

ILSAX CALCULATION SUMMARY SHEET																																															
DRAINS results prepared from Version 2023.11.8726.15750																																															
Soil Type		User to enter																																													
AMC		User to enter																																													
				Entire Catchment Area																																											
				Paved 1.827 ha (40.9%)																																											
				Supplementary 0 ha (0%)																																											
				Grassed 2.637 ha (59%)																																											
				Total Area 4.464 ha																																											
LOCATION AND LAND-USE						TIME AND RUNOFF						INLET DESIGN						PIPE SYSTEM DESIGN												PIT RESULTS																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	29a	29b		30	31	32	33	34											
AEP	Pit, Node or Basin Name	Sub-Catchment Area (ha)	Land-Use Type (ILSAX)	Percentage (%)	Constant Flow Time (minutes)	Kinematic Wave or Friends Formula Parameters			Total Entry Time, t _e (minutes)	Peak Sub-Catchment Flowrate (m ³ /s) *worst storm	Origin of Approach Flows	Peak Flowrate(s) (m ³ /s)	Flow Width (m)	Depth x Velocity (m ² /s)	Inlet Family	Inlet Size	Peak Approach Flow (m ³ /s)	Bypass Flow(s) (m ³ /s)	Peak Flow in Pipe (m ³ /s)	Reach Length (m)	Pipe Slope (%)	Pipe Diameter (mm)	U/S Pipe Invert Level (m)	D/S Pipe Invert Level (m)	U/S HGL in Pipe (m)	D/S HGL in Pipe (m)	Pipe Flow Velocity (m/s)	Pressure Change Coeff. Ku	QUDM Chart No. 2008 [2016]	QUDM Chart Ratios		Water Surface Elevation (m)	Ground Surface Level (m)	Pit Free-board (m)	Pit Name	Remarks											
	AA-1	0.0339	Paved Supp. Grassed	100 0 90	5 0 10				5	0.012	US AA-1				Surface Inlet Pit, 1% grade	SIP 900x900	0.012	0	0.012	1.817	0.99	150	8.063	8.045	8.161	8.142	0.94	7.36	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.13		8.29	14.671	6.38	AA-1												
1%	AA-1	0.0339	Paved Supp. Grassed	<-----		as above			10 5 10	0.018	US AA-1				<--- as above --->		0.018	0	0.018	<----- as above ----->					8.186	8.176	1.13	7.4			8.53	14.671	6.14	AA-1													
	A-1	0.0114	Paved Supp. Grassed	100 0 0	5 0 10				5	0.007					Surface Inlet Pit Sag	SIP 900x900	0.007	0	0.017	28.224	1	250	8.015	7.733	8.129	7.865	0.77	2.26	A1-18 [A2-28 & A2-29]	Du / Do = 0.64, Qg / Qo = 0.40, S / Do = 0.5		8.14	8.838	0.7	A-1												
1%	A-1	0.0114	Paved Supp. Grassed	<-----		as above			10 5 10	0.009					<--- as above --->		0.009	0	0.025	<----- as above ----->					8.143	7.907	1.01	2.3			8.18	8.838	0.66	A-1													
	A-2	0.0074	Paved Supp. Grassed	100 0 0	5 0 10				5	0.004	A-1	0	0	0	Surface Inlet Pit Sag	SIP 900x900	0.004	0	0.03	13.01	1	250	7.703	7.573	7.844	7.679	1.54	1.67	A1-20 [A2-32]	Du/Do=1.00, Qg/Qo=0.16, S/Do=1.1		7.87	8.843	0.98	A-2												
1%	A-2	0.0074	Paved Supp. Grassed	<-----		as above			10 5 10	0.006	A-1	0	0	0	<--- as above --->		0.006	0	0.045	<----- as above ----->					7.877	7.718	1.58	1.7			7.91	8.843	0.94	A-2													
	A-3		Paved Supp. Grassed												Junction Pit	JP 900x900	0		0.032	30.748	1	250	7.543	7.235	7.679	7.34	1.66	0.43	A1-24 [A2-37 & A2-38]	DI / Do = 0.64, B / Do = 3.72, (Qu / Qo)(Do / Du) = 0.92		7.68	8.89	1.21	A-3												
1%	A-3		Paved Supp. Grassed												<--- as above --->		0	0.048	<----- as above ----->					7.718	7.386	1.6	0.4			7.72	8.89	1.17	A-3														
	A-4		Paved Supp. Grassed												Junction Pit	JP 900x900	0		0.036	29.998	1	300	7.13	6.83	7.233	6.95	1.69	0	A1-20 [A2-32]	Du/Do=0.80, Qg/Qo=0.14, S/Do=1.0		7.23	8.737	1.5	A-4												
1%	A-4		Paved Supp. Grassed												<--- as above --->		0	0.056	<----- as above ----->					7.386	7.345	0.86	0			7.39	8.737	1.35	A-4														
	A-5		Paved Supp. Grassed												Junction Pit	JP 900x900	0		0.041	25.327	1	300	6.8	6.547	6.95	6.658	1.74	0.58	A1-25 [A2-39]	Du/Do=1.00, Qg/Qo=0.00, S/Do=1.0		6.95	8.466	1.52	A-5												
1%	A-5		Paved Supp. Grassed												<--- as above --->		0	0.071	<----- as above ----->					7.328	7.289	0.98	0.6			7.34	8.466	1.12	A-5														
	A-6		Paved Supp. Grassed												Junction Pit	JP 900x900	0	0	0.046	9.311	1	375	6.406	6.313	6.582	6.506	0.9	1.98	A1-24 [A2-37 & A2-38]	DI / Do = 0.81, B / Do = 2.40, (Qu / Qo)(Do / Du) = 0.24		6.58	8.37	1.79	A-6												
1%	A-6		Paved Supp. Grassed												<--- as above --->		0	0	0.077	<----- as above ----->					7.259	7.252	0.7	2			7.29	8.37	1.08	A-6													
	A-7	0.0085	Paved Supp. Grassed	100 0 0	5 0 10				5	0.005	A-6	0.011	1.45	0.02	Surface Inlet Pit, 1% grade	SIP 900x900	0.005	0	0.05	8.402	1	375	6.283	6.199	6.502	6.489	0.74	0.68	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.11, S / Do = 1.0		6.51	8.061	1.56	A-7												
1%	A-7	0.0085	Paved Supp. Grassed	<-----		as above			10 5 10	0.007	A-6	0.016	1.66	0.02	<--- as above --->		0.007	0	0.082	<----- as above ----->					7.239	7.231	0.74	0.7			7.25	8.061	0.81	A-7													
	A-8	0.0164	Paved Supp. Grassed	100 0 0	5 0 10				5	0.009	A-7	0.012	1.47	0.02	Surface Inlet Pit, 1% grade	SIP 900x900	0.009	0	0.056	12.5	1	375	6.169	6.044	6.482	6.474	0.57	0.97	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.19, S / Do = 1.0		6.49	7.927	1.44	A-8												
1%	A-8	0.0164	Paved Supp. Grassed	<-----		as above			10 5 10	0.014	A-7	0.017	1.68	0.02	<--- as above --->		0.014	0	0.09	<----- as above ----->					7.209	7.194	0.81	1			7.23	7.927	0.7	A-8													
	A-9	0.021	Paved Supp. Grassed	100 0 0	5 0 10				5	0.012	A-8	0.009	1.21	0.01	Surface Inlet Pit, 1% grade	SIP 900x900	0.012	0	0.064	12.5	1	375	6.014	5.889	6.463	6.455	0.58	1.05	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.21, S / Do = 1.2		6.47	7.727	1.25	A-9												
1%	A-9	0.021	Paved Supp. Grassed	<-----		as above			10 5 10	0.018	A-8	0.013	0	0	<--- as above --->		0.018	0	0.101	<----- as above ----->					7.162	7.141	0.91	1			7.19	7.727	0.53	A-9													
	A-10	0.0198	Paved Supp. Grassed	100 0 0	5 0 10				5	0.011	A-9	0	0	0	Surface Inlet Pit, 1% grade	SIP 900x900	0.011	0	0.07	12.5	1	375	5.859	5.734	6.444	6.435	0.64	0.91	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.18, S / Do = 1.6		6.46	7.514	1.06	A-10												
1%	A-10	0.0198	Paved Supp. Grassed	<-----		as above			10 5 10	0.016	A-9	0	0	0	<--- as above --->		0.016	0	0.111	<----- as above ----->					7.107	7.082	1	0.9			7.14	7.514	0.37	A-10													
	A-11	0.0207	Paved Supp. Grassed	100 0 0	5 0 10				5	0.012	A-10	0.008	1.48	0.01	Surface Inlet Pit, 1% grade	SIP 900x900	0.012	0	0.078	6.124	1	375	5.704	5.643	6.423	6.418	0.71	0.79	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.17, S / Do = 2.0		6.44	7.292	0.86	A-11												
1%	A-11	0.0207	Paved Supp. Grassed	<-----		as above			10 5 10	0.017	A-10	0.012	0	0	<--- as above --->		0.017	0	0.122	<----- as above ----->					7.055	7.043	1.1	0.8			7.08	7.292	0.21	A-11													
	A-12	0.1385	Paved Supp. Grassed	90 0 10	5 0 10				5	0.074	A-11 A-13 AG-4 AG-6 AJ-1 AK-5 US1 A-12 US2 A-12	0.002 0.004 0.012 0.012 0.003 0.015	0.48 0.52 1.45 1.43 0.32 1.79	0.01 0.02 0.02 0.02 0.02 0.02	Surface Inlet Pit Sag	SIP 1200x1200	0.074	0	0.365	16.949	1	600	5.613	5.443	6.39	6.377	1.3	1.1	A1-20 [A2-32]	Du/Do=0.75, Qg/Qo=0.24, S/Do=1.5		6.42	7.1	0.68	A-12												
1%	A-12	0.1385	Paved Supp. Grassed	<-----		as above			5 10	0.108	A-11 A-13 AG-4 AG-6 AJ-1 AK-5 US1 A-12 US2 A-12	0.003 0.007 0.017 0.017 0.004 0.024	0.55 0.61 1.66 1.61 0.37 2.08	0.02 0.03 0.02 0.02 0.03 0.03	<--- as above --->																																

	AL-4	0.0728	Paved Supp. Grassed	10 0 90	5 0 10				5	0.025	AL-3	0.018	1.76	0.02	Surface Inlet Pit, 1% grade	SIP 900x900	0.025	0.001	0.036	31.029	2.1	300	6.831	6.178	6.975	6.669	1.05	7.92	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.04	7.06	8.031	0.97	AL-4
1%	AL-4	0.0728	Paved Grassed	<-----	as above	----->			10	0.04	AL-3	0.025	1.97	0.03	<--- as above --->		0.04	0.002	0.054	<----- as above ----->					7.448	7.406	0.75	7.9			7.65	8.031	0.38	AL-4
	AL-5	0.1298	Paved Supp. Grassed	10 0 90	5 0 10				5	0.045	AL-4 AN-1	0.019 0.004	1.8 0	0.02 0	Surface Inlet Pit, 1% grade	SIP 900x900	0.047	0.003	0.079	9.15	1.01	300	6.148	6.056	6.398	6.377	1.23	6.01	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.20	6.67	7.378	0.71	AL-5
1%	AL-5	0.1298	Paved Grassed	<-----	as above	----->			10	0.071	US AL-5 AL-4 AN-1 US AL-5	0.031 0.01 0.01	2.12 0.48 0	0.03 0	<--- as above --->		0.078	0.021	0.115	<----- as above ----->					6.987	6.956	1.59	6			7.41	7.378	0	AL-5
	AM-1	0.0133	Paved Supp. Grassed	10 0 90	5 0 10				5	0.005	AF-1	0.009	1.17	0.01	Surface Inlet Pit, 1% grade	SIP 900x900	0.005	0	0.005	1.757	1.02	150	7.538	7.52	7.599	7.568	0.91	7.92	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.02	7.63	13.652	6.02	AM-1
1%	AM-1	0.0133	Paved Grassed	<-----	as above	----->			10	0.007	AF-1	0.013	0	0	<--- as above --->		0.007	0	0.007	<----- as above ----->					7.666	7.665	0.42	7.9			7.72	13.652	5.93	AM-1
	AN-1	0.0074	Paved Supp. Grassed	10 0 90	5 0 10				5	0.003	AL-1	0.006	0.6	0.03	Surface Inlet Pit, 1% grade	SIP 900x900	0.003	0	0.003	26.546	4.47	150	8.093	6.906	8.159	7.061	0.33	7.92	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.01	8.16	9.48	1.32	AN-1
1%	AN-1	0.0074	Paved Grassed	<-----	as above	----->			10	0.004	AL-1	0.009	0.7	0.04	<--- as above --->		0.004	0	0.004	<----- as above ----->					8.15	7.647	0.63	7.9			8.18	9.48	1.3	AN-1
	BA-1	0.0369	Paved Supp. Grassed	10 0 90	5 0 10				5	0.013					Surface Inlet Pit, 1% grade	SIP 900x900	0.013	0	0.013	1.55	1.03	150	7.903	7.887	8.007	7.965	1.36	6.7	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.16	8.13	12.258	4.13	BA-1
1%	BA-1	0.0369	Paved Grassed	<-----	as above	----->			10	0.02					<--- as above --->		0.02	0	0.02	<----- as above ----->					8.455	8.445	1.06	6.7			8.83	12.258	3.43	BA-1
	B-1		Paved Supp. Grassed												Junction Pit	JP 900x900	0		0.014	19.154	1	250	7.857	7.666	7.948	7.751	0.95	1.83	A1-18 [A2-28 & A2-29]	Du / Do = 0.64, Qg / Qo = 0.00, S / Do = 0.4	7.95	8.941	0.99	B-1
1%	B-1		Paved Grassed												<--- as above --->		0		0.022	<----- as above ----->					8.426	8.41	0.47	1.8			8.45	8.941	0.5	B-1
	B-2		Paved Supp. Grassed												Junction Pit	JP 900x900	0		0.02	14.29	1	250	7.636	7.493	7.751	7.599	1.02	1.32	A1-24 [A2-37 & A2-38]	DI / Do = 0.64, B / Do = 3.72, (Qu / Qo)(Do / Du) = 0.70	7.75	8.861	1.11	B-2
1%	B-2		Paved Grassed												<--- as above --->		0		0.034	<----- as above ----->					8.381	8.359	0.74	1.3			8.41	8.861	0.45	B-2
	B-3		Paved Supp. Grassed												Junction Pit	JP 900x900	0		0.024	9.339	1.01	300	7.463	7.369	7.599	7.504	0.79	1.83	A1-24 [A2-37 & A2-38]	DI / Do = 0.80, B / Do = 2.97, (Qu / Qo)(Do / Du) = 0.37	7.6	8.806	1.21	B-3
1%	B-3		Paved Grassed												<--- as above --->		0		0.042	<----- as above ----->					8.337	8.331	0.59	1.8			8.36	8.806	0.45	B-3
	B-4		Paved Supp. Grassed												Junction Pit	JP 900x900	0		0.031	20.467	1	300	7.339	7.135	7.504	7.486	0.76	0.51	A1-25 [A2-39]	Du/Do=1.00, Qg/Qo=0.00, S/Do=1.0	7.5	8.705	1.2	B-4
1%	B-4		Paved Grassed												<--- as above --->		0		0.053	<----- as above ----->					8.321	8.3	0.74	0.5			8.33	8.705	0.37	B-4
	B-5	0.0332	Paved Supp. Grassed	10 0 90	5 0 10				5	0.012	BD-1 US B-5	0.008	1.29	0.01	Surface Inlet Pit, 1% grade	SIP 900x900	0.012	0	0.071	1.906	1	375	7.105	7.086	7.455	7.453	0.66	1.74	A1-20 [A2-32]	Du/Do=0.81, Qg/Qo=0.17, S/Do=1.1	7.49	8.52	1.03	B-5
1%	B-5	0.0332	Paved Grassed	<-----	as above	----->			10	0.018	BD-1 US B-5	0.012	0	0	<--- as above --->		0.018	0	0.105	<----- as above ----->					8.23	8.226	0.95	1.7			8.3	8.52	0.22	B-5
	B-6		Paved Supp. Grassed								B-5 BE-1	0.02 0.018	1.87 1.87	0.02 0.02	Surface Inlet Pit, 1% grade	SIP 900x900	0	0	0.074	16.35	1	375	7.056	6.892	7.446	7.426	0.67	0.32	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.03, S / Do = 1.1	7.45	8.47	1.02	B-6
1%	B-6		Paved Grassed								B-5 BE-1	0.029 0.028	2.12 2.17	0.03 0.03	<--- as above --->		0	0	0.113	<----- as above ----->					8.21	8.168	1.02	0.3			8.23	8.47	0.24	B-6
	B-7	0.0908	Paved Supp. Grassed	100 0 0	5 0 10				5	0.052	B-6 BG-2	0.016 0	1.65 0	0.02 0	Surface Inlet Pit, 1% grade	SIP 900x900	0.052	0.002	0.225	14.85	1	450	6.862	6.714	7.236	7.18	1.59	2.1	A1-20 [A2-32]	Du/Do=0.83, Qg/Qo=0.22, S/Do=1.5	7.43	8.305	0.88	B-7
1%	B-7	0.0908	Paved Grassed	<-----	as above	----->			10	0.076	B-6 BG-2 BG-3	0.024 0.001 0.008	1.88 0.21 0.82	0.03 0.01 0.03	<--- as above --->		0.076	0.006	0.327	<----- as above ----->					7.716	7.585	2.06	2.1			8.17	8.305	0.14	B-7
	B-8	0.0912	Paved Supp. Grassed	100 0 0	5 0 10				5	0.052	B-7 BG-4 BI-1	0.017 0.015 0.008	1.64 0.83 1.26	0.02 0.05 0.01	Surface Inlet Pit, 1% grade	SIP 900x900	0.052	0.003	0.268	15.421	1.01	600	6.684	6.529	7.173	7.154	1.09	0.26	A1-5 [A2-4]	Du / Do = 0.75, Qg / Qo = 0.23, S / Do = 1.0	7.18	8.164	0.98	B-8
1%	B-8	0.0912	Paved Grassed	<-----	as above	----->			10	0.076	B-7 BG-4 BI-1	0.024 0.023 0.012	1.84 0.96 1.11	0.03 0.06 0.01	<--- as above --->		0.076	0.006	0.396	<----- as above ----->					7.562	7.523	1.41	0.3			7.59	8.164	0.58	B-8
	B-9		Paved Supp. Grassed												Surface Inlet Pit, 1% grade	SIP 900x900	0	0	0.267	9.691	1	600	6.499	6.402	7.092	7.081	0.95	1.7	A1-7 [A2-8 & A2-9]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 1.2	7.15	8.067	0.91	B-9
1%	B-9		Paved Grassed												<--- as above --->		0	0	0.396	<----- as above ----->					7.361	7.334	1.41	1.7			7.52	8.067	0.54	B-9
	B-10		Paved Supp. Grassed												Surface Inlet Pit, 1% grade	SIP 900x900	0	0	0.302	3.179	0.98	750	6.372	6.341	7.047	7.046	0.73	1.75	H-O'L	Qg / Qo = 0.00, S / Do = 1.1	7.08	7.885	0.8	B-10
1%	B-10		Paved Grassed												<--- as above --->		0	0.001	0.443	<----- as above ----->					7.249	7.245	1.02	1.8			7.33	7.885	0.55	B-10
	B-11	0.148	Paved Supp. Grassed	100 0 0	5 0 10				5	0.085	B-8 B-9 B-10 BI-2 BI-4 BI-5 C-2	0.017 0.017 0.016 0.002 0.031	1.61 1.59 1.41 0.36 2.02	0.02 0.02 0.01 0.02 0.04	Surface Inlet Pit Sag	SIP 900x900	0.085	0	0.377	3	1	750	6.311	6.281	6.966	6.964	0.93	2.74	H-O'L	Qg / Qo = 0.26, S / Do = 1.1	7.05	7.801	0.76	B-11
1%	B-11	0.148	Paved Grassed	<-----	as above	----->			10	0.123	B-8 B-9 B-10 BI-2 BI-4 BI-5 C-2	0.024 0.025 0.024 0.004 0.045	1.79 1.76 1.62 0.41 2.3	0.03 0.03 0.02 0.02 0.05	<--- as above --->		0.123	0.002	0.551	<----- as above ----->					7.086	7.082	1.27	2.7			7.25	7.801	0.56	B-11
	B-12		Paved Supp. Grassed												PIPE CONNECTION	PIPE CONNECTION	0		0.377	3	1	750	6.281	6.251	6.954	6.951	0.91	0.39	H-O'L	Qg / Qo = 0.00, S / Do = 1.0	6.96	7.807	0.84	B-12
1%	B-12		Paved Grassed												<--- as above --->		0		0.543	<----- as above ----->					7.064	7.061	1.25	0.4			7.08	7.807	0.72	B-12
	BB-1	0.0174	Paved Supp. Grassed	10 0 90	5 0 10				5	0.006	BA-1	0	0	0	Surface Inlet Pit, 1% grade	SIP 900x900	0.006	0	0.006	1.55	0.97	150	7.681	7.666	7.753	7.751	0.7	7.92	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.03	7.81	12.055	4.25	BB-1
									10																									

			BB-1	0.0174	Paved Grassed	<-----	as above	----->	5 10	0.009	BA-1	0.002	0.48	0.01	<--- as above --->		0.011	0	0.009	<----- as above ----->	8.412	8.41	0.51	7.9				8.5	12.055	3.55	BB-1					
			BC-1	0.0132	Paved Supp. Grassed	10 0 90	5 0 10		5	0.005	BB-1	0.004	0.91	0.01	Surface Inlet Pit, 1% grade	SIP 900x900	0.005	0	0.005	1.55	0.97	150	7.508	7.493	7.601	7.599	0.39	7.92	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.02	7.63	11.368	3.74	BC-1		
1%			BC-1	0.0132	Paved Grassed	<-----	as above	----->	5 10	0.007	BB-1	0.006	0	0	<--- as above --->		0.007	0	0.007	<----- as above ----->	8.36	8.359	0.39	7.9				8.41	11.368	2.95	BC-1					
			BD-1	0.0081	Paved Supp. Grassed	10 0 90	5 0 10		5	0.003	BC-1	0	0	0	Surface Inlet Pit, 1% grade	SIP 900x900	0.003	0	0.003	1.55	1.03	150	7.385	7.369	7.505	7.504	0.18	7.92	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.01	7.51	8.907	1.4	BD-1		
1%			BD-1	0.0081	Paved Grassed	<-----	as above	----->	5 10	0.004	BC-1	0	0	0	<--- as above --->		0.004	0	0.004	<----- as above ----->	8.331	8.331	0.24	7.9				8.35	8.907	0.55	BD-1					
			BE-1	0.0718	Paved Supp. Grassed	100 0 0	5 0 10		5	0.041	BG-1 BF-3	0.012	0.78	0.04	Surface Inlet Pit, 1% grade	SIP 900x900	0.041	0.002	0.036	3.854	0.99	250	7.173	7.135	7.495	7.486	0.78	6.44	A1-4 [A2-3]	H / Do = 0.3, Vo2 / (2gDo) = 0.13	7.71	8.536	0.83	BE-1		
1%			BE-1	0.0718	Paved Grassed	<-----	as above	----->	5 10	0.06	BG-1 BF-3	0.018	0.9	0.05	<--- as above --->		0.06	0.012	0.054	<----- as above ----->	8.31	8.3	1.16	6.4				8.55	8.536	0	BE-1					
			BG-1		Paved Supp. Grassed									Surface Inlet Pit, 1% grade	SIP 900x900	0	0	0	12.5	1	250	7.869	7.744	7.869	7.744	0	ot calculated			7.87	8.881	1.01	BG-1			
1%			BG-1		Paved Grassed	<--- as above --->										0	0	0.006	<----- as above ----->	8.245	8.24	0.14	2				8.25	8.881	0.63	BG-1						
			BG-2		Paved Supp. Grassed									Surface Inlet Pit, 1% grade	SIP 900x900	0	0	0	12.5	1	250	7.714	7.589	7.714	7.589	0	ot calculated			7.71	8.823	1.11	BG-2			
1%			BG-2		Paved Grassed	<--- as above --->										0	0	0.014	<----- as above ----->	8.238	8.23	0.3	0.2				8.24	8.823	0.58	BG-2						
			BG-3		Paved Supp. Grassed									Surface Inlet Pit, 1% grade	SIP 900x900	0	0	0	12.5	1	250	7.559	7.434	7.559	7.434	0	ot calculated			7.56	8.77	1.21	BG-3			
1%			BG-3		Paved Grassed	<--- as above --->										0	0	0.018	<----- as above ----->	8.23	8.237	0.39	0.2				8.23	8.77	0.54	BG-3						
			BG-4		Paved Supp. Grassed									Surface Inlet Pit, 1% grade	SIP 900x900	0	0	0.001	14.336	1	250	7.404	7.26	7.433	7.443	0.28	ot calculated			7.43	8.728	1.29	BG-4			
1%			BG-4		Paved Grassed	<--- as above --->										0	0	0.019	<----- as above ----->	8.205	8.178	0.41	1.3				8.24	8.728	0.49	BG-4						
			BG-5		Paved Supp. Grassed									Junction Pit	JP 900x900	0		0.009	10.317	1	250	7.23	7.127	7.433	7.426	0.21	2.03	H-O'L	Qg / Qo = 0.00, S / Do = 1.0	7.44	8.484	1.04	BG-5			
1%			BG-5		Paved Grassed	<--- as above --->										0		0.027	<----- as above ----->	8.17	8.168	0.59	2				8.18	8.484	0.31	BG-5						
			BI-1		Paved Supp. Grassed									Surface Inlet Pit, 1% grade	SIP 900x900	0	0	0	12.5	1	250	7.664	7.539	7.664	7.539	0	ot calculated			7.66	8.675	1.01	BI-1			
1%			BI-1		Paved Grassed	<--- as above --->										0	0	0	<----- as above ----->	7.664	7.539	0	2				7.66	8.675	1.01	BI-1						
			BI-2		Paved Supp. Grassed									Surface Inlet Pit, 1% grade	SIP 900x900	0	0	0	21.852	1	250	7.509	7.291	7.509	7.324	0	ot calculated			7.51	8.622	1.11	BI-2			
1%			BI-2		Paved Grassed	<--- as above --->										0	0	0	<----- as above ----->	7.518	7.519	0	0.2				7.52	8.622	1.1	BI-2						
			BI-3		Paved Supp. Grassed									Surface Inlet Pit, 1% grade	SIP 900x900	0	0	0.001	9.952	1	250	7.261	7.161	7.324	7.32	0.11	ot calculated			7.32	8.373	1.05	BI-3			
1%			BI-3		Paved Grassed	<--- as above --->										0	0	0.006	<----- as above ----->	7.516	7.515	0.12	7.5				7.52	8.373	0.85	BI-3						
			BI-4	0.0363	Paved Supp. Grassed	100 0 0	5 0 10		5	0.021	BI-3	0.009	0.69	0.03	Surface Inlet Pit, 1% grade	SIP 900x900	0.021	0	0.019	6.202	1	250	7.131	7.069	7.243	7.219	0.92	7.92	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.04	7.32	8.216	0.9	BI-4		
1%			BI-4	0.0363	Paved Grassed	<-----	as above	----->	5 10	0.03	BI-3	0.013	0.81	0.05	<--- as above --->		0.03	0.001	0.027	<----- as above ----->	7.431	7.426	0.58	7.9				7.52	8.216	0.7	BI-4					
			BI-5		Paved Supp. Grassed									Surface Inlet Pit, 1% grade	SIP 900x900	0	0	0.037	7.441	1.96	250	7.039	6.893	7.197	7.081	1.18	1.63	H-O'L	Qg / Qo = 0.00, S / Do = 1.2	7.22	8.08	0.86	BI-5			
1%			BI-5		Paved Grassed	<--- as above --->										0	0	0.054	<----- as above ----->	7.356	7.334	1.17	1.6				7.43	8.08	0.65	BI-5						
			C-1	0.0255	Paved Supp. Grassed	10 0 90	5 0 10		5	0.009	US C-1				Surface Inlet Pit, 1% grade	SIP 900x900	0.009	0	0.009	3.204	1.62	150	7.045	6.993	7.13	7.066	0.99	7.92	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.07	7.18	8.089	0.91	C-1		
1%			C-1	0.0255	Paved Grassed	<-----	as above	----->	5 10	0.014	US C-1				<--- as above --->		0.014	0	0.013	<----- as above ----->	7.151	7.087	1.13	7.9				7.31	8.089	0.78	C-1					
			C-2		Paved Supp. Grassed									C-1	PIPE CONNECTION	PIPE CONNECTION	0	0	0.009	2	1	150	6.993	6.973	7.066	7.036	1.2	0.2	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 1.0	7.07	8.029	0.96	C-2		
1%			C-2		Paved Grassed	<--- as above --->								C-1			0	0	0.013	<----- as above ----->	7.087	7.061	1.22	0.2				7.09	8.029	0.94	C-2					
			Building 1	0.23	Paved Supp. Grassed	100 0 0	5 0 10		5	0.132							0.132		0.132	10	1	300	8.111	8.011	9.374	9.29	1.83			9.37	9		Building 1			
1%			Building 1	0.23	Paved Grassed	<-----	as above	----->	5 10	0.192							0.192		0.191	<----- as above ----->	12.161	12.003	2.64					12.16	9			12.16	9		Building 1	
			BF-1		Paved Supp. Grassed										Junction Pit	JP 600x600	0		0.131	32.6	1	300	8.011	7.685	8.929	8.681	1.82	2.28	H-O'L	Qg / Qo = 0.00, S / Do = 4.4	9.29	9.024	0	BF-1		
1%			BF-1		Paved Grassed	<--- as above --->										0		0.188	<----- as above ----->	11.25	10.752	2.61	2.3				12	9.024	0	BF-1						
			BF-2		Paved Supp. Grassed										Junction Pit	JP 600x600	0		0.13	1.347	0.97	300	7.655	7.642	8.422	8.412	1.81	1.63	A1-18 [A2-28 & A2-29]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 3.5	8.68	8.957	0.28	BF-2		
1%			BF-2		Paved Grassed	<--- as above --->										0		0.186	<----- as above ----->	10.213	10.193	2.58	1.6				10.75	8.957	0	BF-2						
			BF-3		Paved Supp. Grassed										Junction Pit	JP 600x600	0	0	0.13	13.65	1	300	7.612	7.475	8.128	8.023	1.8	1.77	A1-18 [A2-28 & A2-29]							

	BF-4		Paved Supp. Grassed											Junction Pit	JP 900x900	0		0.129	26.548	1	300	7.445	7.18	7.733	7.529	1.83	1.82	A1-10 [A2-12 & A2-13]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 2.1	8.02	8.891	0.87	BF-4				
1%	BF-4		Paved Grassed											< --- as above --- >		0		0.185		< ----- as above ----- >				8.793	8.382	2.57	1.8				9.4	8.891	0	BF-4			
	BF-5		Paved Supp. Grassed											Junction Pit	JP 900x900	0		0.128	17.509	1	300	6.731	6.556	6.996	6.778	2.27	3.78	A1-4 [A2-3]	H / Do = 0.0, Vo2 / (2gDo) = 0.54	7.53	8.63	1.1	BF-5				
1%	BF-5		Paved Grassed											< --- as above --- >		0		0.185		< ----- as above ----- >				7.118	6.851	2.59	3.8				8.38	8.63	0.25	BF-5			
	Bus parkin	0.2767	Paved Supp. Grassed	100	5											0.159		0.159	10	1	300	7.775	7.675	8.534	8.404	2.2					8.53	9		Bus parking			
1%	Bus parkin	0.2767	Paved Grassed	0	10									< ----- as above ----- >				0.231		0.23		< ----- as above ----- >				10.658	10.414	3.19				10.66	9		Bus parking		
	AG-1		Paved Supp. Grassed											Junction Pit	JP 900x900	0		0.16	35	1	300	7.675	7.325	8.356	7.96	2.22	0.2	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 2.4	8.4	8.614	0.21	AG-1				
1%	AG-1		Paved Grassed											< --- as above --- >		0		0.229		< ----- as above ----- >				10.31	9.484	3.17	0.2				10.41	8.614	0	AG-1			
	AG-2		Paved Supp. Grassed											Junction Pit	JP 900x900	0		0.16	32.085	1.46	300	7.295	6.825	7.578	7.065	2.62	1.94	A1-18 [A2-28 & A2-29]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 2.2	7.96	8.267	0.31	AG-2				
1%	AG-2		Paved Grassed											< --- as above --- >		0		0.228		< ----- as above ----- >				8.502	7.766	3.16	1.9				9.48	8.267	0	AG-2			
	AG-3		Paved Supp. Grassed											Junction Pit	JP 900x900	0		0.159	15.157	1.56	300	6.795	6.558	7.065	6.775	2.87	0.2	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 1.2	7.07	7.753	0.69	AG-3				
1%	AG-3		Paved Grassed											< --- as above --- >		0		0.228		< ----- as above ----- >				7.696	7.453	3.16	0.2				7.77	7.753	0	AG-3			
	PRE	2.1203	Paved Supp. Grassed	0	5											0.731																	3.47		PRE		
1%	PRE	2.1203	Paved Grassed	100	10									< ----- as above ----- >																				3.47		PRE	
	BH-1	0.0117	Paved Supp. Grassed	100	5											0.007		0.007	4.45	1.01	250	7.501	7.456	7.548	7.499	1.21					7.55	8.515		BH-1			
1%	BH-1	0.0117	Paved Grassed	0	10									< ----- as above ----- >						< ----- as above ----- >											8.18	8.515		BH-1			
	BJ-1	0.0339	Paved Supp. Grassed	100	5											0.019		0.02	2.45	1.02	250	7.094	7.069	7.223	7.219	0.78					7.22	8.072		BJ-1			
1%	BJ-1	0.0339	Paved Grassed	0	10									< ----- as above ----- >						< ----- as above ----- >											7.43	8.072		BJ-1			
	BYPASS	0.131	Paved Supp. Grassed	50	5											0.054																	3.47		BYPASS		
1%	BYPASS	0.131	Paved Grassed	50	10									< ----- as above ----- >																				3.47		BYPASS	
	BK-1	0.23	Paved Supp. Grassed	100	5											0.132			9.444	1.43	300	7.412	7.277							7.61	8.44		BK-1				
1%	BK-1	0.23	Paved Grassed	0	10									< ----- as above ----- >						< ----- as above ----- >											8.27	8.44		BK-1			
	Y-2		Paved Supp. Grassed											Junction Pit	JP 900x900	0			2.989	1	600	5.984	5.954			0.2	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 1.0	6.3	7.855	1.55	Y-2					
1%	Y-2		Paved Grassed											< --- as above --- >		0				< ----- as above ----- >							0.2				6.52	7.855	1.33	Y-2			
	Y-3		Paved Supp. Grassed											Junction Pit	JP 900x900	0			2.71	1	600	5.804	5.777			0.2	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 1.0	6.2	7.871	1.67	Y-3					
1%	Y-3		Paved Grassed											< --- as above --- >		0				< ----- as above ----- >							0.2				6.49	7.871	1.38	Y-3			
	Y-4		Paved Supp. Grassed											Junction Pit	JP 900x900	0			25.165	1	600	5.747	5.495			1.46	A1-18 [A2-28 & A2-29]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 0.7	6.16	7.912	1.75	Y-4					
1%	Y-4		Paved Grassed											< --- as above --- >		0				< ----- as above ----- >							1.5				6.45	7.912	1.46	Y-4			
	Y-5		Paved Supp. Grassed											Junction Pit	JP 900x900	0			9.412	1	600	4.944	4.85			1.87	A1-18 [A2-28 & A2-29]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 1.4	5.79	6.792	1	Y-5					
1%	Y-5		Paved Grassed											< --- as above --- >		0				< ----- as above ----- >							1.9				6.2	6.792	0.59	Y-5			
	Z-2		Paved Supp. Grassed											Junction Pit	JP 900x900	0			2.989	1	450	4.984	4.954			0.2	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 1.0	5.29	7.486	2.19	Z-2					
1%	Z-2		Paved Grassed											< --- as above --- >		0				< ----- as above ----- >							0.2				5.33	7.486	2.15	Z-2			
	Z-3		Paved Supp. Grassed											Junction Pit	JP 900x900	0			2.22	0.99	450	4.804	4.782			0.2	A1-5 [A2-4]	Du / Do = 1.00, Qg / Qo = 0.00, S / Do = 1.0	5.11	7.513	2.4	Z-3					
1%	Z-3		Paved Grassed											< --- as above --- >		0				< ----- as above ----- >							0.2				5.15	7.513	2.36	Z-3			
	Z-4		Paved Supp. Grassed											Junction Pit	JP 900x900	0			9.87	1	450	2.399	2.3			3.75	A1-4 [A2-3]	H / Do = 1.1, Vo2 / (2gDo) = 0.24	3.75	7.533	3.79	Z-4					
1%	Z-4		Paved Grassed											< --- as above --- >		0				< ----- as above ----- >							3.8				4.24	7.533	3.29	Z-4			
	OSD 1		Paved Supp. Grassed													0																			OSD 1		
1%	OSD 1		Paved Grassed																																OSD 1		
	OSD 2		Paved Supp. Grassed													0																			OSD 2		

