APPENDIX D

Storm Servicing and Drainage Analysis

City of Toronto Stormwater Manaegement Site Detention and Retention Requirements

Project: On the Park **Block:** Block 1: Tower C, D and Towns
Date: December 5, 2014

Site Area (ha) =	0.63
Pre Dev. Runoff Coeficeint =	0.79
Post Dev.Runoff Coefficient =	0.8
Max. Allowed Runoff Coefficeint =	0.5

City of Toronto IDF

$$i_{Year} = AT^{c}$$

Return Period (Year)	A	C	I (mm/hr)
2	21.8	-0.78	88.19
5	32	-0.79	131.79
10	38.7	-0.80	162.27
25	45.2	-0.80	189.52
50	53.5	-0.80	224.32
100	59.7	-0.80	250.32
T_c=	10	min (in hours)	

Allowed Peak Discharge Rate

$$Q = \frac{CIA}{360} * 1000$$

C = 0.5
I = 88.19 mm/hr
Q Allowed = 77.5 L/s
Q 100 = 351.8 L/s

Estimated On-Site Retention For Water Balance

Assume hard surface IA =	1	mm
Assume Soft Surface IA =	5	mm
Target Retention (mm) =	5	mm
Total Retention Volume Required =	31.6	cu.m
Estimated % Impervious =	84.6%	
Estmated Surface IA Provided =	1.62	mm
Estimated Deficit for Infiltration Or Rainwater Harvesting =	3.38	mm
or	21.4	cu.m

On Site Detention Storage
100 Yr Storm Event

Post Development Runoff Coefficeint = 0.8
Site Area (ha) = 0.632402398
Allowed Realease Rate (cu.m/s) = 0.077

t_c (min)	i_{100} (mm/hr)	Q_{100} (m^3/s)	Q_{stored} (m^3/s)	Peak Volume (m^3)	
1	1579.412	2.220	2.142	128.529	
2	907.134	1.275	1.197	143.684	
3	655.841	0.922	0.844	151.959	
4	521.012	0.732	0.655	157.137	
5	435.832	0.612	0.535	160.510	
6	376.682	0.529	0.452	162.686	
7	332.979	0.468	0.390	164.005	
8	299.243	0.421	0.343	164.677	
9	272.334	0.383	0.305	164.841	***max***
10	250.320	0.352	0.274	164.595	
11	231.943	0.326	0.248	164.009	
12	216.347	0.304	0.227	163.138	
13	202.927	0.285	0.208	162.023	
14	191.246	0.269	0.191	160.697	
15	180.977	0.254	0.177	159.186	
16	171.870	0.242	0.164	157.512	
17	163.733	0.230	0.153	155.693	
18	156.415	0.220	0.142	153.744	
19	149.793	0.211	0.133	151.678	
20	143.771	0.202	0.125	149.505	
21	138.267	0.194	0.117	147.235	
22	133.216	0.187	0.110	144.876	
23	128.562	0.181	0.103	142.435	
24	124.259	0.175	0.097	139.919	
25	120.266	0.169	0.092	137.332	
26	116.551	0.164	0.086	134.681	
27	113.085	0.159	0.081	131.970	
28	109.842	0.154	0.077	129.202	
29	106.801	0.150	0.073	126.381	
30	103.944	0.146	0.069	123.510	
31	101.253	0.142	0.065	120.592	
32	98.713	0.139	0.061	117.630	
33	96.313	0.135	0.058	114.627	
34	94.040	0.132	0.055	111.584	
35	91.884	0.129	0.052	108.504	
36	89.837	0.126	0.049	105.389	
37	87.889	0.124	0.046	102.240	
38	86.034	0.121	0.043	99.059	
39	84.264	0.118	0.041	95.847	
40	82.575	0.116	0.039	92.606	
41	80.960	0.114	0.036	89.337	
42	79.414	0.112	0.034	86.042	
43	77.933	0.110	0.032	82.721	
44	76.513	0.108	0.030	79.376	
45	75.149	0.106	0.028	76.007	
46	73.840	0.104	0.026	72.615	
47	72.580	0.102	0.025	69.202	
48	71.368	0.100	0.023	65.769	
49	70.200	0.099	0.021	62.315	
50	69.075	0.097	0.020	58.841	
51	67.989	0.096	0.018	55.349	
52	66.941	0.094	0.017	51.840	
53	65.929	0.093	0.015	48.312	
54	64.950	0.091	0.014	44.768	
55	64.004	0.090	0.012	41.208	
56	63.088	0.089	0.011	37.632	
57	62.201	0.087	0.010	34.041	
58	61.341	0.086	0.009	30.435	
59	60.508	0.085	0.008	26.815	
60	59.700	0.084	0.006	23.181	
61	58.916	0.083	0.005	19.533	
62	58.154	0.082	0.004	15.873	
63	57.415	0.081	0.003	12.200	
64	56.696	0.080	0.002	8.514	
65	55.997	0.079	0.001	4.817	
66	55.317	0.078	0.000	1.108	
67	54.656	0.077	0	-	
68	54.012	0.076	0	-	
69	53.385	0.075	0	-	
70	52.774	0.074	0	-	
71	52.178	0.073	0	-	
72	51.598	0.073	0	-	
73	51.031	0.072	0	-	
74	50.479	0.071	0	-	
75	49.940	0.070	0	-	

City of Toronto Stormwater Manaegement Site Detention and Retention Requirements

Project: On the Park **Block:** Block 1: Tower C, D and Towns
Date: December 5, 2014

Site Area (ha) =	0.38
Pre Dev. Runoff Coeficeint =	0.79
Post Dev.Runoff Coefficient =	0.8
Max. Allowed Runoff Coefficeint =	0.5

City of Toronto IDF

$$i_{Year} = AT^{c}$$

Return Period (Year)	A	C	I (mm/hr)
2	21.8	-0.78	88.19
5	32	-0.79	131.79
10	38.7	-0.80	162.27
25	45.2	-0.80	189.52
50	53.5	-0.80	224.32
100	59.7	-0.80	250.32

T_c= 10 min (in hours)

Allowed Peak Discharge Rate

$$Q = \frac{CIA}{360} * 1000$$

C = 0.5
I = 88.19 mm/hr
Q Allowed = 46.3 L/s
Q 100 = 210.1 L/s

Estimated On-Site Retention For Water Balance

Assume hard surface IA =	1	mm
Assume Soft Surface IA =	5	mm
Target Retention (mm) =	5	mm
Total Retention Volume Required =	18.9	cu.m
Estimated % Impervious =	84.6%	
Estmated Surface IA Provided =	1.62	mm
Estimated Deficit for Infiltration Or Rainwater Harvesting =	3.38	mm
or	12.8	cu.m

On Site Detention Storage
100 Yr Storm Event

Post Development Runoff Coefficeint = 0.8
Site Area (ha) = 0.377697602
Allowed Realease Rate (cu.m/s) = 0.046

t_c (min)	i_{100} (mm/hr)	Q_{100} (m^3/s)	Q_{stored} (m^3/s)	Peak Volume (m^3)	
1	1579.412	1.326	1.279	76.763	
2	907.134	0.761	0.715	85.814	
3	655.841	0.550	0.504	90.757	
4	521.012	0.437	0.391	93.849	
5	435.832	0.366	0.320	95.863	
6	376.682	0.316	0.270	97.163	
7	332.979	0.279	0.233	97.951	
8	299.243	0.251	0.205	98.352	
9	272.334	0.229	0.182	98.450	***max***
10	250.320	0.210	0.164	98.303	
11	231.943	0.195	0.148	97.953	
12	216.347	0.182	0.135	97.433	
13	202.927	0.170	0.124	96.767	
14	191.246	0.161	0.114	95.975	
15	180.977	0.152	0.106	95.073	
16	171.870	0.144	0.098	94.073	
17	163.733	0.137	0.091	92.987	
18	156.415	0.131	0.085	91.823	
19	149.793	0.126	0.079	90.588	
20	143.771	0.121	0.074	89.291	
21	138.267	0.116	0.070	87.935	
22	133.216	0.112	0.066	86.526	
23	128.562	0.108	0.062	85.068	
24	124.259	0.104	0.058	83.565	
25	120.266	0.101	0.055	82.021	
26	116.551	0.098	0.052	80.437	
27	113.085	0.095	0.049	78.818	
28	109.842	0.092	0.046	77.165	
29	106.801	0.090	0.043	75.480	
30	103.944	0.087	0.041	73.765	
31	101.253	0.085	0.039	72.023	
32	98.713	0.083	0.037	70.254	
33	96.313	0.081	0.035	68.460	
34	94.040	0.079	0.033	66.643	
35	91.884	0.077	0.031	64.803	
36	89.837	0.075	0.029	62.943	
37	87.889	0.074	0.028	61.062	
38	86.034	0.072	0.026	59.162	
39	84.264	0.071	0.024	57.244	
40	82.575	0.069	0.023	55.308	
41	80.960	0.068	0.022	53.356	
42	79.414	0.067	0.020	51.388	
43	77.933	0.065	0.019	49.405	
44	76.513	0.064	0.018	47.407	
45	75.149	0.063	0.017	45.394	
46	73.840	0.062	0.016	43.369	
47	72.580	0.061	0.015	41.331	
48	71.368	0.060	0.014	39.280	
49	70.200	0.059	0.013	37.217	
50	69.075	0.058	0.012	35.143	
51	67.989	0.057	0.011	33.057	
52	66.941	0.056	0.010	30.961	
53	65.929	0.055	0.009	28.854	
54	64.950	0.055	0.008	26.737	
55	64.004	0.054	0.007	24.611	
56	63.088	0.053	0.007	22.475	
57	62.201	0.052	0.006	20.331	
58	61.341	0.051	0.005	18.177	
59	60.508	0.051	0.005	16.015	
60	59.700	0.050	0.004	13.844	
61	58.916	0.049	0.003	11.666	
62	58.154	0.049	0.003	9.480	
63	57.415	0.048	0.002	7.286	
64	56.696	0.048	0.001	5.085	
65	55.997	0.047	0.001	2.877	
66	55.317	0.046	0.000	0.662	
67	54.656	0.046	0	-	
68	54.012	0.045	0	-	
69	53.385	0.045	0	-	
70	52.774	0.044	0	-	
71	52.178	0.044	0	-	
72	51.598	0.043	0	-	
73	51.031	0.043	0	-	
74	50.479	0.042	0	-	
75	49.940	0.042	0	-	

City of Toronto Stormwater Manaegement Site Detention and Retention Requirements

Project: On the Park **Block:** East Block: Tower C and D
Date: December 5, 2014

Site Area (ha) =	0.78
Pre Dev. Runoff Coeficeint =	0.79
Post Dev.Runoff Coefficient =	0.85
Max. Allowed Runoff Coefficeint =	0.5

City of Toronto IDF

$Q = \frac{CIA}{360} \times 1000$

Return Period (Year)	A	C	I (mm/hr)
2	21.8	-0.78	88.19
5	32	-0.79	131.79
10	38.7	-0.80	162.27
25	45.2	-0.80	189.52
50	53.5	-0.80	224.32
100	59.7	-0.80	250.32

T_c= 10 min (in hours)

Allowed Peak Discharge Rate

C = 0.5
I = 88.19 mm/hr
Q Allowed = 95.1 L/s
Q 100 = 458.8 L/s

Estimated On-Site Retention For Water Balance

Assume hard surface IA =	1	mm
Assume Soft Surface IA =	5	mm
Target Retention (mm) =	5	mm
Total Retention Volume Required =	38.8	cu.m
Estimated % Impervious =	92.3%	
Estmated Surface IA Provided =	1.31	mm
Estimated Deficit for Infiltration Or Rainwater Harvesting =	3.69	mm
or	28.7	cu.m

On Site Detention Storage
100 Yr Storm Event

Post Development Runoff Coefficeint = 0.85
Site Area (ha) = 0.7762
Allowed Realease Rate (cu.m/s) = 0.095

t_c (min)	i_{100} (mm/hr)	Q_{100} (m^3/s)	Q_{stored} (m^3/s)	Peak Volume (m^3)	
1	1579.412	2.895	2.800	167.970	
2	907.134	1.662	1.567	188.091	
3	655.841	1.202	1.107	199.239	
4	521.012	0.955	0.860	206.348	
5	435.832	0.799	0.704	211.102	
6	376.682	0.690	0.595	214.297	
7	332.979	0.610	0.515	216.374	
8	299.243	0.548	0.453	217.607	
9	272.334	0.499	0.404	218.177	
10	250.320	0.459	0.364	218.212	***max***
11	231.943	0.425	0.330	217.805	
12	216.347	0.396	0.301	217.026	
13	202.927	0.372	0.277	215.928	
14	191.246	0.350	0.255	214.556	
15	180.977	0.332	0.237	212.942	
16	171.870	0.315	0.220	211.116	
17	163.733	0.300	0.205	209.100	
18	156.415	0.287	0.192	206.915	
19	149.793	0.275	0.179	204.576	
20	143.771	0.263	0.168	202.099	
21	138.267	0.253	0.158	199.495	
22	133.216	0.244	0.149	196.775	
23	128.562	0.236	0.141	193.949	
24	124.259	0.228	0.133	191.024	
25	120.266	0.220	0.125	188.008	
26	116.551	0.214	0.119	184.907	
27	113.085	0.207	0.112	181.727	
28	109.842	0.201	0.106	178.474	
29	106.801	0.196	0.101	175.151	
30	103.944	0.190	0.095	171.764	
31	101.253	0.186	0.090	168.316	
32	98.713	0.181	0.086	164.810	
33	96.313	0.177	0.081	161.250	
34	94.040	0.172	0.077	157.638	
35	91.884	0.168	0.073	153.978	
36	89.837	0.165	0.070	150.272	
37	87.889	0.161	0.066	146.522	
38	86.034	0.158	0.063	142.730	
39	84.264	0.154	0.059	138.898	
40	82.575	0.151	0.056	135.028	
41	80.960	0.148	0.053	131.122	
42	79.414	0.146	0.050	127.181	
43	77.933	0.143	0.048	123.206	
44	76.513	0.140	0.045	119.200	
45	75.149	0.138	0.043	115.164	
46	73.840	0.135	0.040	111.097	
47	72.580	0.133	0.038	107.003	
48	71.368	0.131	0.036	102.881	
49	70.200	0.129	0.034	98.734	
50	69.075	0.127	0.032	94.561	
51	67.989	0.125	0.030	90.364	
52	66.941	0.123	0.028	86.143	
53	65.929	0.121	0.026	81.899	
54	64.950	0.119	0.024	77.634	
55	64.004	0.117	0.022	73.348	
56	63.088	0.116	0.021	69.041	
57	62.201	0.114	0.019	64.714	
58	61.341	0.112	0.017	60.368	
59	60.508	0.111	0.016	56.004	
60	59.700	0.109	0.014	51.621	
61	58.916	0.108	0.013	47.221	
62	58.154	0.107	0.012	42.804	
63	57.415	0.105	0.010	38.370	
64	56.696	0.104	0.009	33.921	
65	55.997	0.103	0.008	29.456	
66	55.317	0.101	0.006	24.975	
67	54.656	0.100	0.005	20.480	
68	54.012	0.099	0.004	15.971	
69	53.385	0.098	0.003	11.447	
70	52.774	0.097	0.002	6.910	
71	52.178	0.096	0.001	2.360	
72	51.598	0.095	0	-	
73	51.031	0.094	0	-	
74	50.479	0.093	0	-	
75	49.940	0.092	0	-	

City of Toronto Stormwater Manaegement Site Detention and Retention Requirements

Project: On the Park **Block:** Municipal Roadway Cul-De-Sac 'A'
Date: December 5, 2014

Site Area (ha) =	0.32
Pre Dev. Runoff Coeficeint =	0.79
Post Dev.Runoff Coefficient =	0.738
Max. Allowed Runoff Coefficeint =	0.5

City of Toronto IDF

$Q = \frac{CIA}{360} \div 1000$

Return Period (Year)	A	C	I (mm/hr)
2	21.8	-0.78	88.19
5	32	-0.79	131.79
10	38.7	-0.80	162.27
25	45.2	-0.80	189.52
50	53.5	-0.80	224.32
100	59.7	-0.80	250.32
T_c=	10	min (in hours)	

Allowed Peak Discharge Rate

$i = \frac{A}{T_c^C}$

C = 0.5
I = 88.19 mm/hr
Q Allowed = 39.2 L/s
Q 100 = 164.2 L/s

Estimated On-Site Retention For Water Balance

Assume hard surface IA =	1	mm
Assume Soft Surface IA =	5	mm
Target Retention (mm) =	5	mm
Total Retention Volume Required =	16.0	cu.m
Estimated % Impervious =	75.1%	
Estmated Surface IA Provided =	2.00	mm
Estimated Deficit for Infiltration Or Rainwater Harvesting =	3.00	mm
or	9.6	cu.m

On Site Detention Storage

100 Yr Storm Event

Post Development Runoff Coefficeint = 0.738
Site Area (ha) = 0.32
Allowed Realease Rate (cu.m/s) = 0.039

t_c (min)	i_{100} (mm/hr)	Q_{100} (m^3/s)	Q_{stored} (m^3/s)	Peak Volume (m^3)	
1	1579.412	1.036	0.997	59.814	
2	907.134	0.595	0.556	66.706	
3	655.841	0.430	0.391	70.387	
4	521.012	0.342	0.303	72.621	
5	435.832	0.286	0.247	74.013	
6	376.682	0.247	0.208	74.847	
7	332.979	0.218	0.179	75.280	
8	299.243	0.196	0.157	75.412	***max***
9	272.334	0.179	0.139	75.306	
10	250.320	0.164	0.125	75.009	
11	231.943	0.152	0.113	74.553	
12	216.347	0.142	0.103	73.964	
13	202.927	0.133	0.094	73.262	
14	191.246	0.125	0.086	72.460	
15	180.977	0.119	0.080	71.573	
16	171.870	0.113	0.074	70.609	
17	163.733	0.107	0.068	69.578	
18	156.415	0.103	0.063	68.486	
19	149.793	0.098	0.059	67.339	
20	143.771	0.094	0.055	66.142	
21	138.267	0.091	0.052	64.900	
22	133.216	0.087	0.048	63.617	
23	128.562	0.084	0.045	62.295	
24	124.259	0.082	0.042	60.939	
25	120.266	0.079	0.040	59.549	
26	116.551	0.076	0.037	58.129	
27	113.085	0.074	0.035	56.681	
28	109.842	0.072	0.033	55.207	
29	106.801	0.070	0.031	53.708	
30	103.944	0.068	0.029	52.186	
31	101.253	0.066	0.027	50.641	
32	98.713	0.065	0.026	49.077	
33	96.313	0.063	0.024	47.492	
34	94.040	0.062	0.022	45.890	
35	91.884	0.060	0.021	44.270	
36	89.837	0.059	0.020	42.633	
37	87.889	0.058	0.018	40.981	
38	86.034	0.056	0.017	39.314	
39	84.264	0.055	0.016	37.633	
40	82.575	0.054	0.015	35.937	
41	80.960	0.053	0.014	34.229	
42	79.414	0.052	0.013	32.509	
43	77.933	0.051	0.012	30.776	
44	76.513	0.050	0.011	29.033	
45	75.149	0.049	0.010	27.278	
46	73.840	0.048	0.009	25.512	
47	72.580	0.048	0.008	23.737	
48	71.368	0.047	0.008	21.952	
49	70.200	0.046	0.007	20.157	
50	69.075	0.045	0.006	18.354	
51	67.989	0.045	0.005	16.542	
52	66.941	0.044	0.005	14.721	
53	65.929	0.043	0.004	12.892	
54	64.950	0.043	0.003	11.056	
55	64.004	0.042	0.003	9.211	
56	63.088	0.041	0.002	7.360	
57	62.201	0.041	0.002	5.501	
58	61.341	0.040	0.001	3.636	
59	60.508	0.040	0.000	1.764	
60	59.700	0.039	0	-	
61	58.916	0.039	0	-	
62	58.154	0.038	0	-	
63	57.415	0.038	0	-	
64	56.696	0.037	0	-	
65	55.997	0.037	0	-	
66	55.317	0.036	0	-	
67	54.656	0.036	0	-	
68	54.012	0.035	0	-	
69	53.385	0.035	0	-	
70	52.774	0.035	0	-	
71	52.178	0.034	0	-	
72	51.598	0.034	0	-	
73	51.031	0.033	0	-	
74	50.479	0.033	0	-	
75	49.940	0.033	0	-	

City of Toronto Stormwater Manaegement Site Detention and Retention Requirements

Project: On the Park **Block:** Existing Dealership Parking Garage
Date: December 5, 2014

Site Area (ha) =	0.49
Pre Dev. Runoff Coeficeint =	0.706
Post Dev.Runoff Coefficient =	0.706
Max. Allowed Runoff Coefficeint =	0.5

City of Toronto IDF

$Q = \frac{CIA}{360} \div 1000$

Return Period (Year)	A	C	I (mm/hr)
2	21.8	-0.78	88.19
5	32	-0.79	131.79
10	38.7	-0.80	162.27
25	45.2	-0.80	189.52
50	53.5	-0.80	224.32
100	59.7	-0.80	250.32
T_c=	10	min (in hours)	

Allowed Peak Discharge Rate

$Q = \frac{CIA}{360}$

C = 0.5
I = 88.19 mm/hr
Q Allowed = 59.8 L/s
Q 100 = 239.5 L/s

Estimated On-Site Retention For Water Balance

Assume hard surface IA =	1	mm
Assume Soft Surface IA =	5	mm
Target Retention (mm) =	5	mm
Total Retention Volume Required =	24.4	cu.m
Estimated % Impervious =	70.2%	
Estmated Surface IA Provided =	2.19	mm
Estimated Deficit for Infiltration Or Rainwater Harvesting =	2.81	mm
or	13.7	cu.m

On Site Detention Storage
100 Yr Storm Event

Post Development Runoff Coefficeint = 0.706
Site Area (ha) = 0.4879
Allowed Realease Rate (cu.m/s) = 0.060

t_c (min)	i_{100} (mm/hr)	Q_{100} (m^3/s)	Q_{stored} (m^3/s)	Peak Volume (m^3)	
1	1579.412	1.511	1.451	87.088	
2	907.134	0.868	0.808	96.985	
3	655.841	0.628	0.568	102.198	
4	521.012	0.499	0.439	105.302	
5	435.832	0.417	0.357	107.177	
6	376.682	0.360	0.301	108.237	
7	332.979	0.319	0.259	108.714	
8	299.243	0.286	0.227	108.750	***max***
9	272.334	0.261	0.201	108.440	
10	250.320	0.240	0.180	107.851	
11	231.943	0.222	0.162	107.031	
12	216.347	0.207	0.147	106.017	
13	202.927	0.194	0.134	104.837	
14	191.246	0.183	0.123	103.512	
15	180.977	0.173	0.113	102.063	
16	171.870	0.164	0.105	100.502	
17	163.733	0.157	0.097	98.842	
18	156.415	0.150	0.090	97.093	
19	149.793	0.143	0.084	95.265	
20	143.771	0.138	0.078	93.364	
21	138.267	0.132	0.073	91.397	
22	133.216	0.127	0.068	89.370	
23	128.562	0.123	0.063	87.287	
24	124.259	0.119	0.059	85.152	
25	120.266	0.115	0.055	82.970	
26	116.551	0.112	0.052	80.744	
27	113.085	0.108	0.048	78.476	
28	109.842	0.105	0.045	76.170	
29	106.801	0.102	0.042	73.828	
30	103.944	0.099	0.040	71.452	
31	101.253	0.097	0.037	69.045	
32	98.713	0.094	0.035	66.607	
33	96.313	0.092	0.032	64.141	
34	94.040	0.090	0.030	61.648	
35	91.884	0.088	0.028	59.130	
36	89.837	0.086	0.026	56.587	
37	87.889	0.084	0.024	54.022	
38	86.034	0.082	0.023	51.434	
39	84.264	0.081	0.021	48.826	
40	82.575	0.079	0.019	46.199	
41	80.960	0.077	0.018	43.552	
42	79.414	0.076	0.016	40.887	
43	77.933	0.075	0.015	38.204	
44	76.513	0.073	0.013	35.505	
45	75.149	0.072	0.012	32.790	
46	73.840	0.071	0.011	30.060	
47	72.580	0.069	0.010	27.315	
48	71.368	0.068	0.009	24.556	
49	70.200	0.067	0.007	21.783	
50	69.075	0.066	0.006	18.997	
51	67.989	0.065	0.005	16.198	
52	66.941	0.064	0.004	13.387	
53	65.929	0.063	0.003	10.564	
54	64.950	0.062	0.002	7.730	
55	64.004	0.061	0.001	4.884	
56	63.088	0.060	0.001	2.028	
57	62.201	0.060	0	-	
58	61.341	0.059	0	-	
59	60.508	0.058	0	-	
60	59.700	0.057	0	-	
61	58.916	0.056	0	-	
62	58.154	0.056	0	-	
63	57.415	0.055	0	-	
64	56.696	0.054	0	-	
65	55.997	0.054	0	-	
66	55.317	0.053	0	-	
67	54.656	0.052	0	-	
68	54.012	0.052	0	-	
69	53.385	0.051	0	-	
70	52.774	0.050	0	-	
71	52.178	0.050	0	-	
72	51.598	0.049	0	-	
73	51.031	0.049	0	-	
74	50.479	0.048	0	-	
75	49.940	0.048	0	-	

City of Toronto Stormwater Manaegement Site Detention and Retention Requirements

Project: On the Park **Block:** Redevelopment Site
Date: December 5, 2014

Site Area (ha) =	2.65
Pre Dev. Runoff Coeficeint =	0.79
Post Dev.Runoff Coefficient =	0.8
Max. Allowed Runoff Coefficeint =	0.5

City of Toronto IDF

$Q = \frac{CIA}{360} * 1000$

Return Period (Year)	A	C	I (mm/hr)
2	21.8	-0.78	88.19
5	32	-0.79	131.79
10	38.7	-0.80	162.27
25	45.2	-0.80	189.52
50	53.5	-0.80	224.32
100	59.7	-0.80	250.32
T_c=	10	min (in hours)	

Allowed Peak Discharge Rate

C = 0.5
I = 88.19 mm/hr
Q Allowed = 324.6 L/s
Q 100 = 1474.1 L/s

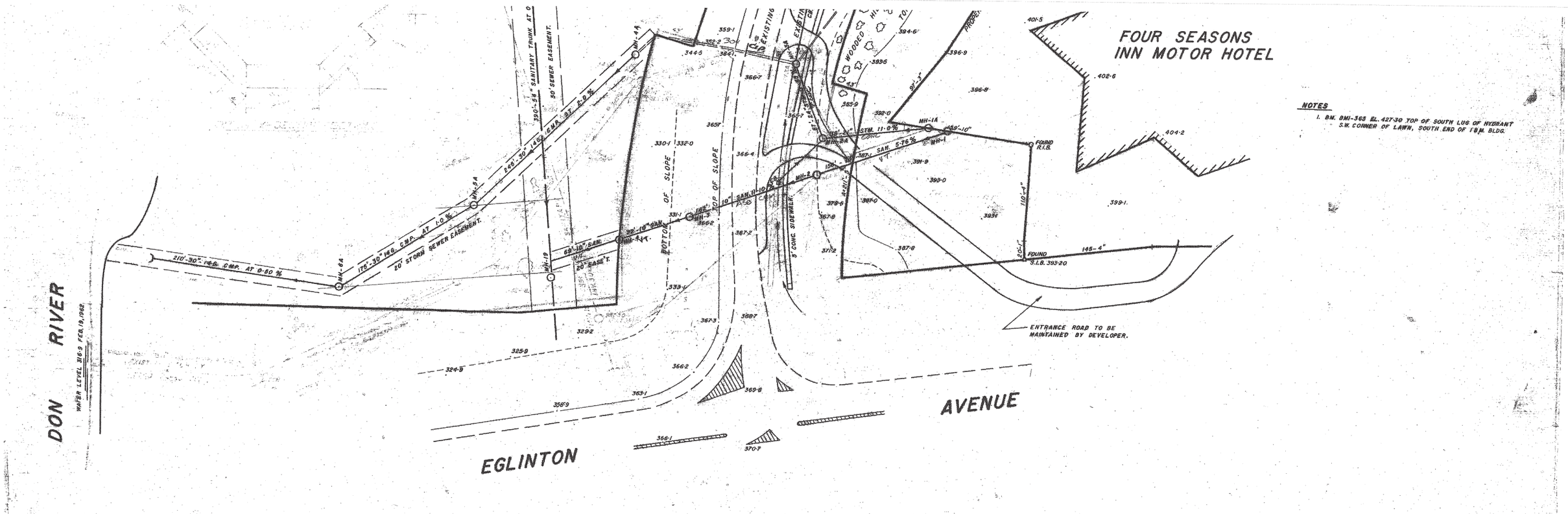
Estimated On-Site Retention For Water Balance

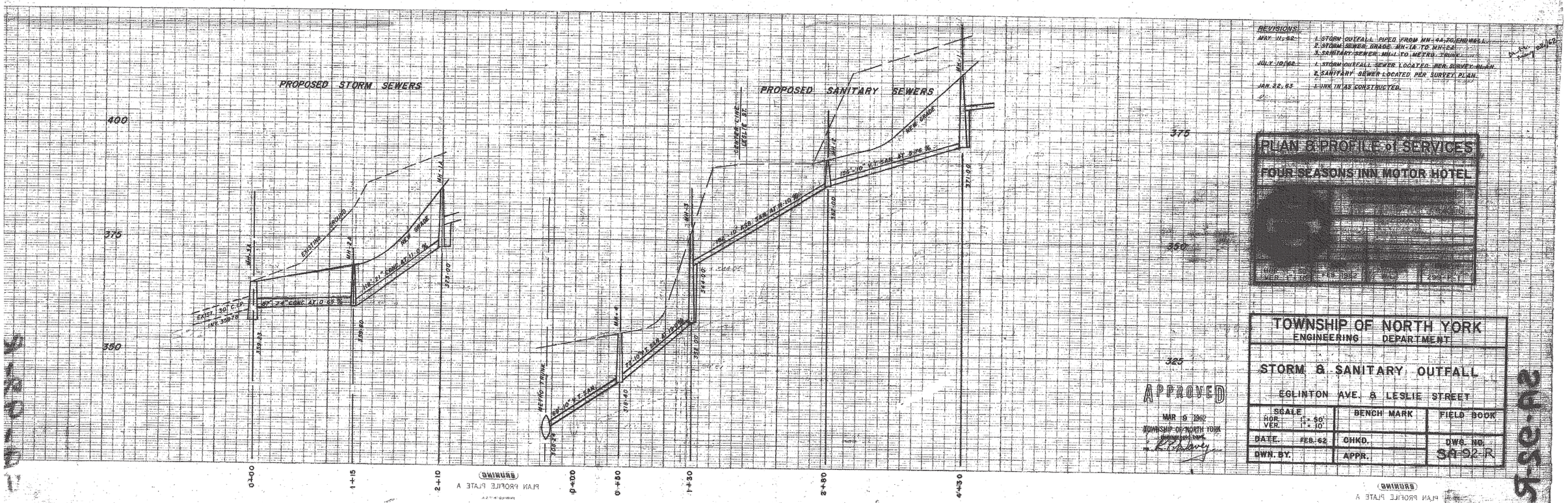
Assume hard surface IA =	1	mm
Assume Soft Surface IA =	5	mm
Target Retention (mm) =	5	mm
Total Retention Volume Required =	132.5	cu.m
Estimated % Impervious =	84.6%	
Estmated Surface IA Provided =	1.62	mm
Estimated Deficit for Infiltration Or Rainwater Harvesting =	3.38	mm
or	89.7	cu.m

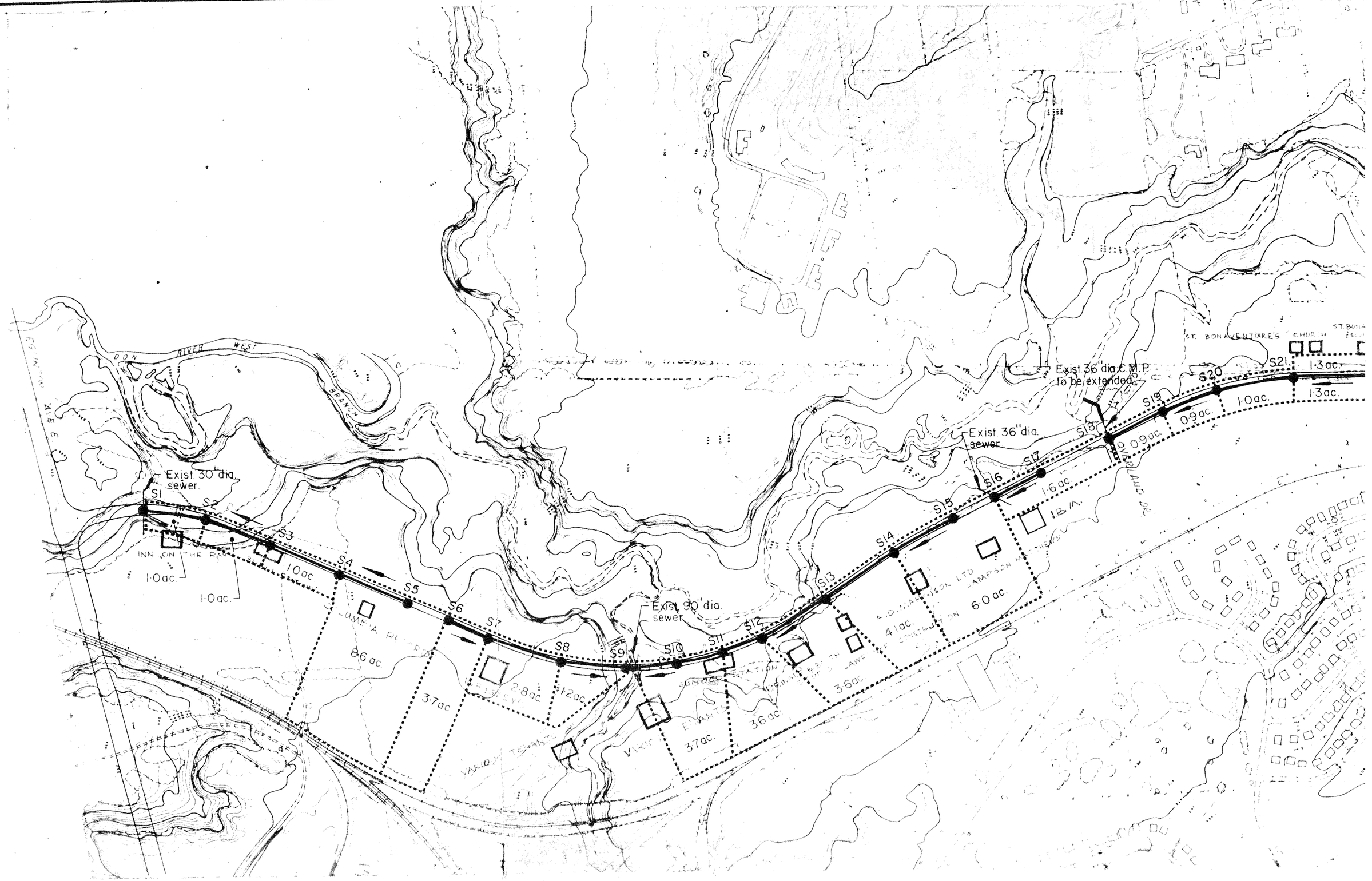
On Site Detention Storage
100 Yr Storm Event

Post Development Runoff Coefficeint = 0.8
Site Area (ha) = 2.65
Allowed Realease Rate (cu.m/s) = 0.325

t_c (min)	i_{100} (mm/hr)	Q_{100} (m^3/s)	Q_{stored} (m^3/s)	Peak Volume (m^3)	
1	1579.412	9.301	8.976	538.584	
2	907.134	5.342	5.017	602.091	
3	655.841	3.862	3.538	636.766	
4	521.012	3.068	2.744	658.463	
5	435.832	2.567	2.242	672.595	
6	376.682	2.218	1.894	681.714	
7	332.979	1.961	1.636	687.243	
8	299.243	1.762	1.438	690.058	
9	272.334	1.604	1.279	690.745	***max***
10	250.320	1.474	1.150	689.713	
11	231.943	1.366	1.041	687.259	
12	216.347	1.274	0.949	683.609	
13	202.927	1.195	0.870	678.937	
14	191.246	1.126	0.802	673.380	
15	180.977	1.066	0.741	667.050	
16	171.870	1.012	0.688	660.036	
17	163.733	0.964	0.640	652.413	
18	156.415	0.921	0.597	644.246	
19	149.793	0.882	0.558	635.586	
20	143.771	0.847	0.522	626.480	
21	138.267	0.814	0.490	616.968	
22	133.216	0.784	0.460	607.083	
23	128.562	0.757	0.433	596.855	
24	124.259	0.732	0.407	586.311	
25	120.266	0.708	0.384	575.474	
26	116.551	0.686	0.362	564.365	
27	113.085	0.666	0.341	553.002	
28	109.842	0.647	0.322	541.403	
29	106.801	0.629	0.304	529.581	
30	103.944	0.612	0.288	517.551	
31	101.253	0.596	0.272	505.326	
32	98.713	0.581	0.257	492.915	
33	96.313	0.567	0.243	480.330	
34	94.040	0.554	0.229	467.580	
35	91.884	0.541	0.217	454.674	
36	89.837	0.529	0.204	441.619	
37	87.889	0.518	0.193	428.423	
38	86.034	0.507	0.182	415.093	
39	84.264	0.496	0.172	401.634	
40	82.575	0.486	0.162	388.054	
41	80.960	0.477	0.152	374.356	
42	79.414	0.468	0.143	360.548	
43	77.933	0.459	0.134	346.632	
44	76.513	0.451	0.126	332.613	
45	75.149	0.443	0.118	318.497	
46	73.840	0.435	0.110	304.286	
47	72.580	0.427	0.103	289.984	
48	71.368	0.420	0.096	275.594	
49	70.200	0.413	0.089	261.121	
50	69.075	0.407	0.082	246.567	
51	67.989	0.400	0.076	231.935	
52	66.941	0.394	0.070	217.227	
53	65.929	0.388	0.064	202.446	
54	64.950	0.382	0.058	187.595	
55	64.004	0.377	0.052	172.676	
56	63.088	0.372	0.047	157.692	
57	62.201	0.366	0.042	142.643	
58	61.341	0.361	0.037	127.533	
59	60.508	0.356	0.032	112.363	
60	59.700	0.352	0.027	97.136	
61	58.916	0.347	0.022	81.851	
62	58.154	0.342	0.018	66.513	
63	57.415	0.338	0.014	51.121	
64	56.696	0.334	0.009	35.678	
65	55.997	0.330	0.005	20.184	
66	55.317	0.326	0.001	4.642	
67	54.656	0.322	0	-	
68	54.012	0.318	0	-	
69	53.385	0.314	0	-	
70	52.774	0.311	0	-	
71	52.178	0.307	0	-	
72	51.598	0.304	0	-	
73	51.031	0.301	0	-	
74	50.479	0.297	0	-	
75	49.940	0.294	0	-	


DON RIVER
WATER LEVEL 316.9 FEB. 19, 1962.
EGLINTON AVENUE
FOUR SEASONS INN MOTOR HOTEL
20' STORM SEWER EASEMENT.
30' SEWER EASEMENT.
20' SANITARY SEWER EASEMENT.
TOP OF SLOPE
BOTTOM OF SLOPE
5' CONC. SIDEWALK
EXISTING CB
WOODED
FENCE
FOUND R.I.B.
FOUND S.I.B. 393-20
ENTRANCE ROAD TO BE MAINTAINED BY DEVELOPER.
NOTES
1. B.M. BMI-365 EL. 427.30 TOP OF SOUTH LUG OF HYDRANT S.W. CORNER OF LAWN, SOUTH END OF F&M. BLDG.


PROPOSED STORM SEWERS
PROPOSED SANITARY SEWERS
EXIST. GROUND
NEW GRADE
EXIST. 30" C.I.P. INV. 338.78
375
350
400
325
0+00
1+15
2+10
0+00
0+50
1+30
2+80
4+30
REVISIONS
MAY 11, 62 - 1. STORM OUTFALL PIPED FROM MH-4A TO ENDWALL. 2. STORM SEWER GRADE MH-1A TO MH-2A. 3. SANITARY SEWER MH-1 TO METRO TRUNK.
JULY 10/62 - 1. STORM OUTFALL SEWER LOCATED PER SURVEY PLAN. 2. SANITARY SEWER LOCATED PER SURVEY PLAN.
JAN. 22, 63 - 1. MH. 1A AS CONSTRUCTED.
PLAN & PROFILE of SERVICES
FOUR SEASONS INN MOTOR HOTEL
APPROVED
MAR 9 1962
TOWNSHIP OF NORTH YORK
TOWNSHIP OF NORTH YORK
ENGINEERING DEPARTMENT
STORM & SANITARY OUTFALL
EGLINTON AVE. & LESLIE STREET
SCALE HOR. 1" = 50' VER. 1" = 10'
BENCH MARK
FIELD BOOK
DATE. FEB. 62
CHKD.
DWG. NO. SA-92-R
DWN. BY.
APPR.
5-SE-62


DON RIVER WEST BRANCH
Exist. 30" dia. sewer.
Exist. 90" dia. sewer.
Exist. 36" dia. sewer
Exist 36 dia C.M.P. to be extended
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
S17
S18
S19
S20
S21
INN ON THE PARK
1.0 ac.
1.0 ac.
1.0 ac.
8.6 ac.
3.7 ac.
2.8 ac.
1.2 ac.
3.7 ac.
3.6 ac.
4 ac.
6.0 ac.
1.6 ac.
1.3 ac.
1.0 ac.
0.9 ac.
0.9 ac.
1.3 ac.
ST. BONAVENTURE'S CHURCH

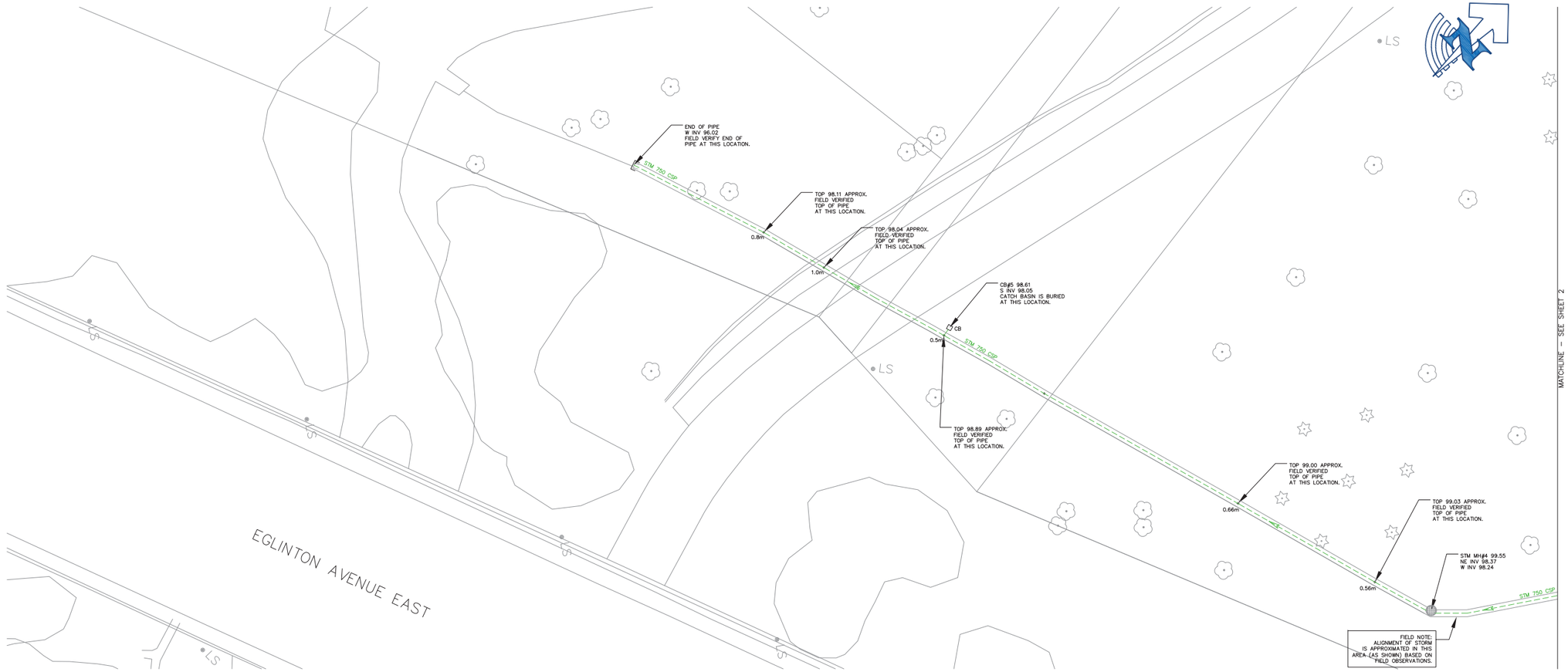
SECTIONS

STORM SEWER DESIGN
(FINAL)

Job No. 6821 Sheet 1 of 3
Drainage Area Leslie St.
Storm Frequency North York - 2yr.
Design By E.J.B. Date 19 Feb 68
Check By Date

SEWER LOCATION			REMARKS	RUN-OFF DATA					FLOW	SEWER DESIGN						
Street	From	To		Area Acs.	Run-off Coeff.	Area X Coeff.	Time Mins.	Intensity "/Hr.	C.F.S.	Dia.	Slope %	"n"	Act. Cap.	Vel. Ft/Sec.	Length Ft.	Flow Time
Leslie St.	S15	S14		6.0	0.5		5.0	4.8	14.4	21"	1.36	.015	15.5	6.4	312	0.8
" "	S14	S13	6.0 + 4.1	10.1	0.5		5.8	4.5	22.7	21"	4.33	.015	27.0	11.3	350	0.5
" "	S13	S12	10.1 + 3.6	13.7	0.5		6.3	4.3	29.5	21"	5.00	.015	30.0	12.3	350	0.5
" "	S12	S11	13.7 + 3.6	17.3	0.5		6.8	4.2	36.3	24"	4.27	.013	50.0	14.7	180	0.2
" "	S11	Junct. Chamb.	17.3 + 3.7	21.0	0.5		7.0	4.1	43.0	27"	1.89	.013	43.0	10.7	463	
Leslie St	S6	S7		3.7	0.5		5.0	4.8	8.9	15"	1.10	.015	9.0	5.1	222	0.7
" "	S7	S8	3.7 + 2.8	6.5	0.5		5.7	4.5	14.6	18"	3.0	.015	15.0	8.5	282	0.5
" "	S8	S9	6.5 + 1.2	7.7	0.5		6.2	4.4	17.0	18"	4.25	.015	17.5	10.0	350	0.6
" "	S9	Junct. Chamb.								15" C.M.P.						
Leslie St.	S5	S4		8.6	0.5		5.0	4.8	20.6	21"	3.34	.015	24.0	10.0	350	0.6
" "	S4	S3	8.6 + 1.0	9.6	0.5		5.6	4.6	22.0	21"	5.00	.015	30.0	12.3	350	0.5
" "	S3	S2	9.6 + 1.0	10.6	0.5		6.1	4.4	23.3	21"	5.00	.015	30.0	12.3	348	0.5
" "	S2	S1	10.6 + 1.0	11.6	0.5		6.6	4.2	24.4	24"	3.20	.013	35.0	10.8	232	
Leslie St.	S17	S16		1.6	0.5		5.0	4.8	3.8	15"	0.50	.015	3.0	3.1	350	
Leslie St.	S22	S21		1.3	0.9	1.2										
				1.3	0.5	0.7										
						1.9	5.0	4.8	9.1	21"	0.40	.015	9.5	3.9	350	1.5

DAMAS & SMITH LIMITED



KEY PLAN

NOT TO SCALE

GENERAL NOTES

1. T2UE'S SUE FIELD INVESTIGATION WAS PERFORMED IN JULY & AUGUST 2014. CHANGES TO UTILITIES THAT OCCURRED FOLLOWING OUR INVESTIGATION MAY NOT BE SHOWN. CONSIDERATION SHOULD BE GIVEN TO UPDATING THIS PLAN PRIOR TO FINAL DESIGN AND CONSTRUCTION.

2. LIMIT OF INVESTIGATION:
– SERENA GUNDY PARK (NORTH WEST CORNER OF LESLIE & EGLINTON).
–750 STORM INVERTS (5 TOTAL)

3. UTILITY OWNERSHIP, MATERIAL, SIZES AND FLOW SHOWN ON DRAWING ARE BASED ON RECORDS INFORMATION RECEIVED, FIELD INVESTIGATION AND PROFESSIONAL JUDGEMENT.

4. UTILITY WIDTHS ON DRAWING ARE BASED ON RECORDS RECEIVED.

5. SEE PROJECT REPORT FOR ADDITIONAL INFORMATION.

ASCE QUALITY LEVELS

THE UTILITY INFORMATION SHOWN ON THIS DRAWING WAS COLLECTED IN ACCORDANCE TO ASCE STANDARD 38-02. THE INFORMATION IS SHOWN BY QUALITY LEVEL WHICH INDICATES THE LEVEL OF EFFORT USED TO DETERMINE THE LOCATION OF THE DATA

INCREASED QUALITY

QUALITY LEVEL "D" – INFORMATION DERIVED FROM EXISTING RECORDS OR VERBAL RECOLLECTIONS.

QUALITY LEVEL "C" – INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO THE QUALITY LEVEL "D" INFORMATION.

QUALITY LEVEL "B" – INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF THE UTILITIES.

QUALITY LEVEL "A" – PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES.

LEGEND

GAS	GAS
G.S.	GAS SERVICE
WM	WATER
W.S.	WATER SERVICE
SAN	SANITARY SEWER
SAN LAT.	SANITARY LATERAL
STM	STORM SEWER
STM LAT.	STORM LATERAL
BE	BURIED ELECTRIC
BE–SL	BURIED ELECTRIC STREET LIGHT
BE–TL	BURIED ELECTRIC TRAFFIC LIGHT
UNK	UNKNOWN
FOC	FIBRE OPTIC CABLE
TV	CABLE TV
BT	BURIED TELECOMMUNICATIONS
O/H	OVERHEAD WIRE
	QUALITY LEVEL "B"
	QUALITY LEVEL "C"
	QUALITY LEVEL "D"
	TEST HOLE (QL–A)
	CONTINUATION ARROW
	FLOW ARROW
	END CAP
*	NOT SURVEYED, LOCATION BASED ON FIELD OBSERVATION
X.Xm	ELECTRONIC DEPTH MEASUREMENT

REVISIONS	DISCLAIMER.	PREPARED BY.		THE ENGINEER'S SEAL HEREON IS TO CERTIFY THAT THE UTILITIES SHOWN HAVE BEEN INVESTIGATED IN ACCORDANCE WITH STANDARD SUE INDUSTRY PRACTICES. ALL OTHER INFORMATION HEREON HAS BEEN PROVIDED BY OTHERS AND IS NOT A PART OF THIS CERTIFICATION.	
	THIS DRAWING HAS BEEN PREPARED FOR THE USE OF T2UE'S CLIENT AND MAY NOT BE USED, REPRODUCED OR RELIED UPON BY THIRD PARTIES, EXCEPT AS AGREED BY T2UE AND ITS CLIENT, AS REQUIRED BY LAW OR FOR USE BY GOVERNMENT REVIEWING AGENCIES. T2UE ACCEPTS NO RESPONSIBILITY, AND DENIES ANY LIABILITY WHATSOEVER, TO ANY PARTY THAT MODIFIES THIS DRAWING WITHOUT T2UE'S EXPRESS WRITTEN CONSENT.	T2 utility engineers 1-855-222-T2UE | WWW.T2UE.COM			

	DATE (MM/DD/YY)
DRAWN K. GORING	08/27/14
CHECKED A. JACKSON–WYATT	08/27/14
APPROVED B. HUNT	08/27/14

SCALE 1:250 (0 5 10m)

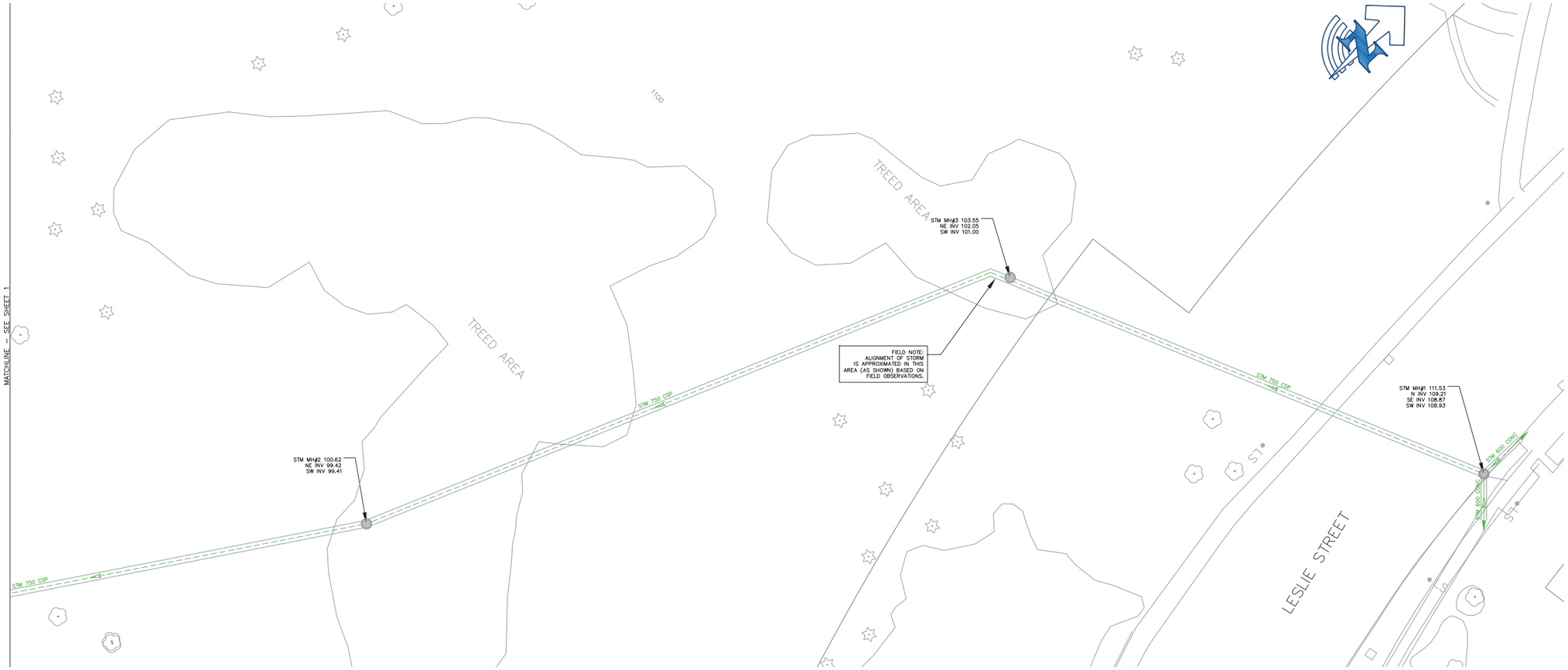
PROJECT.
ON THE PARK
1075 LESLIE STREET
TORONTO, ON

DRAWING.
SUBSURFACE UTILITY ENGINEERING
INVERT INVESTIGATION

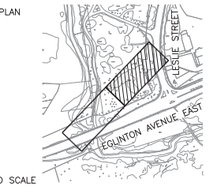
CLIENT.
DELNOVA
DEVELOPMENT LTD.

PROJECT NO. 61000363

SHEET NO. 01 OF 02



KEY PLAN



NOT TO SCALE

GENERAL NOTES

1. T2UE'S SUE FIELD INVESTIGATION WAS PERFORMED IN JULY & AUGUST 2014. CHANGES TO UTILITIES THAT OCCURRED FOLLOWING OUR INVESTIGATION MAY NOT BE SHOWN. CONSIDERATION SHOULD BE GIVEN TO UPDATING THIS PLAN PRIOR TO FINAL DESIGN AND CONSTRUCTION.

2. LIMIT OF INVESTIGATION:
– SERENA GUNDY PARK (NORTH WEST CORNER OF LESLIE & EGLINTON).
–750 STORM INVERTS (5 TOTAL)

3. UTILITY OWNERSHIP, MATERIAL, SIZES AND FLOW SHOWN ON DRAWING ARE BASED ON RECORDS INFORMATION RECEIVED, FIELD INVESTIGATION AND PROFESSIONAL JUDGEMENT.

4. UTILITY WIDTHS ON DRAWING ARE BASED ON RECORDS RECEIVED.

5. SEE PROJECT REPORT FOR ADDITIONAL INFORMATION.

ASCE QUALITY LEVELS

THE UTILITY INFORMATION SHOWN ON THIS DRAWING WAS COLLECTED IN ACCORDANCE TO ASCE STANDARD 38-02. THE INFORMATION IS SHOWN BY QUALITY LEVEL WHICH INDICATES THE LEVEL OF EFFORT USED TO DETERMINE THE LOCATION OF THE DATA

INCREASED QUALITY

QUALITY LEVEL "D" – INFORMATION DERIVED FROM EXISTING RECORDS OR VERBAL RECOLLECTIONS.

QUALITY LEVEL "C" – INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO THE QUALITY LEVEL "D" INFORMATION.

QUALITY LEVEL "B" – INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF THE UTILITIES.

QUALITY LEVEL "A" – PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITES OBTAINED BY THE ACTUAL EXPOSURE AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES.

LEGEND

GAS	GAS
G.S.	GAS SERVICE
WM	WATER
W.S.	WATER SERVICE
SAN	SANITARY SEWER
SAN LAT.	SANITARY LATERAL
STM	STORM SEWER
STM LAT.	STORM LATERAL
BE	BURIED ELECTRIC
BE–SL	BURIED ELECTRIC STREET LIGHT
BE–TL	BURIED ELECTRIC TRAFFIC LIGHT
UNK	UNKNOWN
FOC	FIBRE OPTIC CABLE
TV	CABLE TV
BT	BURIED TELECOMMUNICATIONS
o/h	OVERHEAD WIRE
	QUALITY LEVEL "B"
	QUALITY LEVEL "C"
	QUALITY LEVEL "D"
	TEST HOLE (QL–A)
	CONTINUATION ARROW
	FLOW ARROW
	END CAP
*	NOT SURVEYED, LOCATION BASED ON FIELD OBSERVATION
X.Xm	ELECTRONIC DEPTH MEASUREMENT

REVISIONS

DISCLAIMER.

THIS DRAWING HAS BEEN PREPARED FOR THE USE OF T2UE'S CLIENT AND MAY NOT BE USED, REPRODUCED OR RELIED UPON BY THIRD PARTIES, EXCEPT AS AGREED BY T2UE AND ITS CLIENT, AS REQUIRED BY LAW OR FOR USE BY GOVERNMENT REVIEWING AGENCIES. T2UE ACCEPTS NO RESPONSIBILITY, AND DENIES ANY LIABILITY WHATSOEVER, TO ANY PARTY THAT MODIFIES THIS DRAWING WITHOUT T2UE'S EXPRESS WRITTEN CONSENT.

PREPARED BY.

T2 utility engineers
1-855-222-T2UE | WWW.T2UE.COM

THE ENGINEER'S SEAL HEREON IS TO CERTIFY THAT THE UTILITIES SHOWN HAVE BEEN INVESTIGATED IN ACCORDANCE WITH STANDARD SUE INDUSTRY PRACTICES. ALL OTHER INFORMATION HEREON HAS BEEN PROVIDED BY OTHERS AND IS NOT A PART OF THIS CERTIFICATION.

		DATE (MM/DD/YY)
DRAWN	K. GORING	08/27/14
CHECKED	A. JACKSON–WYATT	08/27/14
APPROVED	B. HUNT	08/27/14

SCALE 1:250 (0, 5, 10m)

PROJECT.
ON THE PARK
1075 LESLIE STREET
TORONTO, ON

DRAWING.
SUBSURFACE UTILITY ENGINEERING
INVERT INVESTIGATION

CLIENT.
DELNOVA
DEVELOPMENT LTD.

PROJECT NO. 61000363

SHEET NO. 02 OF 02

Design Return Period = 2 Years, n = 0.013 for PVC, n=0.0175 for CSP

Based on Storm Sewer Investigation Performed by T2

Rainfall Intensity 'I' = A / (t+B)^c

21.8

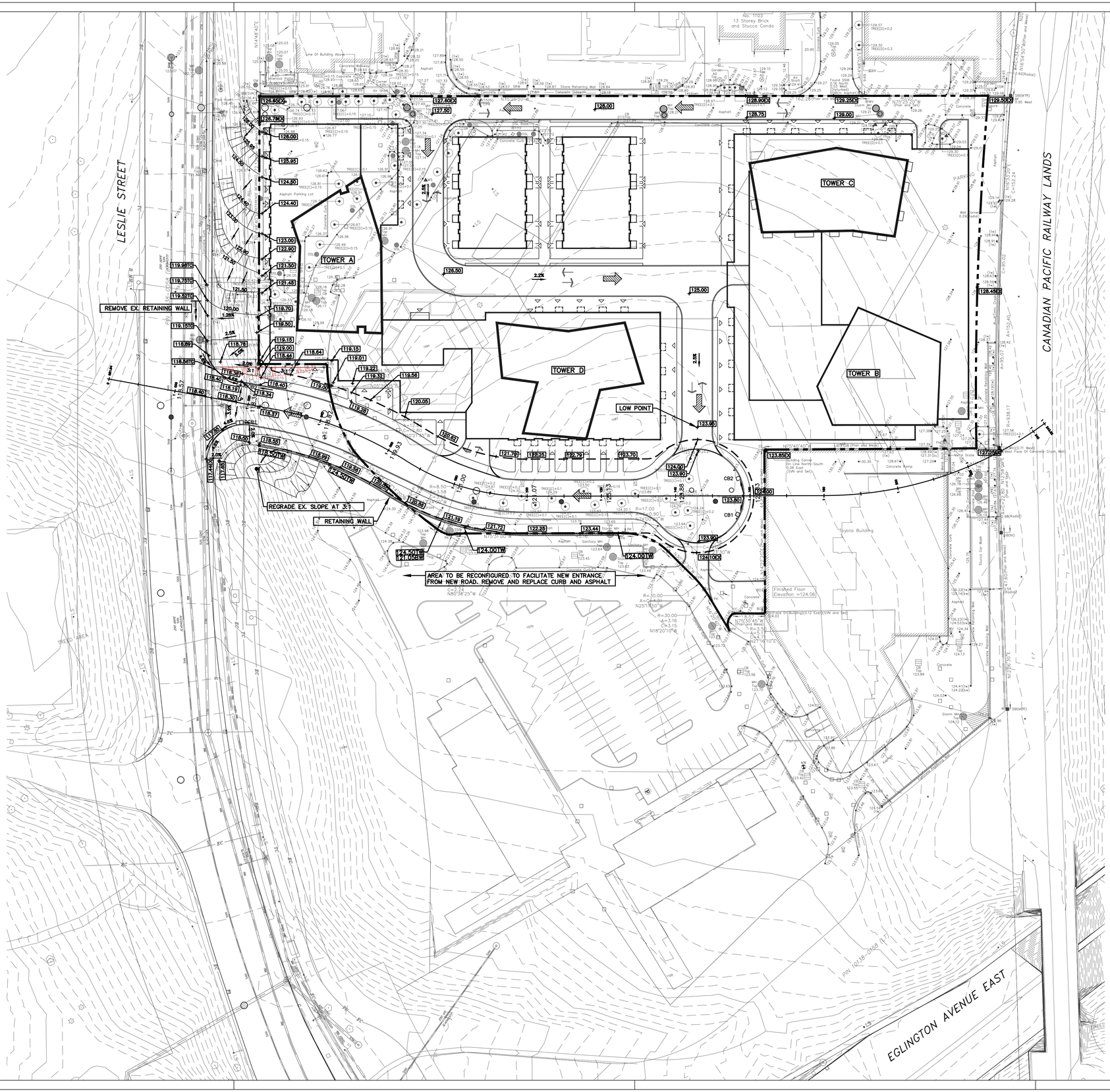
-0.78

Starting t = 10 min

Location			Runoff					Intensity	Cumm	Pipe Data						Time (Entry 10 min)			
Street	MH #		Area (A)	R	A x R	Cumm	t (min)	I	Flow	Length	Dia.	Slope	Slope	Full Capcity	Full Velocity	Section	Accum	Qact/Qcap	NOTES
	From	To	(ha)			A x R		(mm/hr)	(m3/s)	(m)	(mm)	(%)	(%)	(m3/s)	(m/s)	(min)	(min)	(%)	
Leslie St	S 5	S4	3.71	0.54	2.02	2.02	10.00	88.19	0.50	106.68	533.4	3.34	3.34	0.82	3.67	0.48	10.48	60.46	
Leslie St	S4	S3	2.45	0.58	1.41	3.43	10.48	84.99	0.81	106.68	533.4	5	5	1.00	4.49	0.40	10.88	80.79	
Leslie St	S3	S2	3.45	0.61	2.10	5.53	10.88	82.57	1.27	106.07	533.4	5	5	1.00	4.49	0.39	11.27	126.50	Upgrade to 750mm @ min. 2%
Leslie St	S2	STM MH#1	0.36	0.87	0.32	5.85	11.27	80.31	1.31	70.7136	609.4	2	2	0.91	3.10	0.38	11.65	144.21	Upgrade to 750mm @ min. 2%
Leslie St	South	STM MH#1	1.40	0.90	1.26	1.26	10.00	88.19	0.31	26.5176	609.4	0.65	0.65	0.52	1.77	0.25	10.25	59.82	
	STM MH#1	STM MH#3			0.00	7.11	11.71	77.95	1.54	54.519	750	12.6	12.6	3.11	7.05	0.13	11.84	49.45	
	STM MH#3	STM MH#2			0.00	7.11	11.84	77.29	1.53	74.02	750	3.05	2.24	1.53	3.47	0.36	12.20	99.66	
	STM MH#2	STM MH#4			0.00	7.11	12.20	75.53	1.49	52.21	750	3	2.01	1.52	3.44	0.25	12.45	98.20	
	STM MH#4	Outfall			0.00	7.11	12.45	74.33	1.47	99.18	750	3	2.24	1.52	3.44	0.48	12.93	96.64	

APPENDIX E

GENERAL GRADING PLAN



1. JAN.5.2015 ISSUED FOR DRAFT PLAN OF SUBDIVISION AST

DELNOVA DEVELOPMENT LTD

R.V. Anderson Associates Limited
engineering · environment · infrastructure

PROPOSED RESIDENTIAL DEVELOPMENT

ON THE PARK

TORONTO	ONTARIO
Project Engineer:	AST
Project Designer:	MR
Drawn By:	LM
Checked By:	PL
Plot Date:	
Job #	142920

CONCEPTUAL GRADING PLAN

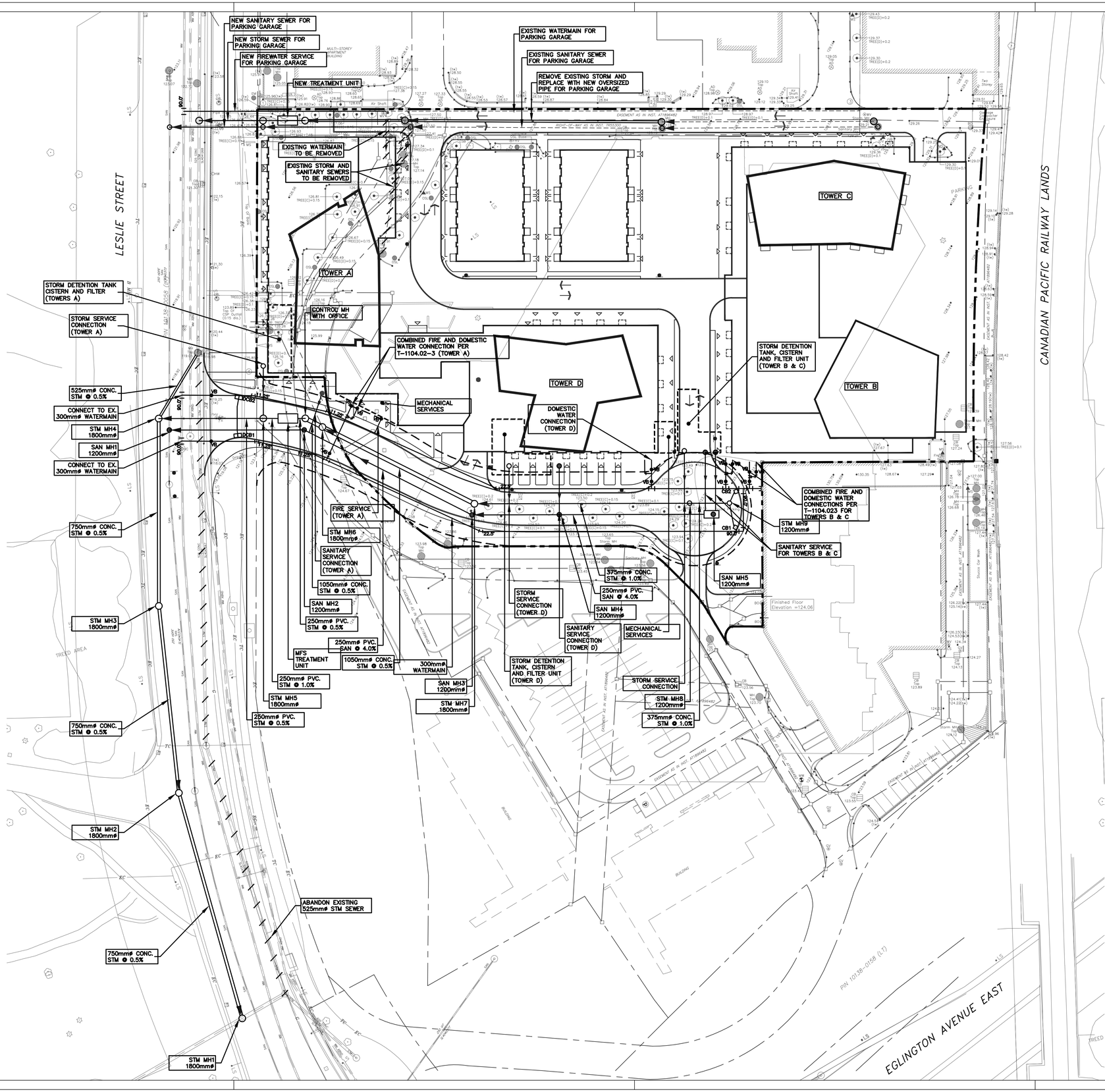
1:500

GR-1

TITLEBLOCK SIZE: 610 x 915

APPENDIX F

CONCEPT SERVCING PLAN



KEY PLAN

1. JAN.5.2015 ISSUED FOR DRAFT PLAN OF SUBDIVISION AST

DELNOVA DEVELOPMENT LTD

R.V. Anderson Associates Limited
engineering · environment · infrastructure

PROPOSED RESIDENTIAL DEVELOPMENT

ON THE PARK

TORONTO ONTARIO

Project Engineer:	AST
Project Designer:	MR
Drawn By:	LM
Checked By:	PL
Plot Date:	Dec 19, 2014
Job #	142920

CONCEPTUAL SERVICING PLAN

1:500

SS-1

TITLEBLOCK SIZE: 610 x 915

R.V. Anderson Associates Limited
engineering · environment · infrastructure

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