.018	0.017	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C H01/01	0.058	0.053	0.004	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C H01/02	0.04	0.037	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C H01/03	0.039	0.036	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C I01/01	0.033	0.031	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C I01/02	0.043	0.039	0.003	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C I01/03	0.026	0.024	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C I01/04	0.022	0.02	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C J01/01	0.025	0.023	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C J01/02	0.063	0.058	0.005	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C J01/03	0.056	0.052	0.004	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
M5_North	0.332	0.085	0.247	5	8	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C J01/04	0.017	0.016	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C J03/01	0.107	0.1	0.008	8	10	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C J04/01	0.053	0.049	0.004	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C Z01/01	0.115	0.077	0.038	7	9	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C Z04/01	0.044	0.034	0.01	8	10	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C Z02/01	0.123	0.083	0.041	7	9	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C E01/02	0.03	0.028	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C Z03/01	0.555	0.137	0.421	14	16	0	AR&R 10 year, 2 hours storm, average 31.3 mm/h, Zone 1					
C E01/01	0.022	0.02	0.002	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C_ABB	0.145	0.019	0.125	2	8	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C G04/02	0.01	0.009	0.001	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C G04/01	0.059	0.055	0.005	5	7	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C PR G01	1.369	1.369	0	5	0	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
C_Northen_W	0.651	0.234	0.416	5	8	0	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1					
Outflow Volumes for Total Catchment (10.3 impervious + 5.61 pervious = 15.9 total ha)												
Storm	Total Rainfall	Total Runoff	Impervious Ru	Pervious Runoff								
	cu.m	cu.m (Runoff	cu.m (Runoff	cu.m (Runoff %)								
AR&R 10 yea	2039.92	1394.83 (68.4	1218.87 (92.2	175.97 (24.5%)								
AR&R 10 yea	5118.07	4123.82 (80.6	3214.05 (96.9	909.77 (50.5%)								
AR&R 10 yea	5588.08	4512.65 (80.8	3518.69 (97.1	993.96 (50.6%)								
AR&R 10 yea	6718.67	5472.64 (81.5	4251.52 (97.6	1221.12 (51.7%)								
AR&R 10 yea	7593.18	6207.63 (81.8	4818.37 (97.9	1389.26 (52.0%)								
AR&R 10 yea	8934.12	7311.57 (81.8	5687.52 (98.2	1624.05 (51.7%)								
AR&R 10 yea	9973.82	8159.70 (81.8	6361.43 (98.4	1798.27 (51.2%)								

AR&R 10 yea	14944.78	12064.26 (80.	9583.41 (98.9	2480.86 (47.2%)								
AR&R 10 yea	17395.71	13828.99 (79.	11172.06 (99.	2656.93 (43.4%)								
AR&R 10 yea	19432.04	15487.85 (79.	12492.84 (99.	2995.01 (43.8%)								
AR&R 10 yea	25525.08	19366.97 (75.	16442.96 (99.	2924.02 (32.6%)								
PIPE DETAILS												
Name	Max Q	Max V	Max U/S	Max D/S	Due to Storm							
	(cu.m/s)	(m/s)	HGL (m)	HGL (m)								
P A01/02	0.013	1.08	12.799	12.662	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P A01/01	0.041	1.63	12.621	12.429	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P B01/03	0.123	2.49	12.318	12.035	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P B01/04	0.574	1.92	11.884	11.857	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P B01/05	0.586	1.89	11.755	11.72	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P B01/06	0.592	1.45	11.667	11.649	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P B01/07	0.604	1.32	11.603	11.586	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P B01/08	0.637	1.12	11.52	11.51	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G01/03	1.969	1.09	11.339	11.29	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G01/04	2.029	1.13	11.186	11.067	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P_GIS BYPAS	0.527	1.86	10.748	10.431	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G01/05	1.552	3.3	10.688	10.3	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P_GIS01	0.525	2.19	10.1	8.689	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P_GIS02	0.559	2.27	7.249	4.988	AR&R 10 year, 1.5 hours storm, average 37.4 mm/h, Zone 1							
P B01/02	0.018	1.58	13.965	13.187	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P B01/01	0.043	2.01	13.136	12.429	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P B02/01	0.022	2.41	12.368	11.586	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P C02/01	0.056	0.51	14.689	14.689	AR&R 10 year, 1.5 hours storm, average 37.4 mm/h, Zone 1							
P C02/02	0.091	0.82	14.64	14.616	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P C01/01	0.11	1	14.586	14.525	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P C01/02	0.141	1.28	14.466	14.348	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P C01/03	0.172	1.55	14.251	14.09	AR&R 10 year, 1.5 hours storm, average 37.4 mm/h, Zone 1							
P C01/04	0.204	1.84	13.864	13.624	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P C01/05	0.236	2.13	13.369	13.042	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P C01/06	0.268	1.69	12.926	12.801	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P C01/07	0.292	2.05	12.585	12.374	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P C01/08	0.345	2.36	12.155	12.161	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P C01/09	0.371	1.68	12.077	12.035	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P D01/01	0.037	3.13	13.481	13.405	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P D01/02	0.049	1.58	13.364	13.247	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P D01/03	0.06	1.63	13.182	13.077	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P D01/04	0.069	2.42	12.975	12.557	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P D01/05	0.076	0.63	12.536	12.529	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P E01/03	0.847	1.75	12.323	12.341	AR&R 10 year, 1.5 hours storm, average 37.4 mm/h, Zone 1							
P E01/04	0.864	1.58	12.26	12.234	AR&R 10 year, 1.5 hours storm, average 37.4 mm/h, Zone 1							
P F01/05	1.124	1.71	12.036	12.04	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F01/06	1.123	1.71	11.881	11.851	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F01/07	1.129	1.59	11.767	11.722	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F01/08	1.178	1.47	11.648	11.61	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G01/01	1.311	0.73	11.543	11.537	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G01/02	1.334	0.74	11.515	11.51	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P EX01/01	0.027	1.68	14.147	13.848	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P EX01/02	0.065	1.6	13.799	13.391	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P EX01/03	0.215	4.43	13.199	12.841	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F01/01	0.202	1.86	12.755	12.648	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F01/02	0.254	1.85	12.476	12.418	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F01/03	0.263	1.51	12.357	12.314	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F01/04	0.268	1.23	12.249	12.234	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P EX02/01	0.092	1.01	13.407	13.391	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P EX03/01	0.052	1.35	13.414	13.391	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G02/01	0.019	5.15	12.328	12.279	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G03/01	0.018	2.05	10.451	10.103	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G03/02	0.036	2.05	10.026	9.499	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G01/06	1.591	2.79	8.603	8.42	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G01/07	1.584	2.37	8.225	8.178	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G01/08	1.587	2.95	7.947	7.651	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G01/09	1.597	3.03	7.518	6.845	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G01/10	1.593	3.9	5.068	5.123	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P H01/01	0.049	8.3	12.914	12.749	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P H01/02	0.092	2.92	12.58	12.474	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P H01/03	0.13	2.94	12.386	11.61	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P I01/01	0.036	2.41	12.949	12.569	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P I01/02	0.071	1.67	12.517	12.337	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P I01/03	0.099	1.86	12.269	12.102	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P I01/04	0.121	4.11	11.98	11.51	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P J01/01	0.024	1.35	13.052	12.67	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P J01/02	0.122	2.27	12.545	12.489	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P145345	0.28	5.18	10.572	8.078	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P145344	0.279	4.54	7.859	7.634	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P145266	0.283	4.12	7.406	7.103	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P_M5_Surcha	0.584	2.37	6.809	4.966	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P J01/03	0.017	1.78	12.491	12.358	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P J03/01	0.081	2.17	13.423	12.512	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P J04/01	0.046	1.97	13.576	12.67	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P Z01/01	0.114	1.48	12.525	12.529	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P Z04/01	0.043	1.57	12.603	12.59	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P Z02/01	0.123	1.17	12.937	12.885	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P E01/02	0.684	1.96	12.689	12.529	AR&R 10 year, 2 hours storm, average 31.3 mm/h, Zone 1							
P Z03/01	0.556	1.26	13.179	13.101	AR&R 10 year, 2 hours storm, average 31.3 mm/h, Zone 1							
P E01/01	0.566	1.35	12.98	12.885	AR&R 10 year, 2 hours storm, average 31.3 mm/h, Zone 1							
P140127	0.114	3.11	9.647	8.94	AR&R 10 year, 24 hours storm, average 6.7 mm/h, Zone 1							
P G04/02	0.118	0.23	8.94	8.937	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P G04/01	0.149	0.25	8.937	8.936	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P_NW	0.122	1.72	7.808	7.728	AR&R 10 year, 1 hour storm, average 47.6 mm/h, Zone 1							
CHANNEL DETAILS												
Name	Max Q	Max V			Due to Storm							
	(cu.m/s)	(m/s)										

OVERFLOW ROUTE DETAILS												
Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm				
F A01/02	0	0.022	0	0.07	0.07	0.97	0.96	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F A01/01	0	0.023	-4.5641E+33	0.071	0.07	1	0.94	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F B01/03	0.003	0.028	0	0.07	0.08	0.97	1.2	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F B01/04	0	0.006	0	0.015	0	4.94	0.17	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F B01/05	0	0.021	0	0.07	0.06	0.97	0.9	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F B01/06	0	0.014	0	0.066	0.05	0.84	0.7	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F B01/07	0	0.014	0	0.066	0.05	0.84	0.72	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F B01/08	0	0.018	0	0.068	0.05	0.93	0.79	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F G01/03	0	0.017	0	0.018	0.01	6.14	0.3	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F G01/04	0.01	0.035	0	0.024	0.01	7.93	0.37	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
OF G01/05	0.042	0.055	-4.8691E+13	0.028	0.01	9.43	0.41	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
OF_PR_GIS	0.559	0.559	0	0.069	0.06	17.74	0.81	AR&R 10 year, 1.5 hours storm, average 37.4 mm/h, Zone 1				
F B01/02	0	0.026	0	0.066	0.08	0.86	1.27	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F B01/01	0	0.027	0	0.068	0.08	0.91	1.24	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F B02/01	0	0.02	0	0.071	0.06	1	0.82	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F C02/01	0.03	0.034	0	0.026	0.01	8.83	0.29	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F C02/02	0.004	0.026	0	0.086	0.05	1.52	0.6	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F C01/01	0	0.025	0	0.079	0.06	1.27	0.75	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F C01/02	0.003	0.029	0	0.082	0.06	1.38	0.76	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F C01/03	0.002	0.027	0	0.081	0.06	1.34	0.75	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F C01/04	0	0.026	0	0.078	0.06	1.25	0.8	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F C01/05	0	0.027	0	0.078	0.06	1.25	0.82	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F C01/06	0	0.024	0	0.07	0.07	0.97	1.03	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F C01/07	0	0.017	0	0.066	0.06	0.84	0.86	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F C01/08	0	0.008	0	0.014	0	4.64	0.26	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F C01/09	0	0.016	0	0.027	0	9.13	0.13	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F D01/01	0.003	0.014	0	0.064	0.05	0.77	0.78	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F D01/02	0	0.014	0	0.064	0.05	0.79	0.78	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F D01/03	0	0.013	0	0.063	0.05	0.75	0.77	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F D01/04	0	0.01	0	0.058	0.04	0.57	0.74	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F D01/05	0	0.01	0	0.058	0.04	0.59	0.68	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F E01/03	0	0.009	0	0.014	0	4.64	0.27	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F E01/04	0	0.006	0	0.014	0	4.64	0.2	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F F01/05	0	0.015	0	0.064	0.05	0.77	0.83	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F F01/06	0	0.01	0	0.056	0.04	0.52	0.79	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F F01/07	0	0.042	0	0.089	0.08	1.61	0.87	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F F01/08	0.003	0.027	0	0.088	0.05	1.58	0.57	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F G01/01	0	0.012	0	0.016	0	5.24	0.29	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F G01/02	0	0.018	0	0.018	0.01	6.14	0.31	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F EX01/01	0	0.042	0	0.089	0.08	1.61	0.87	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F EX01/02	0.003	0.047	0	0.092	0.08	1.72	0.88	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F F01/01	0	0.013	0	0.062	0.05	0.7	0.78	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F F01/02	0	0.016	0	0.066	0.05	0.86	0.79	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F F01/03	0	0.015	0	0.066	0.05	0.84	0.78	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F F01/04	0	0.015	0	0.07	0.04	0.97	0.63	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F EX02/01	0	0.022	0	0.071	0.06	1.02	0.88	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F EX03/01	0	0.002	0	0.009	0	3.14	0.1	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F G02/01	0	0.033	0	0.024	0.01	7.93	0.35	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F G03/01	0	0.018	0	0.069	0.06	0.95	0.81	AR&R 10 year, 30 minutes storm, average 70.1 mm/h, Zone 1				
F G03/02	0	0.024	0	0.065	0.08	0.82	1.24	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
OF G01/06	0	0.043	0	0.026	0.01	8.53	0.4	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
OF G01/07	0	0	0	0	0	0	0					
OF G01/08	0	0	0	0	0	0	0					
OF G01/09	0	0	0	0	0	0	0					
OF G01/10	0	0	0	0	0	0	0					
OF_South EA	1.593	1.593	0	0.106	0.11	25.1	1.08	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F H01/01	0.009	0.048	-0.001	0.088	0.09	1.58	1.03	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F H01/02	0.005	0.043	0	0.094	0.07	1.79	0.75	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F H01/03	0.003	0.027	0	0.086	0.05	1.49	0.63	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F I01/01	0	0.043	0	0.083	0.09	1.43	1.08	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F I01/02	0.003	0.029	0	0.086	0.06	1.49	0.67	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F I01/03	0	0.022	0	0.073	0.06	1.09	0.82	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F I01/04	0	0.058	0	0.098	0.09	1.92	0.9	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F J01/01	0	0.019	-3.8456E+20	0.071	0.06	1	0.79	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F J01/02	0	0.017	0	0.018	0.01	6.14	0.3	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F J01/03	0	0.1	0	0.035	0.02	10.91	0.5	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
OF_PR_M5	1.077	1.077	0	0.089	0.09	21.87	0.98	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F J01/04	0	0.017	0	0.065	0.06	0.82	0.89	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F J03/01	0.027	0.027	4.7477E+27	0.063	0.1	0.75	1.52	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F J04/01	0.006	0.018	0	0.06	0.07	0.63	1.21	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F Z01/01	0	0	-8.8022E+11	0	0	0	0					
F Z04/01	0	0	0	0	0	0	0					
F Z02/01	0	0	0	0	0	0	0					
F E01/02	0	0.01	0	0.015	0	4.94	0.27	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
F Z03/01	0	0	0	0	0	0	0					
F E01/01	0	0.005	0	0.043	0.03	0.36	0.59	AR&R 10 year, 5 minutes storm, average 154 mm/h, Zone 1				
OF_PR_ABB	1.63	1.63	0	0.106	0.12	25.28	1.09	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
ABB_Site	0.16	0.16	0	0.042	0.02	12.35	0.57	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
OF G04/02	0	0.043	0	0.026	0.01	8.53	0.4	AR&R 10 year, 30 minutes storm, average 70.1 mm/h, Zone 1				
OF G04/01	0.024	0.059	0	0.029	0.01	9.73	0.42	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
OF561722	0.115	0.115	0	0.036	0.02	11.27	0.53	AR&R 10 year, 24 hours storm, average 6.7 mm/h, Zone 1				
Weir_NW	0	0	0	0	0	0	0					
OF_ABB_WE	0	0	0	0	0	0	0					
OF_PR_Geor	2.585	2.585	0	0.129	0.16	29.77	1.22	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
DETENTION BASIN DETAILS												
Name	Max WL	MaxVol	Max Q	Max Q	Max Q							
			Total	Low Level	High Level							
PR OSD 4	11.42	3002.9	0.115	0	0.115							
Northern Wetl	7.9	413.8	0.122	0.122	0							
CONTINUITY CHECK for AR&R 10 year, 2 hours storm, average 31.3 mm/h, Zone 1												

Node	Inflow	Outflow	Storage Chan	Difference
	(cu.m)	(cu.m)	(cu.m)	%
A01/02	18.58	18.58	0	0
A01/01	59.07	59.02	0	0.1
B01/03	186.03	185.7	0	0.2
B01/04	894.48	894.66	0	0
B01/05	923.67	923.82	0	0
B01/06	953.94	955.12	0	-0.1
B01/07	994.86	994.79	0	0
B01/08	1066.96	1067.99	0	-0.1
G01/03	3929.55	3940.56	0	-0.3
G01/04	4050.2	4064.01	0	-0.3
G01/05	4224.35	4229.14	0	-0.1
Council_GIS_	2186.35	2187.41	0	0
Coucnil_GIS_	2974.07	2974.36	0	0
PR GIS	2974.36	2974.35	0	0
B01/02	26.31	26.27	0	0.2
B01/01	63.25	63.31	0	-0.1
B02/01	31.65	31.62	0	0.1
C02/01	81.64	81.82	0	-0.2
C02/02	147.34	147.38	0	0
C01/01	180.14	180.71	0	-0.3
C01/02	240.25	240.27	0	0
C01/03	294.77	294.71	0	0
C01/04	339.66	339.55	0	0
C01/05	385.67	385.86	0	0
C01/06	433.5	433.38	0	0
C01/07	467.61	468.08	0	-0.1
C01/08	549.07	549.36	0	-0.1
C01/09	589.91	590.42	0	-0.1
D01/01	20.75	20.72	0	0.1
D01/02	40.64	40.67	0	-0.1
D01/03	61.53	61.55	0	0
D01/04	80.89	80.83	0	0.1
D01/05	95.54	95.54	0	0
E01/03	1566.04	1567.98	0	-0.1
E01/04	1610.35	1611.94	0	-0.1
F01/05	2091.26	2092.87	0	-0.1
F01/06	2135.65	2136.89	0	-0.1
F01/07	2155.47	2157.56	0	-0.1
F01/08	2217.86	2221.4	0	-0.2
G01/01	2532.93	2537.16	0	-0.2
G01/02	2594.12	2599.73	0	-0.2
EX01/01	39.85	39.85	0	0
EX01/02	99.63	99.66	0	0
EX01/03	309.09	309.5	0	-0.1
F01/01	316.71	316.71	0	0
F01/02	403.73	403.38	0	0.1
F01/03	426.41	426.8	0	-0.1
F01/04	448.95	449.02	0	0
EX02/01	144.63	144.57	0	0
EX03/01	65.03	65.02	0	0
G02/01	28.25	28.24	0	0
G03/01	25.61	25.62	0	0
G03/02	52.05	52.04	0	0
G01/06	2196.96	2202.36	0	-0.2
G01/07	2202.36	2208.13	0	-0.3
G01/08	2208.13	2212.84	0	-0.2
G01/09	2212.84	2220.43	0	-0.3
G01/10	2220.43	2225.36	0	-0.2
N639861	2225.36	2225.36	0	0
H01/01	83.22	83.14	0	0.1
H01/02	140.98	140.57	0	0.3
H01/03	196.48	196.14	0	0.2
I01/01	47.7	47.52	0	0.4
I01/02	108.76	109.07	0	-0.3
I01/03	146.1	146.1	0	0
I01/04	177.92	177.8	0	0.1
J01/01	35.46	35.33	0	0.3
J01/02	201.87	203.05	0	-0.6
J01/03	483.62	485.05	0	-0.3
J01/05	485.05	484.31	0	0.2
J01/06	484.31	486.5	0	-0.5
M5_Surcharg	873.43	879.46	0	-0.7
PR_M5	3853.81	3853.8	0	0
J01/04	24.79	24.79	0	0
J03/01	174.45	174.5	0	0
J04/01	76.07	75.88	0	0.2
Z01/01	167	166.85	0	0.1
Z04/01	68.62	68.62	0	0
Z02/01	180.03	179.75	0	0.2
E01/02	1255.81	1257.07	0	-0.1
Z03/01	999.42	999.67	0	0
E01/01	1031.08	1032.41	0	-0.1
PRABB	2391.59	2391.59	0	0
ABB	166.25	166.25	0	0
Pit125474	0	0	0	0
G04/02	14.53	20.4	0	-40.4
G04/01	119.83	121.54	0	-1.4
PR OSD 4	2018.73	0	2018.73	0
Northern Wetl	786.8	786.67	0.13	0
PR Georges	6245.28	6245.26	0	0
PR_Out	6245.13	6245.13	0	0
Run Log for Proposed_Rev01_DC.drn run at 15:13:03 on 28/3/2017				

No water upwelling from any pit.												
Freeboard was less than 0.15m at C02/01 C01/03 C01/02 C01/01												
The maximum flow in the following overflow routes is unsafe: OF_PR_Georges, OF_PR_M5, OF_PR_GIS, OF_PR_ABB, OF_South EASEMENT												
The following overflow routes carried water uphill (adding energy): OF561722												
These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.												



Issue	Description	Date
01	ISSUE FOR DISCUSSION	

100mm on Original

0 50 100 150 200m

1 : 2000

Client: SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE; TACTICAL GROUP

Status: PRELIMINARY ONLY
NOT TO BE USED FOR CONSTRUCTION

Scales	1 : 2000	Current Issue Signatures	
		Drawn M.DULAY	
Original Size	A1	Designed	
Height Datum	AHD	Checked	
Grid	MGA	Approved	
Filename:	LPMW-ARC-CV-SKC-0164-ProposedCatchment.dwg		

Project: MPW INTERMODAL TERMINAL FACILITY - STAGE 2
LAND PREPARATION
MAIN WORKS

Title: PROPOSED CATCHMENT

ARCADIS
Arcadis Australia Pacific Pty Limited
Level 5, 141 Walker St
NORTH SYDNEY NSW 2060
ABN 76 104 485 289
Tel No: +61 2 8907 9000
Fax No: +61 2 8907 9001
arcadis.com

Project No. AA009335

Drawing No. LPMW-ARC-CV-SKC-0164- Issue 01

Date Plotted: 30 Mar 2017 - 10:47AM File Name: F:\AA009335\1_LPMW\CV\SKC\LPMW-ARC-CV-SKC-0164-ProposedCatchment.dwg

Water Balance Model Information

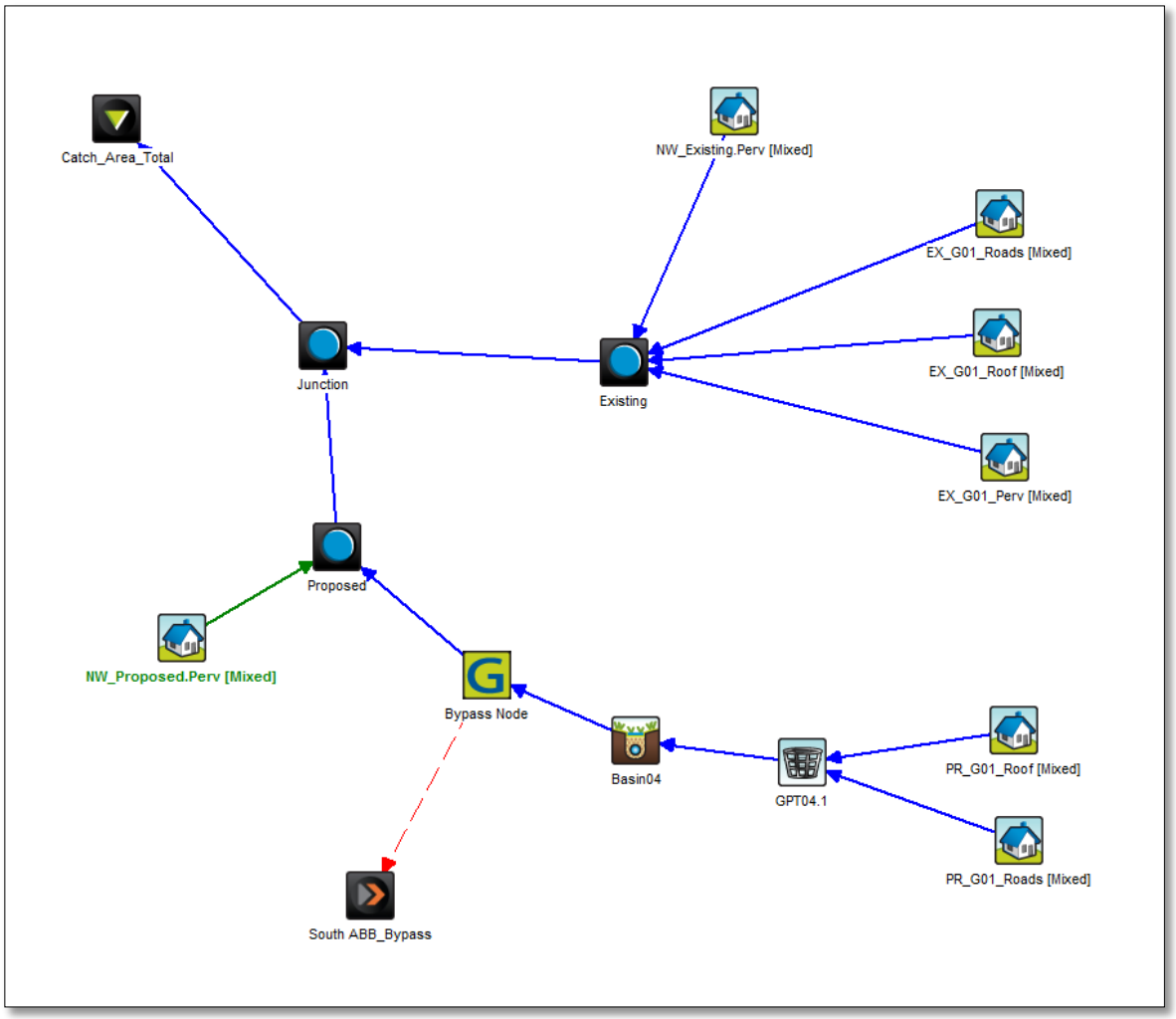


Figure 1- Music Modelling Layout

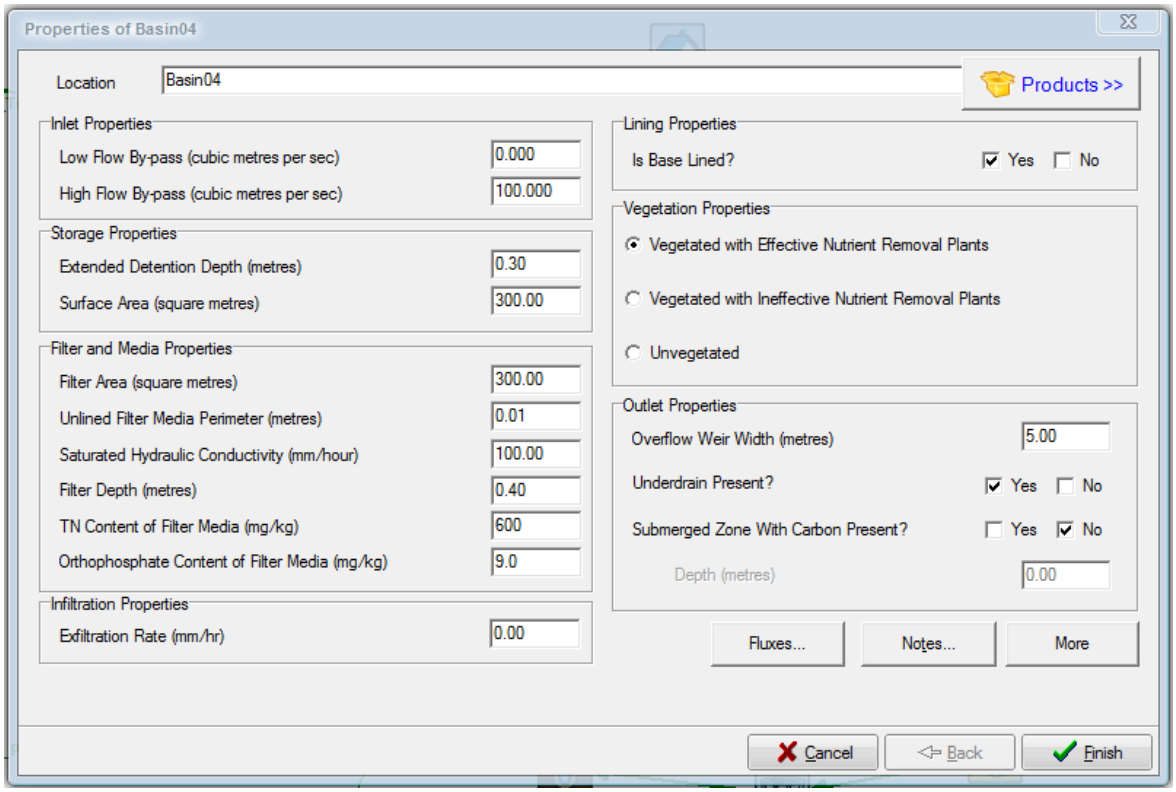


Figure 2 - Basin Data

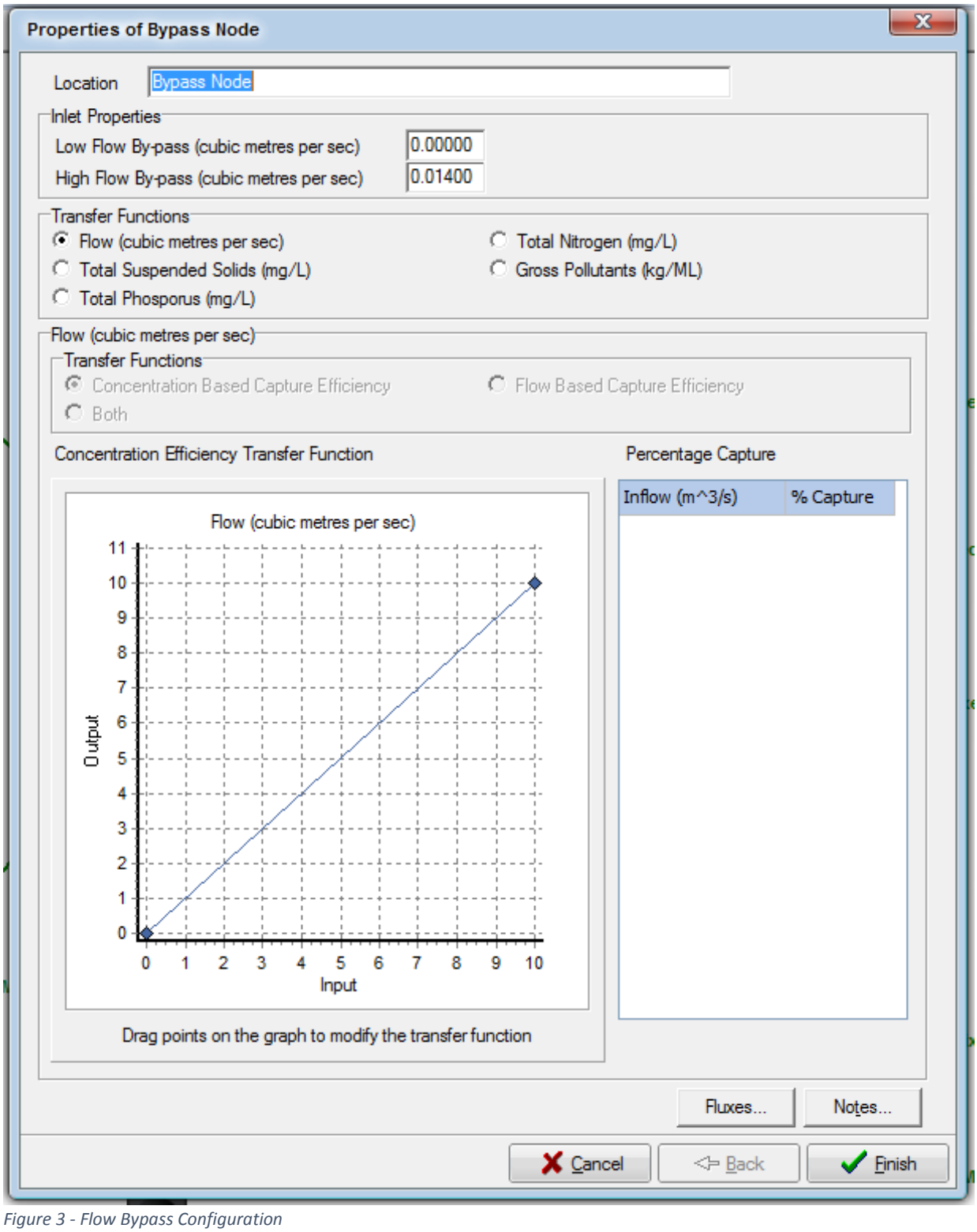


Figure 3 - Flow Bypass Configuration

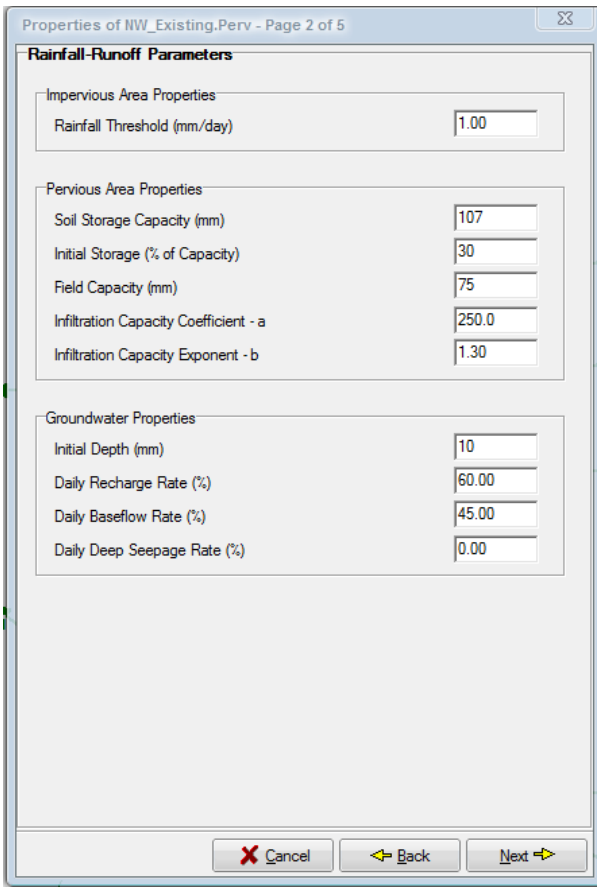


Figure 4 – Pervious Catchment Details

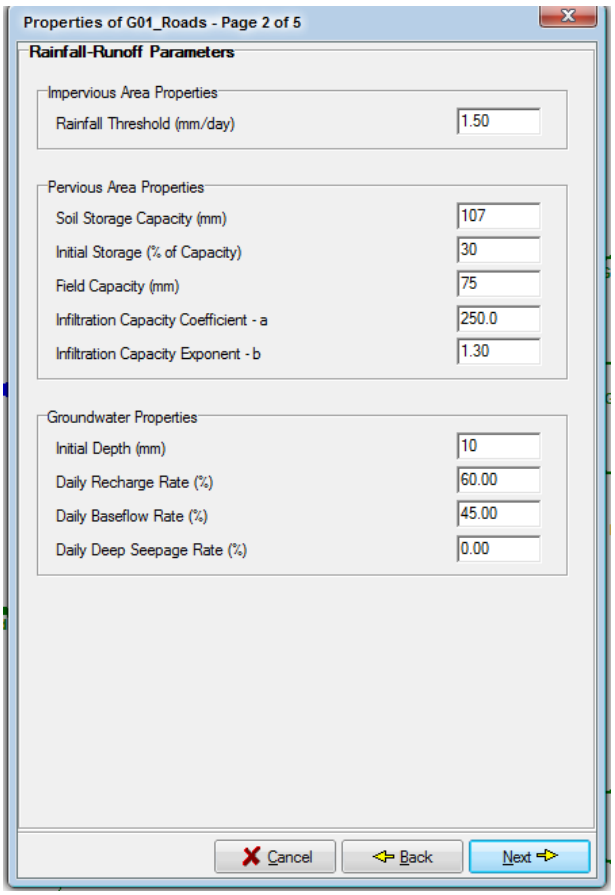


Figure 5- Road Catchment Details

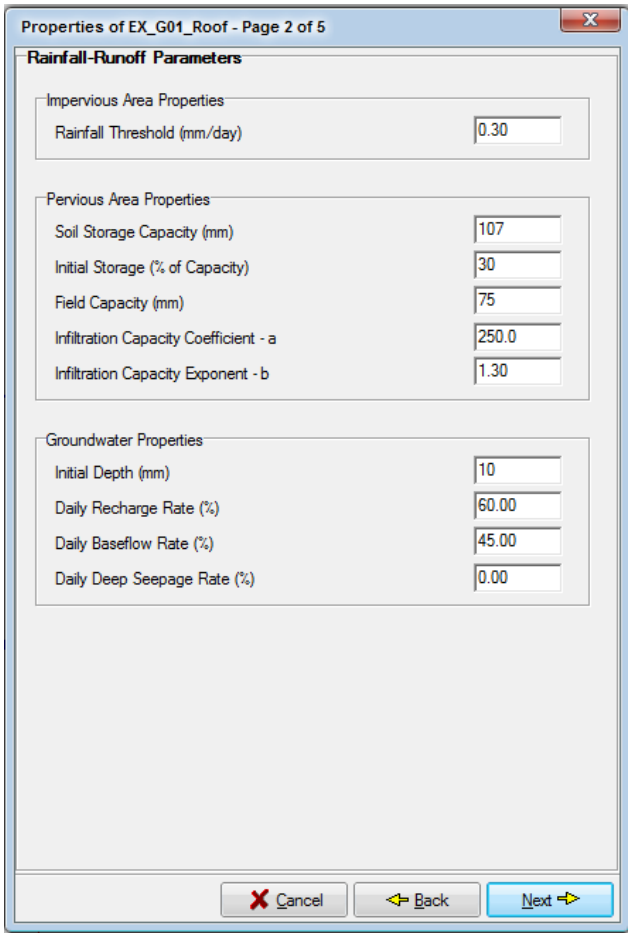


Figure 6 - Roof Catchment Details