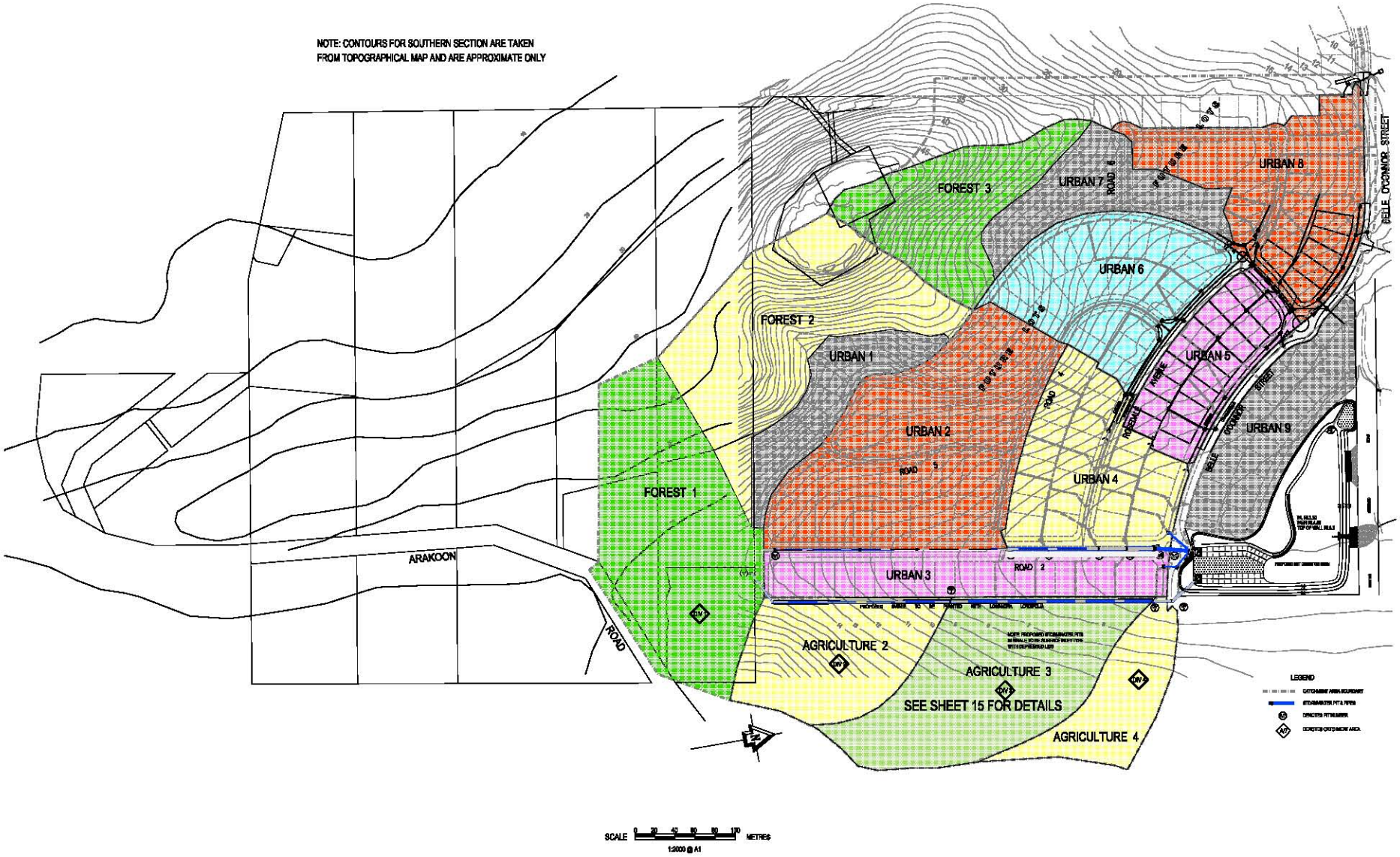
APPENDIX A– Reduced scale copy of sheets 14 & 15 of the Engineering Plans by King & Campbell Ref 14777



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Rev	Date	Description
A	13.07.08	Issued for Approval

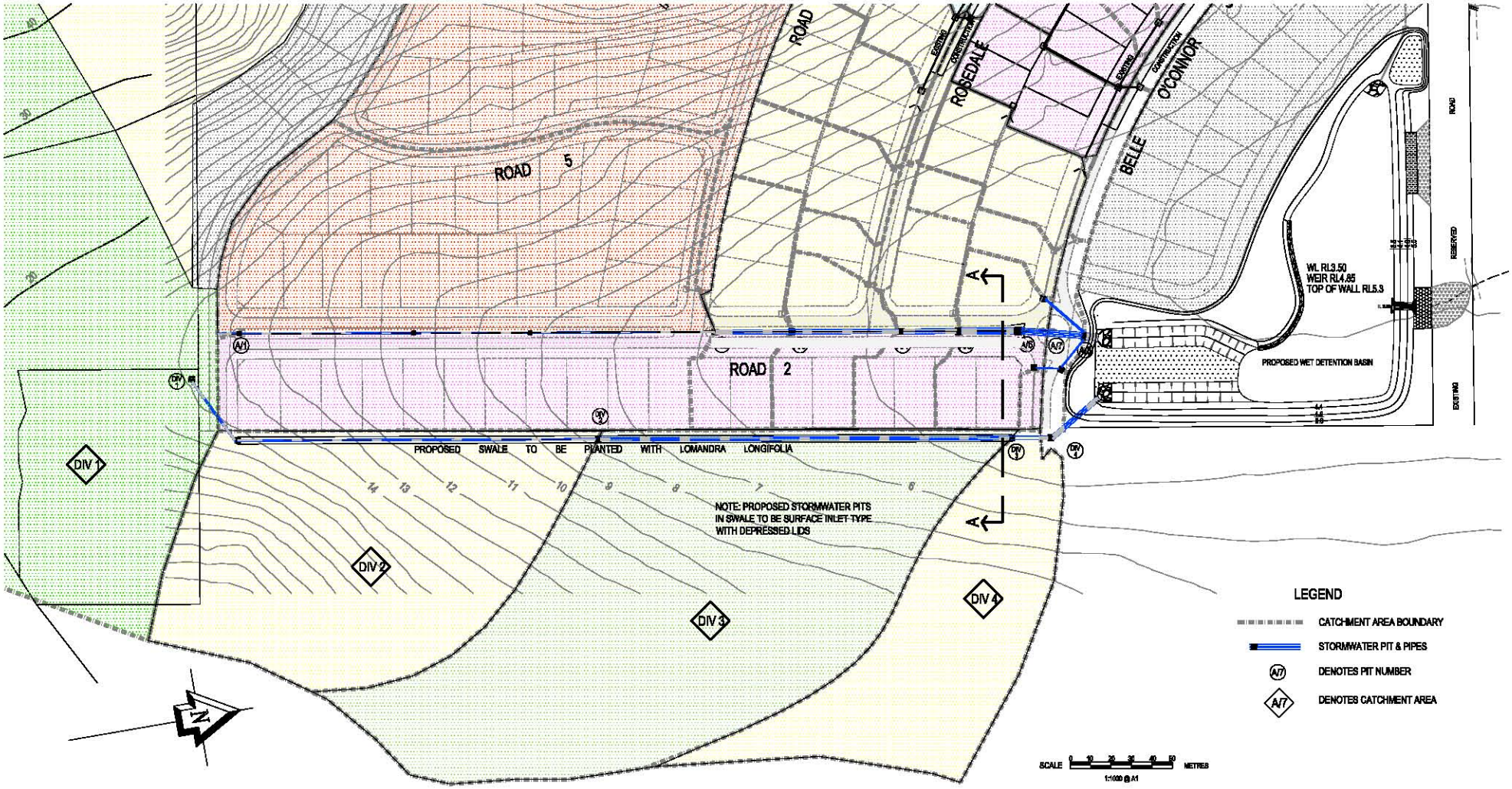
Scale AS SHOWN Datum AHD

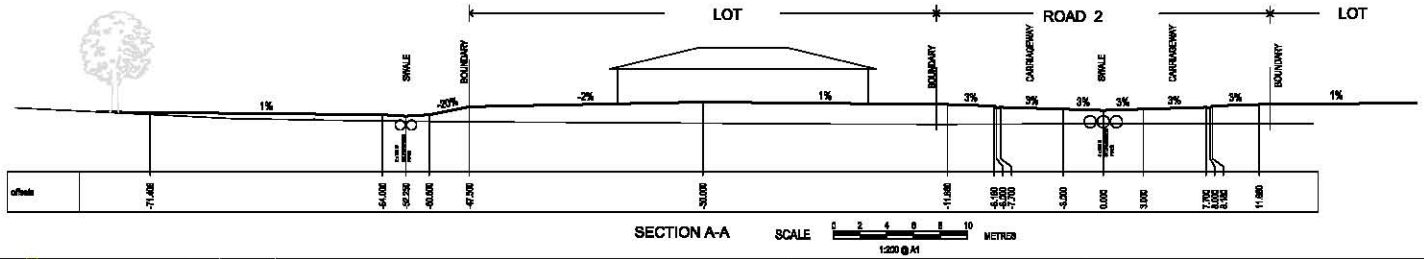
Caution: The stated scale of this drawing may have been altered by copying or other means. The scale should be verified prior to using the drawing to derive measurements.

Project Number	14777
Drawing Number	14777SMP1.DWG
DA Number	
Drawn	ES
Checked	PJR
Date Created	JUNE 2008

Drawing Title	OVERALL STORMWATER MANAGEMENT PLAN
Project	LOT 124 DP 1097510 AND LOT 22 DP 1071657 SEASCAPE GROVE SOUTH WEST ROCKS
Client	WALDEL PARK PTY LTD

Sheet 14 of 18 Rev A





SECTION A-A SCALE 0 2 4 6 8 10 METRES
1:200 @ A1

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Rev	Date	Description
A	13.07.09	Issued for Approval

Scale AS SHOWN Datum AHD

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Project Number	14777
Drawing Number	14777SMP2.DWG
DA Number	
Drawn	ES
Checked	PJR
Date Created	JUNE 2009

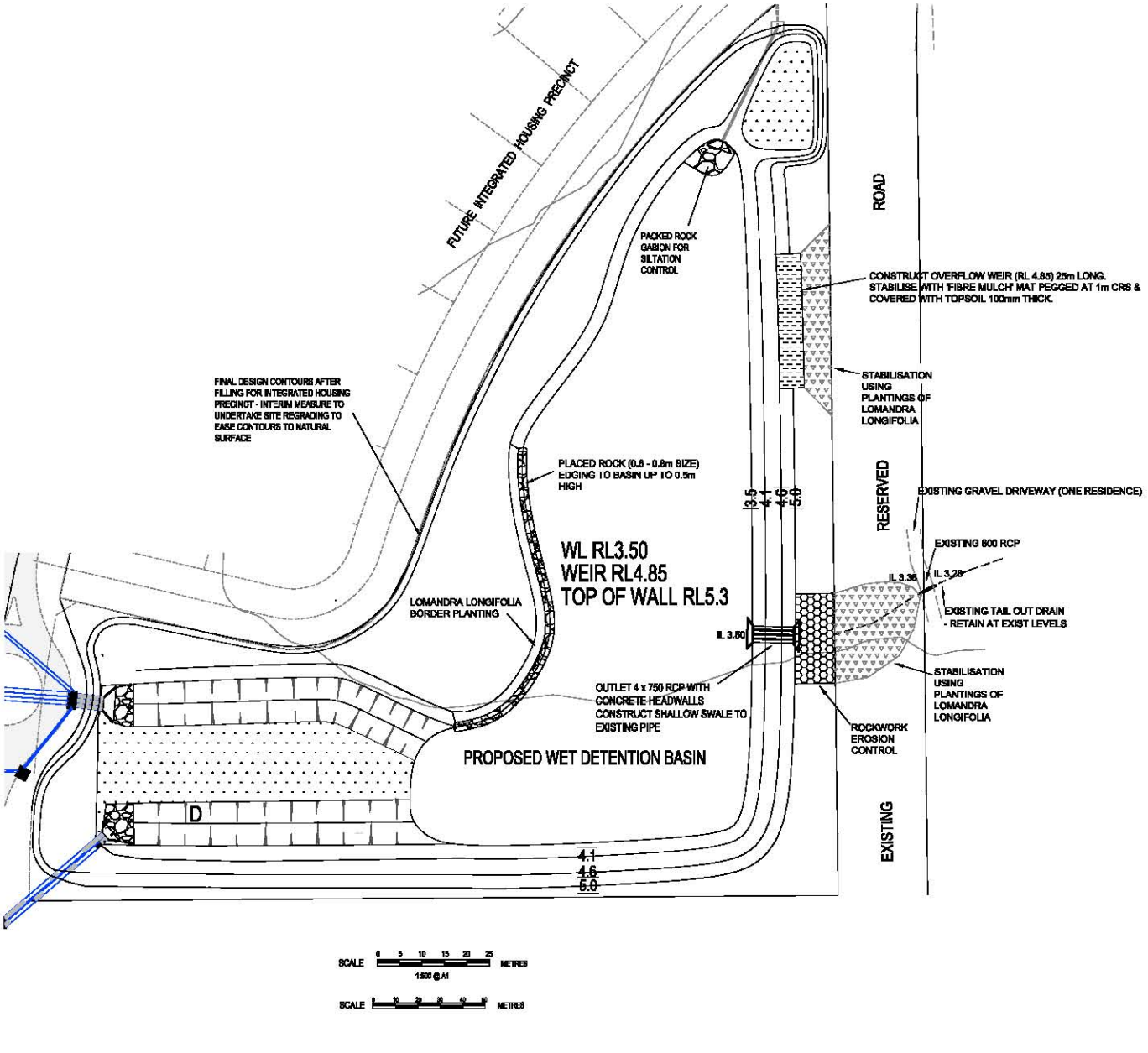
Drawing Title DETAILED STORMWATER MANAGEMENT PLAN

Project LOT 124 DP 1097510 AND LOT 22 DP 1071657 SEASCAPE GROVE SOUTH WEST ROCKS

Client WALDEL PARK PTY LTD

Sheet 15 of 18 Rev A

APPENDIX B– Reduced scale copy of sheets 16 & 17 of the Engineering Plans by King & Campbell Ref 14777



NOTE:
BASIN SIDE SLOPES TO 1:6 INTERNALLY AND 1:4 EXTERNALLY ALONG NORTH AND EASTERN SIDES

SEE SHEET 16 FOR FILTRATION BASIN DETAILS

MINIMUM BLOCK FILLING LEVEL RL 5.02

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Rev	Date	Description
A	13.07.09	Issued for Approval

Scale AS SHOWN Datum AHD

Caution: The stated scale of this drawing may have been altered by copying or other means. The scale should be verified prior to using the drawing to derive measurements.

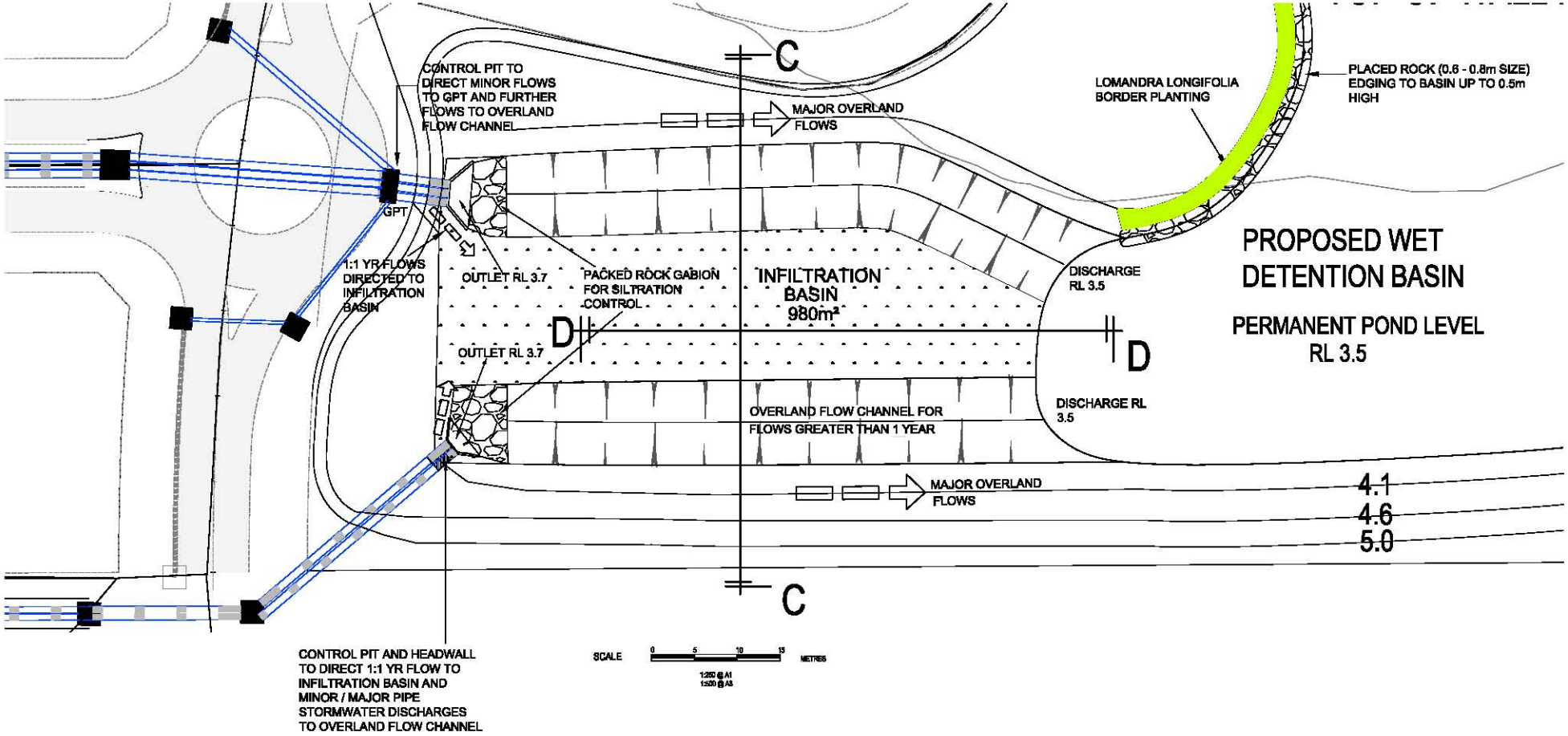
Project Number	14777
Drawing Number	14777SQCD.DWG
DA Number	
Drawn	AB
Checked	PJR
Date Created	JUNE 2009

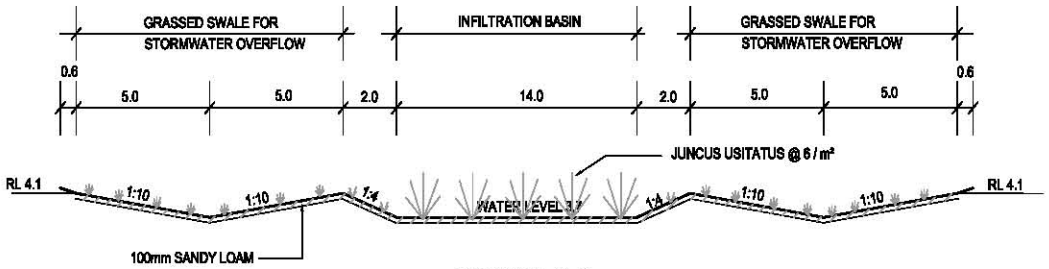
Drawing Title: STORMWATER QUALITY CONTROL DETAILS IN PUBLIC RESERVE

Project: LOT 124 DP 1097510 AND LOT 22 DP 1071657 SEASCAPE GROVE SOUTH WEST ROCKS

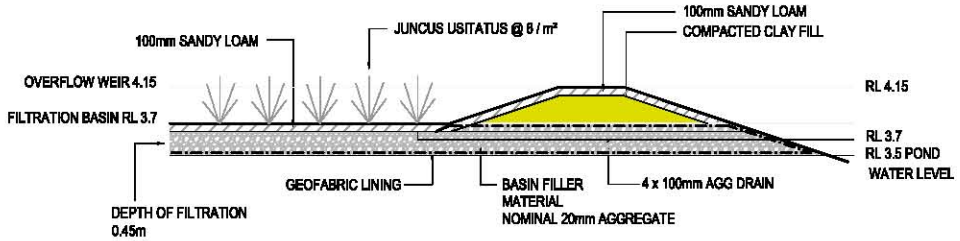
Client: WALDEL PARK PTY LTD

Sheet 16 of 18 Rev A





SECTION C-C
NOT TO SCALE



SECTION D-D INFILTRATION BASIN (TYPICAL)

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Rev	Date	Description
A	13.07.09	Issued for Approval

Scale AS SHOWN Datum AHD

Caution: The stated scale of this drawing may have been altered by copying or other means. The scale should be verified prior to using the drawing to derive measurements.

Project Number	14777
Drawing Number	14777SQCD.DWG
DA Number	
Drawn	AB
Checked	PJR
Date Created	JUNE 2009

Drawing Title	STORMWATER QUALITY CONTROL DETAILS INFILTRATION BASIN
Project	LOT 124 DP 1097510 AND LOT 22 DP 1071657 SEASCAPE GROVE SOUTH WEST ROCKS
Client	WALDEL PARK PTY LTD
Sheet	17 of 18
Rev	A

APPENDIX C– Hard copy printout of Drains Software Stormwater results

14777 Drains Data Stormwater Design Seascape Grove Project Application

PIT / NODE DETAILS — Version 9

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id	Part Full Shock Loss
PitH/1	Sag	Hornsby Council R	2.4 m lintel (all slopes)	25	4	14.36	0.2	0	0.2	2139.11	1845.652	No	36	1 x Ku
PitH/2	Sag	Surface Inlet Pits	1.8m x 1.8m Raised Grate	65	0.5	14.14	0.3	0	0.2	2134.994	1855.221	No	37	1 x Ku
PitH/3	OnGrade	Surface Inlet Pits	0.9m x 0.9m Raised Grate Aug 03		1	12.28		0	0.2	2160.185	1870.853	No	40	1 x Ku
PitH/4	OnGrade	Surface Inlet Pits	0.9m x 0.9m Raised Grate Aug 03		0.3	8		0	0.2	2190.975	1891.086	No	43	1 x Ku
PitH/5	OnGrade	Surface Inlet Pits	0.9m x 0.9m Raised Grate Aug 03		0.8	6.46		0	0.2	2209.163	1900.547	No	45	1 x Ku
PitH/6	OnGrade	Hornsby Council R	2.4 m lintel (all slopes)		1.1	6.41		0	0.2	2214.92	1935.661	No	47	1 x Ku
PitH/7	OnGrade	Hornsby Council R	1.8 m lintel (all slopes)		0	5.7		0	0.2	2240.76	1956.743	No	48	1 x Ku
PitH/9	Node					4.8		0		2499.208	1940.848		57	
PitJ/3	OnGrade	Hornsby Council R	1.8 m lintel (all slopes)		0.5	13.86		0	0.2	2141.526	1878.468	No	39	1 x Ku
PitK/1	OnGrade	Hornsby Council R	1.2 m lintel (all slopes)		1.5	9.15		0	0.2	2180.731	1893.901	No	42	1 x Ku
PitN/1	OnGrade	Hornsby Council R	1.8 m lintel (all slopes)		4	6.95		0	0.2	2243.772	1886.441	No	51	1 x Ku
PitN/2	OnGrade	Hornsby Council R	2.4 m lintel (all slopes)		3.5	6.75		0	0.2	2231.152	1886.184	No	44	1 x Ku
PitT/1	OnGrade	Hornsby Council R	1.8 m lintel (all slopes)		4	10.27		0	0.2	2146.532	1988.83	No	53	1 x Ku
PitU/2	OnGrade	Hornsby Council R	2.4 m lintel (all slopes)		1.9	10.02		0	0.2	2147.669	1977.011	No	54	1 x Ku
PitU/3	OnGrade	Hornsby Council R	2.4 m lintel (all slopes)		1	7.96		0	0.2	2177.457	1958.744	No	55	1 x Ku
PitU/4	OnGrade	Hornsby Council R	2.4 m lintel (all slopes)		1.7	6.31		0	0.2	2204.744	1929.166	No	56	1 x Ku
PitA/1	Sag	Surface Inlet Pits	1.8m x 1.8m Raised Grate	70	1	13.69	0.3	0	0	2357.954	1352.834	No	3	1 x Ku
PitA/2	OnGrade	Surface Inlet Pits	0.9m x 0.9m Raised Grate Aug 03		1	6.93		0	0.2	2397.013	1580.843	No	2	1 x Ku
PitA/3	OnGrade	Surface Inlet Pits	0.9m x 0.9m Raised Grate Aug 03		0.5	6.65		0	0.2	2403.286	1617.671	No	6	1 x Ku
PitA/4	OnGrade	Surface Inlet Pits	0.9m x 0.9m Raised Grate Aug 03		0.6	6.26		0	0.2	2411.933	1668.44	No	21	1 x Ku
PitA/5	OnGrade	Surface Inlet Pits	0.9m x 0.9m Raised Grate Aug 03		0.5	5.8		0	0.2	2417.139	1699	No	23	1 x Ku
PitA/6	OnGrade	Surface Inlet Pits	0.9m x 0.9m Raised Grate Aug 03		0.3	5.5		0	0	2422.227	1728.718	No	24	1 x Ku
PitA/7	OnGrade	Hornsby Council R	3.0 m lintel (all slopes)		0.2	5.53		0	0.2	2434.795	1755.246	No	34	1 x Ku
PitA/8	OnGrade	Surface Inlet Pits	1.2m x 1.2m Raised Grate Aug 03		0.5	5		0	0.2	2438.481	1785.132	No	20340598	1 x Ku
Nhwall	Node					5		0		2469.901	1801.217		68728264	
PitY/1	Sag	Surface Inlet Pits	1.2m x 1.2m Raised Grate	40	1	7.1	0.3	0	0	2376.621	1577.686	No	1	1 x Ku
PitF/1	Sag	Hornsby Council R	3.0 m lintel (all slopes)	25	1.5	12.22	0.2	0	0.2	2176.491	1815.409	No	7	1 x Ku
PitF/2	OnGrade	Hornsby Council R	2.4 m lintel (all slopes)		0.5	11.64		0	0.2	2199.408	1785.656	No	9	1 x Ku
PitF/3	Sag	Hornsby Council R	3.0 m lintel (all slopes)	25	1	11.2	0.25	0	0.2	2198.398	1771.663	No	10	1 x Ku
PitF/4	Sag	Hornsby Council R	2.4 m lintel (all slopes)	25	1.1	11.18	0.2	0	0.2	2203.198	1766.564	No	11	1 x Ku
PitF/5	OnGrade	Hornsby Council R	1.2 m lintel (all slopes)		0.6	11.18		0	0.2	2217.111	1765.965	No	12	1 x Ku
PitF/6	OnGrade	Hornsby Council R	3.0 m lintel (all slopes)		0	9.46		0	0.2	2265.436	1722.713	No	14	1 x Ku
PitF/7	OnGrade	Hornsby Council R	3.0 m lintel (all slopes)		0.6	8.35		0	0.2	2297.94	1700.182	No	15	1 x Ku
PitF/8	OnGrade	Hornsby Council R	3.0 m lintel (all slopes)		0	7.3		0	0.2	2333.185	1680.411	No	17	1 x Ku
PitF/9	OnGrade	Hornsby Council R	3.0 m lintel (all slopes)		0.4	6.68		0	0.2	2368.592	1664.713	No	18	1 x Ku
PitF/10	OnGrade	Hornsby Council R	3.0 m lintel (all slopes)		1.1	6.36		0	0.2	2389.718	1657.127	No	19	1 x Ku
PitF/11	OnGrade	Hornsby Council R	2.4 m lintel (all slopes)		0.4	6.36		0	0.2	2391.566	1663.888	No	20	1 x Ku
PitR/1	OnGrade	Hornsby Council R	2.4 m lintel (all slopes)		4	9.54		0	0.2	2267.254	1730.15	No	13	1 x Ku
PitS/1	OnGrade	Hornsby Council R	1.8 m lintel (all slopes)		4	7.4		0	0.2	2332.274	1688.718	No	16	1 x Ku
PitD/2	OnGrade	Hornsby Council R	1.8 m lintel (all slopes)		4	5.33		0	0.2	2464.326	1742.68	No	26	1 x Ku
PitB/1	OnGrade	Hornsby Council R	3.0 m lintel (all slopes)		4	6.81		0	0.2	2292.506	1812.746	No	27	1 x Ku
PitB/2	OnGrade	Hornsby Council R	3.0 m lintel (all slopes)		1.5	6.61		0	0.2	2312.823	1795.265	No	29	1 x Ku
PitB/3	OnGrade	Hornsby Council R	3.0 m lintel (all slopes)		0.8	6.25		0	0.2	2353.458	1767.46	No	30	1 x Ku
PitB/4	OnGrade	Hornsby Council R	3.0 m lintel (all slopes)		0.8	5.97		0	0.2	2386.243	1750.599	No	32	1 x Ku
PitB/5	OnGrade	Hornsby Council R	2.4 m lintel (all slopes)		0.1	5.66		0	0.2	2407.837	1741.782	No	33	1 x Ku
PitC/1	OnGrade	Hornsby Council R	1.8 m lintel (all slopes)		4	6.03		0	0.2	2382.914	1762.052	No	31	1 x Ku
Pitdivn1	OnGrade	Surface Inlet Pits	1.2m x 1.2m Raised Grate Aug 03		1.5	14.5		0	0.2	2469.043	1392.014	No	53132567	1 x Ku
Pitdivn2	OnGrade	Surface Inlet Pits	0.9m x 0.9m Raised Grate Aug 03		0.3	6.8		0	0.2	2494.445	1556.349	No	5142701	1 x Ku
Pitdivn3	Sag	Surface Inlet Pits	1.2m x 1.2m Raised Grate	38	0.7	5.09	0.3	0	0	2518.674	1722.242	No	3075056	1 x Ku
Pitdivn4	OnGrade	Surface Inlet Pits	1.2m x 1.2m Raised Grate Aug 03		1	5		0	0	2525.072	1761.199	No	25	1 x Ku

DETENTION BASIN DETAILS

Name	Elev	Volume	Init Vol. (cu.m)	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Leng	id
Basin2	3.6	0	0	Culvert	0.5					2485.517	1921.264	No			18916
	4.1	4200													
	4.3	6295													
	4.6	9744													
	4.9	13870													
	5	15455													
	5.3	20600													

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area (ha)	Paved Area %	Grass Area %	Supp Area %	Paved Time (min)	Grass Time (min)	Supp Time (min)	Paved Length (m)	Grass Length (m)	Supp Length (m)	Paved Slope(%) %	Grass Slope %	Supp Slope %	Paved Rough	Grass Rough	Supp Rough	Lag Time or Factor	Gutter Length (m)	Gutter Slope %	Gutter FlowFactor
C PitH/1	PitH/1	0.2577	50	50	0	1	5	0										0			
C PitH/2	PitH/2	3.434	25	75	0	0	0	0	100	150	0	3	15	0	0.02	0.3	0	0			
C PitH/3	PitH/3	0.025	50	50	0	1	5	0										0			
C PitH/4	PitH/4	0.2662	50	50	0	1	5	0										0			
C PitH/5	PitH/5	0.1695	50	50	0	1	5	0										0			
C PitH/6	PitH/6	0.1491	50	50	0	1	5	0										0			
C PitH/7	PitH/7	0.2357	50	50	0	0	0	0	10	20	0	1	1	0	0.02	0.21	0	0			
C PitH/8	Basin2	3.65	50	50	0	0	0	0	10	20	0	1	1	0	0.01	0.11	0	0			
C PitJ/3	PitJ/3	1.1568	50	50	0	0	0	0	20	40	0	2	5	0	0.02	0.21	0	0			

C PitK/1	PitK/1	0.0252	50	50	0	1	5	0										0							
C PitN/1	PitN/1	0.0437	50	50	0	1	5	0										0							
C PitN/2	PitN/2	0.3974	50	50	0	0	0	0	20	40	0	1	5	0	0.02	0.21	0	0							
C PitT/1	PitT/1	0.0837	50	50	0	1	5	0										0							
C PitU/2	PitU/2	0.4234	50	50	0	0	0	0	10	45	0	5	10	0	0.02	0.21	0	0							
C PitU/3	PitU/3	0.2726	50	50	0	0	0	0	10	45	0	2	10	0	0.02	0.21	0	0							
C PitU/4	PitU/4	0.3002	50	50	0	0	0	0	10	45	0	2	10	0	0.02	0.21	0	0							
C PitA/1	PitA/1	1.22	50	50	0	0	0	0	80	40	0	5	17	0	0.02	0.21	0	0							
C PitA/2	PitA/2	3.3162	50	40	10	0	0	0	10	10	5	1	1	1	0.02	0.21	0.02	0							
C PitA/3	PitA/3	0.4594	50	40	10	0	0	0	10	10	5	1	1	1	0.02	0.21	0.02	0							
C PitA/4	PitA/4	0.2637	50	40	10	0	0	0	10	10	5	1	1	1	0.02	0.21	0.02	0							
C PitA/5	PitA/5	0.3739	50	40	10	0	0	0	10	10	5	1	1	1	0.02	0.21	0.02	0							
C PitA/6	PitA/6	0.3512	50	40	10	0	0	0	10	10	5	1	1	1	0.02	0.21	0.02	0							
C PitA/7	PitA/7	0.1166	50	50	0	1	5	0										0							
C PitY/1	PitY/1	2.244	50	50	0	0	0	0	40	20	0	5	10	0	0.02	0.21	0	0							
C PitF/1	PitF/1	0.562	50	50	0	0	0	0	20	40	0	3	7	0	0.02	0.21	0	0							
C PitF/2	PitF/2	0.1848	50	50	0	0	0	0	15	35	0	5	7	0	0.02	0.21	0	0							
C PitF/3	PitF/3	1.0894	50	50	0	0	0	0	20	40	0	7	7	0	0.02	0.21	0	0							
C PitF/4	PitF/4	0.2596	50	50	0	1	5	0										0							
C PitF/5	PitF/5	0.0161	50	50	0	0	0	0	10	80	0	2	10	0	0.02	0.21	0	0							
C PitF/6	PitF/6	0.2686	50	50	0	0	0	0	20	40	0	5	5	0	0.02	0.21	0	0							
C PitF/7	PitF/7	0.3119	50	50	0	0	0	0	20	40	0	5	8	0	0.02	0.21	0	0							
C PitF/8	PitF/8	0.3847	50	50	0	0	0	0	20	40	0	7	8	0	0.02	0.21	0	0							
C PitF/9	PitF/9	0.3063	50	50	0	0	0	0	20	40	0	1	1	0	0.02	0.21	0	0							
C PitF/10	PitF/10	0.0911	50	50	0	0	0	0	20	40	0	1	1	0	0.02	0.21	0	0							
C PitF/11	PitF/11	0.0513	50	50	0	1	5	0										0							
C PitR/1	PitR/1	0.0719	50	50	0	1	5	0										0							
C PitS/1	PitS/1	0.0618	50	50	0	1	5	0										0							
C PitD/2	PitD/2	0.0306	50	50	0	1	5	0										0							
C PitB/1	PitB/1	0.3334	50	50	0	0	0	0	25	40	0	2	5	0	0.02	0.21	0	0							
C PitB/2	PitB/2	0.3835	50	50	0	0	0	0	15	40	0	2	5	0	0.02	0.21	0	0							
C PitB/3	PitB/3	0.3361	50	50	0	0	0	0	25	40	0	1	5	0	0.02	0.21	0	0							
C PitB/4	PitB/4	0.3201	50	50	0	0	0	0	25	40	0	1	1	0	0.01	0.11	0	0							
C PitB/5	PitB/5	0.1679	50	50	0	0	0	0	20	40	0	1	1	0	0.02	0.21	0	0							
C PitC/1	PitC/1	0.0887	50	50	0	1	5	0										0							
Catdivn1	Pitdivn1	7.5	1	99	0	0	0	0	1	240	0	1	10	0	0.02	0.31	0	0							
Catdivn2	Pitdivn2	2.018	0	100	0	0	0	0	1	180	0	1	10	0	0.02	0.21	0	0							
Catdivn3	Pitdivn3	3.46	0	100	0	0	0	0	1	200	0	1	7	0	0.02	0.21	0	0							
C divn4	Pitdivn4	1.075	50	50	0	0	0	0	160	40	0	5	10	0	0.02	0.21	0	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	Chg	Rl	Chg	RL	etc					
			(m)	(m)	(m)	(%)		(mm)	(mm)						(m)	(m)	(m)	(m)	(m)						
P PitH/1	PitH/1	PitH/2	10.417	13.2	13.03	1.63	Concrete, under roads	375	375	0.3	Existing	1	PitH/2	0	0	15.284	0.79	15.297	0.848	15.298	0.985	15.303	7.527	15.5	10.417
P PitH/2	PitH/2	PitH/3	29.647	12.5	10.5	6.75	Concrete, under roads	900	900	0.3	Existing	1	PitH/3	0	0	15.569	7.469	14.958	10.446	14.721	16.534	14.35	28.28	13.336	29.647
P PitH/3	PitH/3	PitH/4	36.843	10.5	6.3	11.4	Concrete, under roads	900	900	0.3	NewFixed	1	PitH/4	0	0	13.225	0.075	13.219	13.225	12.193	14.726	12.077	26.646	11.109	27.187
P PitH/4	PitH/4	PitH/5	20.501	6.3	5	6.34	Concrete, under roads	900	900	0.3	Existing	1	PitH/5	0	0	10.285	9.896	9.441	19.414	8.609	20.014	8.565	20.501	8.525	
P PitH/5	PitH/5	PitH/6	35.583	4.74	4.5	0.67	Concrete, under roads	900	900	0.3	Existing	1	PitH/6	0	0	8.525	0.918	8.471	1.182	8.458	1.612	8.433	11.318	7.961	18.47
P PitH/6	PitH/6	PitH/7	23.53	4.35	4.1	1.06	Concrete, under roads	1050	1070	0.3	Existing	1	PitH/7	0	0	6.554	6.776	5.978	13.222	5.615	20.056	5.23	20.066	5.229	33.026
P PitH/7	PitH/7	Basin2	35	4.1	3.7	1.14	Concrete, under roads	1050	1070	0.3	NewFixed	1	Basin2	0	0	4.963	11.668	4.79	19.607	4.639	24.113	4.511	29.271	4.45	40.109
P PitH/8	Basin2	PitH/9	15	3.5	3.4	0.67	Concrete, under roads	750	750	0.3	NewFixed	4	PitH/9	0	0	4.239	1.165	4.247	1.525	4.249	2.118	4.251	23.784	4.568	
P PitJ/3	PitJ/3	PitH/3	20.153	12.6	10.95	8.19	Concrete, under roads	450	450	0.3	Existing	1	PitH/3	0	0	14.629	2.651	14.447	11.742	13.817	20.153	13.225			
P PitK/1	PitK/1	PitH/4	10.623	8.1	6.83	11.96	Concrete, under roads	375	375	0.3	Existing	1	PitH/4	0	0	10.97	6.955	10.523	10.023	10.325	10.618	10.286	10.623	10.285	
P PitN/1	PitN/1	PitN/2	12.622	5.95	5.46	3.88	Concrete, under roads	375	375	0.3	Existing	1	PitN/2	0	0	7.132	5.955	7.538	8.896	7.742	12.622	7.932			
P PitN/2	PitN/2	PitH/5	26.265	5.46	5.26	0.76	Concrete, under roads	375	375	0.3	Existing	1	PitH/5	0	0	7.932	7.342	8.07	13.304	8.209	25.121	8.489	26.265	8.525	
P PitT/1	PitT/1	PitU/2	11.873	9.15	8.9	2.11	Concrete, under roads	375	375	0.3	Existing	1	PitU/2	0	0	9.604	2.46	9.67	3.473	9.491	3.557	9.479	3.704	9.502	5.742
P PitU/2	PitU/2	PitU/3	34.943	8.9	6.77	6.1	Concrete, under roads	375	375	0.3	Existing	1	PitU/3	0	0	10.313	4.457	10.135	7.649	9.974	9.924	9.855	19.548	9.464	29.416
P PitU/3	PitU/3	PitU/4	40.242	6.7	5.07	4.05	Concrete, under roads	450	450	0.3	Existing	1	PitU/4	0	0	8.606	2.077	8.514	5.692	8.397	12.856	8.303	17.809	8.326	20.731
P PitU/4	PitU/4	PitH/6	12.072	5	4.88	0.99	Concrete, under roads	525	525	0.3	Existing	1	PitH/6	0	0	7.599	0.471	7.553	8.245	6.883	8.248	6.882	8.26	6.881	12.072
P PitA/1	PitA/1	PitA/2	231.331	12	5.1	2.98	Concrete, under roads	600	500	0.6	NewFixed	1	PitA/2	0	0	13.69	4.432	13.455	9.171	13.208	10.162	13.16	11.234	13.113	13.196
P PitA/2	PitA/2	PitA/3	37.358	5.1	4.85	0.67	Concrete, under roads	900	900	0.6	NewFixed	2	PitA/3	0	0	5.923	3.775	5.876	22.808	5.638	24.081	5.623	24.216	5.621	24.515
P PitA/3	PitA/3	PitA/4	51.5	4.85	4.5	0.68	Concrete, under roads	900	900	0.6	Existing	2	PitA/4	0	0	5.461	5.216	5.398	7.226	5.38	23.908	5.204	25.198	5.191	36.451
P PitA/4	PitA/4	PitA/5	31	4.35	4.1	0.81	Concrete, under roads	900	900	0.6	Existing	3	PitA/5	0	0	4.941	8.986	4.869	10.573	4.859	25.635	4.776	26.494	4.767	27.483
PipeA/5	PitA/5	PitA/6	30.15	4.1	3.97	0.43	Concrete, under roads	900	900	0.6	New	3	PitA/6	0											
PipeA/6	PitA/6	PitA/7	16.89	3.97	3.9	0.41	Concrete, under roads	900	900	0.6	New	3	PitA/7	0											
PipeA/7	PitA/7	PitA/8	12	3.9	3.85	0.42	Concrete, under roads	900	900	0.6	New	3	PitA/8	0											
P PitA/8	PitA/8	Nhwall	62	3.85	3.7	0.24	Concrete, under roads	900	900	0.6	NewFixed	4	Nhwall	0	0	4.345	0.513	4.339	8.621	4.246	11.025	4.239	18.97	4.263	39.968
P PitY/1	PitY/1	PitA/2	20.634	5.7	5.48	1.07	Concrete, under roads	675	675	0.3	Existing	1	PitA/2	0	0	6.405	3.01	6.219	9.298	6	12.256	5.982	18.664	5.959	20.634
P PitF/1	PitF/1	PitF/2	37.556	11.2	10.47	1.94	Concrete, under roads	375	375	0.3	Existing	1	PitF/2	0	0	13.114	3.475	13.065	11.029	12.923	19.014	12.776	24.592	12.743	34.955
P PitF/2	PitF/2	PitF/3	14.029	10.32	10.11	1.5	Concrete, under roads	450	450	0.3	Existing	1	PitF/3	0	0	12.995	9.882	13.225	14.029	13.33					
P PitF/3	PitF/3	PitF/4	7.004	9.88	9.6	4	Concrete, under roads	675	675	0.3	Existing	1	PitF/4	0	0	13.33	2.903	13.294	6.555	13.289	7.004	13.251			
P PitF/4	PitF/4	PitF/5	13.926	9.6	9.27	2.37	Concrete, under roads	675	675	0.3	Existing	1	PitF/5	0	0	13.251	1.626	13.061	6.593	12.907	13	12.586	13.926	12.533	
P PitF/5	PitF/5	PitF/6	64.854	9.2	8.1	1.7	Concrete, under roads	750	750	0.3	Existing	1	PitF/6	0	0	12.533	9.522	12.252	19.92	12.046	28.907	11.834	40.449	11.51	45.963
P PitF/6	PitF/6	PitF/7	39.549	8.1	6.8	3.29	Concrete, under roads	750	750	0.3	Existing	1	PitF/7	0	0	10.813	5.799	10.573	9.136	10.432	13.84	10.252	27.054	9.814	33.506
P PitF/7	PitF/7	PitF/8	40.411	6.8	5.75	2.6	Concrete, under roads	750	750	0.3	Existing	1	PitF/8	0	0	9.203	1.468	9.122	10.112	8.625	17.204	8.223	27.684	7.573	34.046
P PitF/8	PitF/8	PitF/9	38.731	5.6	4.93	1.73	Concrete, under roads	900	900	0.3	Existing	1	PitF/9	0	0	6.837	3.28	6.652	10.34	6.233	17.178	5.951	24.018	5.694	31.64
P PitF/9	PitF/9	PitF/10	19.447	4.93	4.79	0.72	Concrete, under roads	900	900	0.3	Existing	1	PitF/10	0	0	5.394	11.929	5.194	12.661	5.188	19.301	5.137	22.447	5.127	
P PitF/10	PitF/10	PitF/11	7.472	4.79	4.75	0.54	Concrete, under roads	900	900	0.3	Existing	1	PitF/11	0	0	5.127	7.009	5.067							
P PitF/11	PitF/11	PitA/4	20.87	4.75	4.65	0.48	Concrete, under roads	900	900	0.3	Existing	1	PitA/4	0	0	5.067	1.079	5.058	3.746	5.026	7.203	5.012	17.965	4.954	20.092

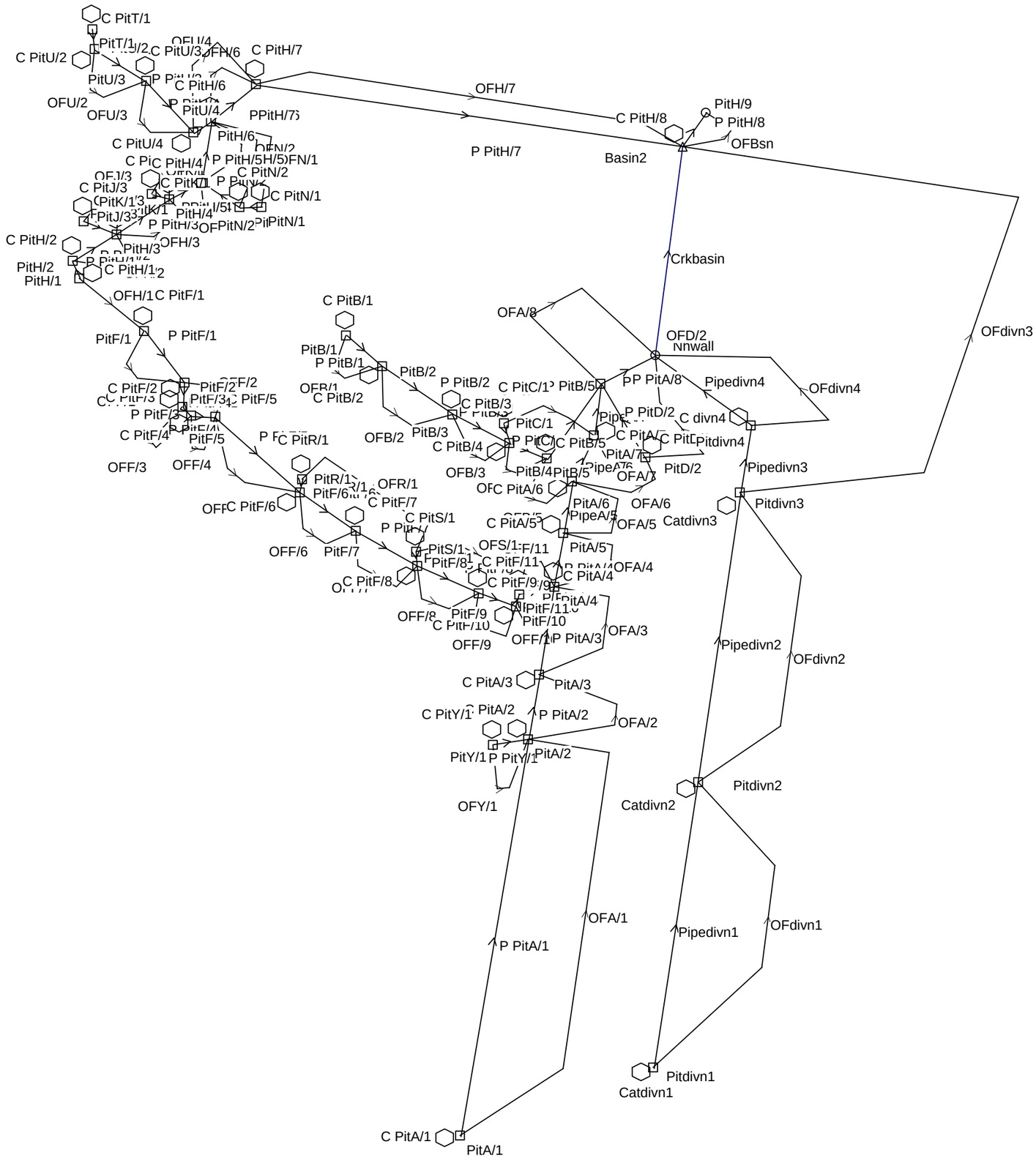
P PitR/1	PitR/1	PitF/6	7.656	8.55	8.41	1.83	Concrete, under roads	375	375	0.3	Existing	1	PitF/6	0	0	10.359	0.761	10.401	4.766	10.643	7.656	10.813			
P PitS/1	PitS/1	PitF/8	8.357	6.25	6.13	1.44	Concrete, under roads	375	375	0.3	Existing	1	PitF/8	0	0	6.75	4.63	6.791	8.357	6.837					
P PitD/2	PitD/2	PitA/8	21.789	4.55	4.32	1.06	Concrete, under roads	375	375	0.6	Existing	1	PitA/8	0	0	4.405	7.832	4.376	13.012	4.343	19.453	4.349	21.789	4.345	
P PitB/1	PitB/1	PitB/2	26.803	5.78	5.5	1.04	Concrete, under roads	375	375	0.3	Existing	1	PitB/2	0	0	6.853	9.322	6.597	10.705	6.553	26.264	6.098	26.803	6.082	
P PitB/2	PitB/2	PitB/3	49.237	5.43	5	0.87	Concrete, under roads	450	450	0.3	Existing	1	PitB/3	0	0	6.082	0.001	6.082	0.048	6.082	0.412	6.073	17.817	5.665	20.938
P PitB/3	PitB/3	PitB/4	36.867	4.93	4.65	0.76	Concrete, under roads	525	525	0.3	NewFixed	1	PitB/4	0	0	4.938	3.604	4.865	11.024	4.772	18.823	4.654	21.536	4.62	36.867
P PitB/4	PitB/4	PitB/5	23.324	4.65	4.4	1.07	Concrete, under roads	525	525	0.3	Existing	1	PitB/5	0	0	4.561	2.211	4.549	3.608	4.544	19.394	4.38	20.957	4.375	23.324
P PitB/5	PitB/5	PitA/8	26.5	4.25	4.08	0.64	Concrete, under roads	675	675	0.6	Existing	1	PitA/8	0	0	4.381	8.459	4.401	15.621	4.363	16.145	4.359	17.103	4.349	17.608
P PitC/1	PitC/1	PitB/4	11.927	5	4.8	1.68	Concrete, under roads	375	375	0.3	Existing	1	PitB/4	0	0	4.493	0.956	4.49	2.306	4.496	7.612	4.53	11.927	4.561	
Pipedivn1	Pitdivn1	Pitdivn2	215	13.1	5.3	3.63	Concrete, under roads	750	750	0.6	NewFixed	1	Pitdivn2	0											
Pipedivn2	Pitdivn2	Pitdivn3	202	5.3	3.92	0.68	Concrete, under roads	750	750	0.6	New	2	Pitdivn3	0											
Pipedivn3	Pitdivn3	Pitdivn4	19	3.92	3.85	0.37	Concrete, under roads	900	900	0.6	New	2	Pitdivn4	0											
Pipedivn4	Pitdivn4	Nhwall	30	3.85	3.7	0.5	Concrete, under roads	900	900	0.6	NewFixed	2	Nhwall	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)													
Crkbasin	Nhwall	Basin2	Irregular	70																					
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)	(%)	%													
OFH/1	PitH/1	PitF/1	0.1				half 7m	0.2	0.2	0.4	2	0		180985											
OFH/2	PitH/2	PitH/3	0.1				15m road centre draining	0.2	0.2	0.4	7	0		180987											
OFH/3	PitH/3	PitH/4	0.1				15m road centre draining	0.2	0.2	0.4	11	0		180989											
OFH/4	PitH/4	PitH/5	0.1				15m road centre draining	0.2	0.2	0.4	10	0		180991											
OFH/5	PitH/5	PitH/6	0.1				15m road centre draining	0.2	0.2	0.4	1	0		180993											
OFH/6	PitH/6	PitH/7	0.1				half 7m	0.2	0.2	0.4	1	0		180977											
OFH/7	PitH/7	Basin2	0.2				Pathway 4m wide	0.3	0.3	0.6	1	0		180979											
OFBsn	Basin2	PitH/9	0.1	4.85	25	2	Basin HL Overflow	0.3	0.2	0.6	0.5	0		232109											
OFJ/3	PitJ/3	PitH/3	0.1				half 7m	0.2	0.2	0.4	2	0		180983											
OFK/1	PitK/1	PitH/4	0.1				15m road centre draining	0.2	0.2	0.4	3	0		183638											
OFN/1	PitN/1	PitH/6	0.1				half 9m	0.2	0.2	0.4	1	0		180996											
OFN/2	PitN/2	PitH/6	0.1				15m road centre draining	0.2	0.2	0.4	1	0		181057											
OFU/2	PitU/2	PitU/3	0.1				half 11m	0.2	0.2	0.4	5	0		180971											
OFU/3	PitU/3	PitU/4	0.1				half 11m	0.2	0.2	0.4	5	0		180973											
OFU/4	PitU/4	PitH/7	0.1				half 11m	0.2	0.2	0.4	1	0		180975											
OFA/1	PitA/1	PitA/2	0.5				15m road centre draining	0.2	0.2	0.4	12	0		181066											
OFA/2	PitA/2	PitA/3	0.1				15m road centre draining	0.2	0.2	0.4	10	0		181070											
OFA/3	PitA/3	PitA/4	0.1				15m road centre draining	0.2	0.2	0.4	1	0		181031											
OFA/4	PitA/4	PitA/5	0.1				15m road centre draining	0.2	0.2	0.4	1	0		181033											
OFA/5	PitA/5	PitA/6	0.1				15m road centre draining	0.2	0.2	0.4	0.75	0		181035											
OFA/6	PitA/6	PitD/2	0.1				15m road centre draining	0.2	0.2	0.4	0.75	0		181037											
OFA/7	PitA/7	PitD/2	0.1				20m rd resv 6.5m lane SA k	0.22	0.1	0.4	1	0		181055											
OFA/8	PitA/8	Nhwall	0.5				1 year surcharge channel	0.4	0.4	0.4	0.15	0		20340613											
OFY/1	PitY/1	PitA/2	0.1				half 7m	0.2	0.2	0.4	2	0		181077											
OFF/1	PitF/1	PitF/2	0.1				half 7m	0.2	0.2	0.4	2	0		181000											
OFF/2	PitF/2	PitF/5	0.1				half 7m	0.2	0.2	0.4	2	0		181002											
OFF/3	PitF/3	PitF/4	0.1				half 7m	0.2	0.2	0.4	2	0		181004											
OFF/4	PitF/4	PitF/5	0.1				half 7m	0.2	0.2	0.4	2	0		181006											
OFF/5	PitF/5	PitF/6	0.1				half 7m	0.2	0.2	0.4	2	0		181008											
OFF/6	PitF/6	PitF/7	0.1				half 7m	0.2	0.2	0.4	2.8	0		181011											
OFF/7	PitF/7	PitF/8	0.1				half 7m	0.2	0.2	0.4	2	0		181013											
OFF/8	PitF/8	PitF/9	0.1				half 7m	0.2	0.2	0.4	1.4	0		181015											
OFF/9	PitF/9	PitF/10	0.1				half 7m	0.2	0.2	0.4	1.4	0		181017											
OFF/10	PitF/10	PitA/4	0.1				half 7m	0.2	0.2	0.4	2	0		181026											
OFF/11	PitF/11	PitA/4	0.1				15m road centre draining	0.2	0.2	0.4	2	0		181029											
OFR/1	PitR/1	PitS/1	0.1				half 7m	0.2	0.2	0.4	2.8	0		181021											
OFS/1	PitS/1	PitF/11	0.1				half 7m	0.2	0.2	0.4	1.5	0		181023											
OFD/2	PitD/2	Nhwall	0.1				15m road centre draining	0.2	0.2	0.4	0.75	0		182087											
OFB/1	PitB/1	PitB/2	0.1				half 9m	0.2	0.2	0.4	0.75	0		181041											
OFB/2	PitB/2	PitB/3	0.1				half 9m	0.2	0.2	0.4	0.75	0		181043											
OFB/3	PitB/3	PitB/4	0.1				half 9m	0.2	0.2	0.4	0.75	0		181047											
OFB/4	PitB/4	PitB/5	0.1				half 9m	0.2	0.2	0.4	0.75	0		181051											
OFB/5	PitB/5	PitA/6	0.1				half 9m	0.2	0.2	0.4	0.75	0		181053											
OFC/1	PitC/1	PitA/7	0.1				half 9m	0.2	0.2	0.4	0.75	0		181049											
OFdivn1	Pitdivn1	Pitdivn2	0.5				diversion channel	0.4	0.2	0.4	3	0		5468850											
OFdivn2	Pitdivn2	Pitdivn3	0.5				diversion channel	0.4	0.2	0.4	0.75	0		5142704											
OFdivn3	Pitdivn3	Basin2	0.5				road centreline surcharge	0.14	0.1	0.4	0.5	0		3075073											
OFdivn4	Pitdivn4	Nhwall	0.5				1 year surcharge channel	0.4	0.4	0.4	0.15	0		181082											

15.569																													
13.225																													
11.065	36.172	10.341	36.24	10.336	36.843	10.285																							
7.525	22.275	7.279	30.516	6.828	35.583	6.554																							
4.969	33.349	4.963																											
4.437	51.069	4.256	57.577	4.194	66.983	4.192	75.611	4.157	81.581	4.19	115.838	4.063	116.91	4.061	117.716	4.057	146.202	3.997	146.857	3.995	164.303	3.922	164.774	3.922	183.477	3.931	192.797	3.938	198.872
9.885	8.306	10.07	11.873	10.313																									
8.914	30.472	8.85	32.694	8.752	34.943	8.606																							
8.194	26.549	7.975	29.279	7.832	40.242	7.599																							
6.554																													
13	16.378	12.882	21.43	12.731	45.111	12	62.7	11.208	67.566	11	70.331	10.895	94.244	10	109.566	9.258	113.193	9.103	115.475	9	133.168	8.439	139.176	8.253	143.203	8.136	145.014	8.101	146.353
5.618	25.291	5.608	37.358	5.461																									
4.946	38.932	4.92	48.11	4.968	51.5	4.941																							
4.759	31	4.718																											
4.208	42.246	4.204	44.544	4.2	63.247	4.179	84.41	4.129	89.799	4.119	93.724	4.104	112.902	4.042	131.309	3.992	141.439	4.013	152.098	4.046	164.75	4.097	171.189	4.121	185.346	4.234	186.291	4.239	
5.923																													
13.017	37.556	12.995																											
11.351	53.806	11.114	58.733	11.005	64.854	10.813																							
9.503	39.549	9.203																											
7.166	40.411	6.837																											
5.524	37.378	5.416	38.731	5.394																									
4.944	20.87	4.941																											

5.579	29.74	5.343	40.377	5.094	42.288	5.07	49.237	4.938																					
4.561																													
4.381																													
4.345																													

3.944	198.945	3.945	199.033	3.945	206.412	3.681	206.563	3.693	208.364	3.873	209.615	4	210.952	3.972	212.701	3.935	212.794	3.933	212.829	3.932	212.907	3.931	212.938	3.931	231.071	4.099	231.131	4.099	246.787
8.041	146.672	8.038	147.582	8	147.941	8	149.004	8	149.957	8	167.643	7.505	169.101	7.472	171.207	7.398	175.304	7.316	177.283	7.244	180.36	7.194	183.554	7.047	184.734	7	185.717	7	191.148

4.239														
6.867	196.44	6.729	213.439	6.318	218.568	6.231	224.819	6.011	225.094	6	225.62	5.996	231.331	5.923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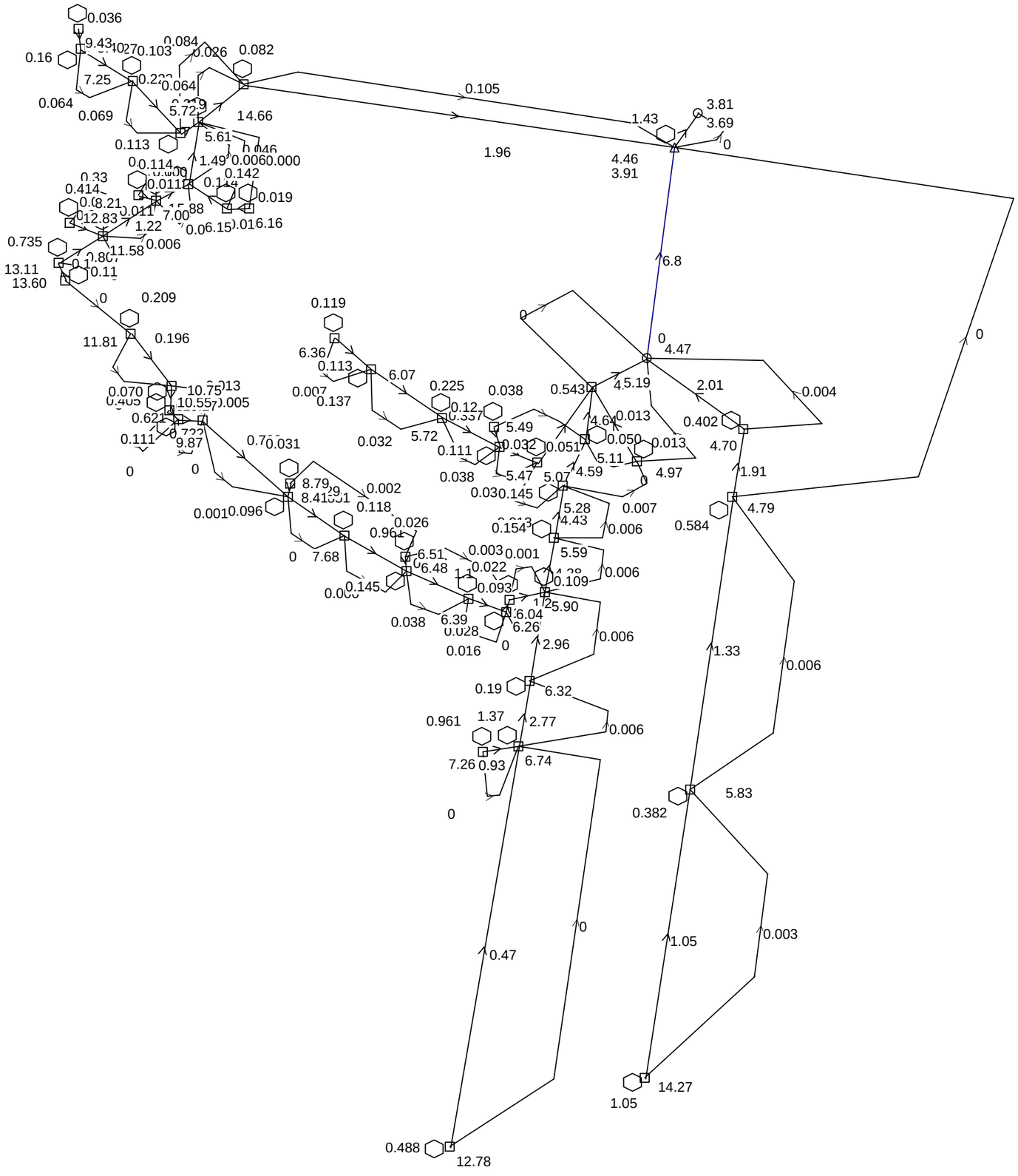
WALDEL PARK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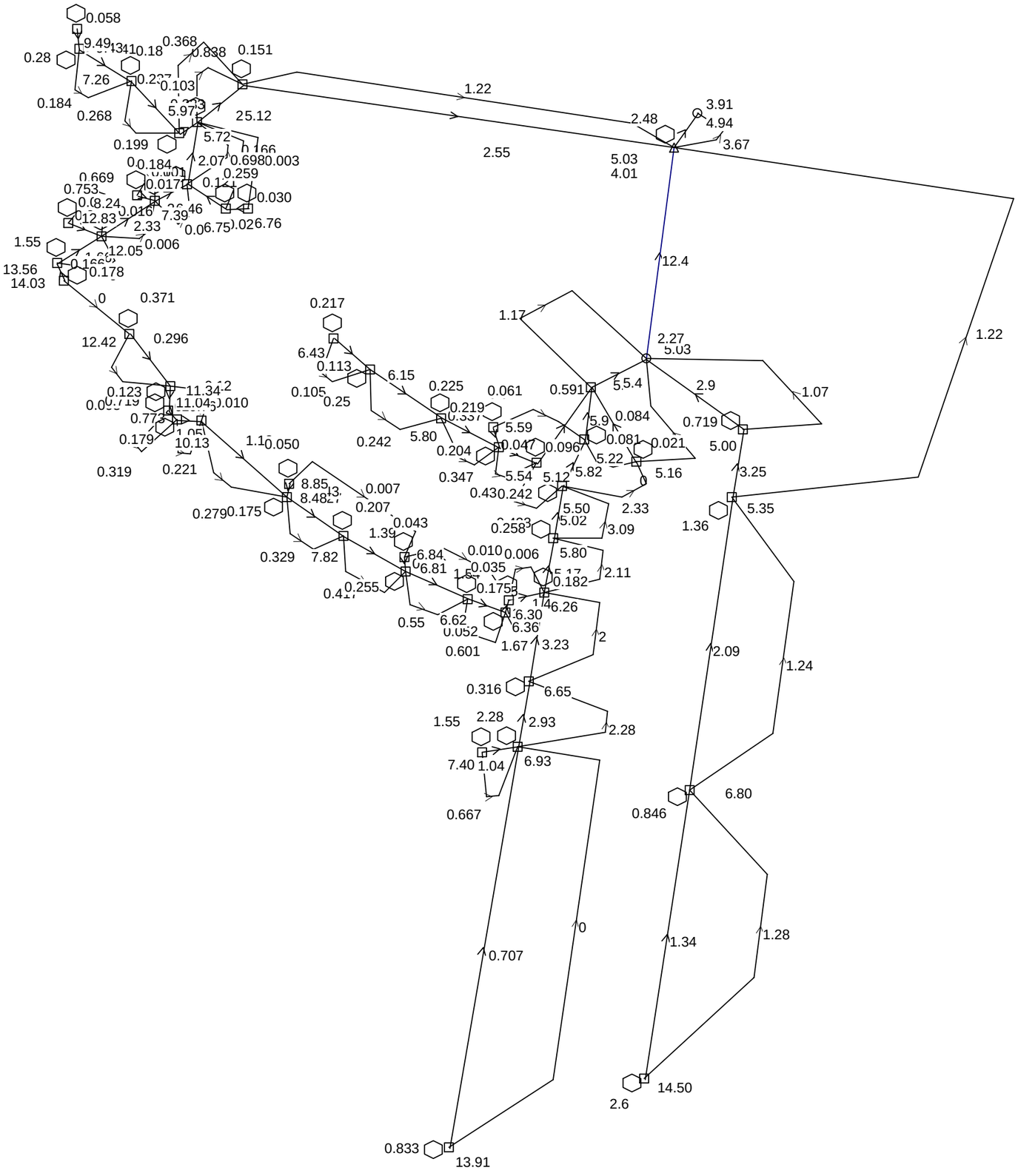
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WALDEL PARK