

Appendix A

Planning Information

Forecast Summaries by Secondary Plan Area

Schedule F, City of Brampton Official Plan
(Infrastructure, Utilities, and Resources)

Forecast Summaries by Secondary Plan Area

Population Forecasts by Secondary Plan Area

SPA	2008 Preliminary Forecast				
	2006	2011	2021	2031	Growth
*Mount Pleasant	222	1,323	32,287	49,188	48,967
40 - Bram West	6,264	14,374	36,424	50,045	43,781
*Northwest Brampton	233	233	4,041	36,362	36,129
45 - Credit Valley	1,090	17,937	33,889	34,525	33,434
47 - Highway 427 Industrial	345	72	10,701	32,401	32,055
28 - Sandringham-Wellington	55,920	80,702	85,352	84,037	28,118
41 - Bram East	17,649	34,044	45,342	45,148	27,500
48 - Sandringham - Wellington North	140	571	16,862	19,316	19,175
7 - Downtown Brampton	8,457	8,960	11,293	14,776	6,320
50 - Vales of Humber	251	637	5,597	6,529	6,277
36 - Queen Street Corridor	17,679	18,299	19,491	21,705	4,027
44 - Fletcher's Meadow	44,019	50,249	48,883	47,761	3,742
6 - Brampton West	13,506	14,111	15,233	17,219	3,713
42 - Vales of Castlemore	10,597	14,770	14,502	14,176	3,578
2 - Northwest Sandalwood	6,583	10,288	9,974	9,743	3,160
4 - Heart Lake East	9,694	9,464	10,705	12,706	3,012
26 - Toronto Gore Rural Estate	1,597	2,651	2,646	2,588	992
49 - Vales of Castlemore North	4,236	5,252	5,222	5,107	872
14 - Gore Industrial North	1,741	2,656	2,552	2,494	753
24 - Fletcher's Creek South	31,414	29,828	30,347	32,002	588
39 - Goreway Drive Corridor	584	596	1,042	1,071	487
1 - Snelgrove	11,289	z	11,176	11,468	179
23 - Gore Industrial South	0	144	138	135	135
18 - Brampton East Industrial	0	0	0	0	0
22 - Bramalea South Industrial	0	0	0	0	0
25 - Steeles Industrial	0	0	0	0	0
38 - Bramalea Road South Gateway	0	0	0	0	0
54 - Kennedy Road South	0	0	0	0	0
Heart Lake	0	0	0	0	0
Claireville	0	0	0	0	0
Parkway Belt West	0	0	0	0	0
32 - Parkway Belt Industrial Area	50	32	31	30	-19
19 - Bramalea West Industrial	910	934	897	876	-34
37 - Airport Road / Hwy 7 Business Centre	53	6	6	6	-47
43 - Fletcher's Creek Village	8,834	9,282	8,954	8,745	-89
13 - Bramalea North Industrial	1,760	1,768	1,698	1,658	-102
29 - Huttonville	385	298	286	280	-105
10 - Westgate	12,412	12,342	12,014	11,953	-459
20 - Avondale	7,940	7,670	7,465	7,426	-514
15 - Fletcher's West Secondary Plan	16,741	15,808	15,680	16,004	-737
5 - Northwood Park	9,743	9,495	9,119	8,905	-838
21 - Southgate	13,381	13,362	12,834	12,532	-849
17 - Brampton East	12,330	12,104	11,626	11,352	-978
12 - Northgate	15,482	15,316	14,711	14,365	-1,117
3 - Heart Lake West	16,738	16,128	15,491	15,126	-1,612
9 - Madoc	20,444	19,748	18,968	18,522	-1,922
16 - Brampton South	15,459	13,949	13,563	13,475	-1,984
11 - Central Park	16,457	15,359	14,752	14,405	-2,052
8 - Brampton North	16,820	15,666	15,047	14,693	-2,126
Grand Total	429,446	496,428	626,841	720,855	291,408

SPA	2006 Development Outlook Forecast				
	2006	2011	2021	2031	Growth
*Mount Pleasant	198	1,478	32,477	41,184	40,986
40 - Bram West	5,877	15,702	36,067	45,398	39,521
*Northwest Brampton	181	177	4,459	35,260	35,079
45 - Credit Valley	822	19,079	34,384	33,824	33,003
47 - Highway 427 Industrial	287	280	9,746	23,494	23,207
28 - Sandringham-Wellington	50,254	68,082	72,656	71,474	21,220
41 - Bram East	14,917	31,995	41,430	40,757	25,839
48 - Sandringham - Wellington North	122	1,240	22,355	23,195	23,074
7 - Downtown Brampton	9,587	11,634	16,506	19,850	10,263
50 - Vales of Humber	535	618	9,252	9,102	8,567
36 - Queen Street Corridor	18,660	18,215	22,439	24,609	5,949
44 - Fletcher's Meadow	39,846	40,776	38,938	38,304	-1,541
6 - Brampton West	14,571	14,845	18,839	18,532	3,961
42 - Vales of Castlemore	8,840	11,856	11,321	10,550	1,710
2 - Northwest Sandalwood	5,978	8,369	8,225	8,091	2,113
4 - Heart Lake East	10,663	13,113	14,770	14,530	3,868
26 - Toronto Gore Rural Estate	1,801	1,848	1,764	1,736	-65
49 - Vales of Castlemore North	3,761	4,347	4,261	4,192	431
14 - Gore Industrial North	1,546	1,993	2,114	2,080	534
24 - Fletcher's Creek South	30,405	33,172	31,983	31,463	1,058
39 - Goreway Drive Corridor	616	601	2,101	2,066	1,451
1 - Snelgrove	11,171	12,045	11,502	11,315	144
23 - Gore Industrial South	0	0	0	0	0
18 - Brampton East Industrial	0	0	0	0	0
22 - Bramalea South Industrial	0	0	0	0	0
25 - Steeles Industrial	0	0	0	0	0
38 - Bramalea Road South Gateway	0	0	0	0	0
54 - Kennedy Road South	0	0	0	0	0
Heart Lake	0	0	0	0	0
Claireville	0	0	0	0	0
Parkway Belt West	0	0	0	0	0
32 - Parkway Belt Industrial Area	50	49	47	46	-4
19 - Bramalea West Industrial	1,239	1,209	1,155	1,136	-103
37 - Airport Road / Hwy 7 Business Centre	0	0	0	0	0
43 - Fletcher's Creek Village	7,786	8,401	8,328	8,193	407
13 - Bramalea North Industrial	1,979	2,067	1,974	1,941	-38
29 - Huttonville	385	376	359	353	-32
10 - Westgate	13,817	13,875	13,250	13,034	-783
20 - Avondale	8,358	8,559	8,626	8,486	128
15 - Fletcher's West Secondary Plan	16,921	16,530	16,256	15,992	-929
5 - Northwood Park	10,293	10,047	9,594	9,438	-855
21 - Southgate	13,907	13,575	12,963	12,753	-1,155
17 - Brampton East	12,848	12,541	11,976	11,781	-1,067
12 - Northgate	17,232	16,821	16,063	15,802	-1,431
3 - Heart Lake West	17,605	17,185	16,410	16,143	-1,462
9 - Madoc	22,896	22,350	21,342	20,995	-1,901
16 - Brampton South	15,391	15,072	14,420	14,185	-1,206
11 - Central Park	17,196	16,786	16,029	15,769	-1,428
8 - Brampton North	17,745	17,322	16,541	16,272	-1,473
Grand Total	426,285	504,232	632,923	693,326	267,041

Employment Forecasts by Secondary Plan Area

Secondary Plan Area (SPA)	2008 Preliminary Forecast				
	2006	2011	2021	2031	Growth
40 - Bram West	5,500	15,422	31,793	41,268	35,768
*Northwest Brampton	79	82	3,385	17,650	17,571
47 - Highway 427 Industrial	272	3,271	11,586	17,000	16,728
36 - Queen Street Corridor	21,882	26,084	32,913	35,508	13,626
41 - Bram East	3,818	5,747	10,445	12,412	8,594
7 - Downtown Brampton	7,077	9,918	12,496	14,341	7,264
2 - Northwest Sandalwood	5,801	9,254	10,802	11,450	5,649
32 - Parkway Belt Industrial Area	6,433	9,798	11,252	12,059	5,626
28 - Sandringham-Wellington	4,830	7,829	9,129	10,362	5,532
48 - Sandringham - Wellington North	97	288	4,022	4,832	4,735
37 - Airport Road / Hwy 7 Business Centre	2,934	5,163	6,393	7,410	4,476
23 - Gore Industrial South	7,368	9,753	10,669	11,269	3,901
25 - Steeles Industrial	9,930	11,167	12,762	13,635	3,705
24 - Fletcher's Creek South	6,787	8,013	9,353	9,760	2,973
19 - Bramalea West Industrial	8,606	9,345	10,592	11,573	2,967
45 - Credit Valley	447	982	3,084	3,296	2,849
*Mount Pleasant	11	32	2,089	2,735	2,725
20 - Avondale	3,395	4,206	5,317	5,997	2,602
18 - Brampton East Industrial	5,955	7,134	7,858	8,220	2,265
22 - Bramalea South Industrial	9,275	10,021	11,118	11,456	2,180
14 - Gore Industrial North	4,644	5,550	6,362	6,513	1,870
44 - Fletcher's Meadow	2,384	3,352	4,051	4,166	1,783
49 - Vales of Castlemore North	269	362	869	1,930	1,661
13 - Bramalea North Industrial	8,010	9,042	9,890	9,440	1,430
21 - Southgate	3,747	4,150	4,387	4,723	977
39 - Goreway Drive Corridor	341	685	927	1,055	714
16 - Brampton South	2,343	2,555	2,949	3,048	704
15 - Fletcher's West Secondary Plan	1,510	1,541	2,219	2,151	641
3 - Heart Lake West	2,014	2,183	2,499	2,573	559
6 - Brampton West	1,758	1,926	2,176	2,270	512
4 - Heart Lake East	969	996	1,564	1,480	511
42 - Vales of Castlemore	690	982	1,226	1,174	484
38 - Bramalea Road South Gateway	1,039	1,396	1,448	1,490	451
5 - Northwood Park	1,519	1,649	1,928	1,886	368
43 - Fletcher's Creek Village	582	712	835	887	306
50 - Vales of Humber	5	81	399	291	286
9 - Madoc	1,523	1,559	1,650	1,730	207
10 - Westgate	1,135	1,213	1,263	1,310	174
17 - Brampton East	1,962	2,020	2,103	2,071	109
26 - Toronto Gore Rural Estate	219	337	435	314	95
Parkway Belt West	466	481	507	524	58
Claireville	200	207	218	225	25
1 - Snelgrove	1,137	1,244	1,363	1,152	15
54 - Kennedy Road South	0	0	0	0	0
Heart Lake	0	0	0	0	0
29 - Huttonville	7	6	6	6	-1
8 - Brampton North	2,633	2,695	2,803	2,605	-27
11 - Central Park	1,568	1,286	1,316	1,354	-215
12 - Northgate	1,681	1,344	1,359	1,398	-283
Grand Total	154,852	203,061	273,808	320,000	165,148

Secondary Plan Area (SPA)	2006 Development Outlook Forecast				
	2006	2011	2021	2031	Growth
40 - Bram West	6,484	20,625	37,216	42,985	36,501
*Northwest Brampton	92	92	1,704	15,756	15,664
47 - Highway 427 Industrial	318	3,793	12,522	17,393	17,075
36 - Queen Street Corridor	25,811	29,861	35,809	37,326	11,515
41 - Bram East	4,188	5,929	10,515	12,234	8,046
7 - Downtown Brampton	8,288	11,311	13,511	14,945	6,657
2 - Northwest Sandalwood	6,802	10,512	11,675	11,977	5,175
32 - Parkway Belt Industrial Area	7,700	11,365	12,386	12,836	5,136
28 - Sandringham-Wellington	4,570	7,333	8,200	9,209	4,639
48 - Sandringham - Wellington North	113	322	4,062	4,725	4,612
37 - Airport Road / Hwy 7 Business Centre	3,511	5,989	7,037	7,887	4,376
23 - Gore Industrial South	8,820	11,310	11,742	11,992	3,172
25 - Steeles Industrial	11,887	12,954	14,049	14,514	2,627
24 - Fletcher's Creek South	7,444	8,649	9,638	9,696	2,252
19 - Bramalea West Industrial	10,282	10,820	11,640	12,300	2,018
45 - Credit Valley	511	750	2,660	2,760	2,249
*Mount Pleasant	8	8	1,600	1,846	1,838
20 - Avondale	3,892	4,713	5,691	6,222	2,330
18 - Brampton East Industrial	7,129	8,275	8,650	8,750	1,621
22 - Bramalea South Industrial	11,103	11,624	12,239	12,194	1,091
14 - Gore Industrial North	5,521	6,380	6,948	6,879	1,358
44 - Fletcher's Meadow	1,900	2,800	3,400	3,400	1,500
49 - Vales of Castlemore North	230	306	844	1,944	1,714
13 - Bramalea North Industrial	9,550	10,450	10,850	10,012	462
21 - Southgate	4,195	4,524	4,551	4,756	561
39 - Goreway Drive Corridor	395	782	998	1,100	705
16 - Brampton South	2,470	2,662	2,952	2,952	482
15 - Fletcher's West Secondary Plan	1,445	1,445	2,103	1,943	498
3 - Heart Lake West	2,048	2,183	2,415	2,411	363
6 - Brampton West	1,812	1,928	2,065	2,043	231
4 - Heart Lake East	950	950	1,490	1,300	350
42 - Vales of Castlemore	596	819	1,035	943	347
38 - Bramalea Road South Gateway	1,244	1,619	1,594	1,586	342
5 - Northwood Park	1,607	1,707	1,925	1,815	208
43 - Fletcher's Creek Village	505	625	725	755	250
50 - Vales of Humber	0	80	318	168	168
9 - Madoc	1,380	1,380	1,405	1,440	60
10 - Westgate	1,090	1,140	1,130	1,135	45
17 - Brampton East	2,081	2,081	2,063	1,958	-123
26 - Toronto Gore Rural Estate	228	334	421	278	50
Parkway Belt West	558	558	558	558	0
Claireville	240	240	240	240	0
1 - Snelgrove	1,117	1,200	1,258	978	-139
54 - Kennedy Road South	0	0	0	0	0
Heart Lake	0	0	0	0	0
29 - Huttonville	0	0	0	0	0
8 - Brampton North	2,787	2,787	2,760	2,455	-332
11 - Central Park	1,521	1,159	1,129	1,129	-392
12 - Northgate	1,677	1,227	1,177	1,177	-500
Grand Total	176,101	227,600	288,901	322,904	146,803

**Schedule F, City of Brampton Official Plan
(Infrastructure, Utilities, and Resources)**



LEGEND			
	EXISTING WATERMAIN TRUNKS		PROPOSED SANITARY TRUNK SEWER
	PROPOSED WATERMAIN TRUNK		PUMPING STATION
	RESERVOIR		TREATMENT PLANT
	TREATMENT PLAN		WASTE MANAGEMENT/RECYCLING FACILITY
	EXISTING SANITARY TRUNK SEWER		TRANSFORMER STATION
	FUTURE UTILITY CORRIDOR		FORMER WASTE DISPOSAL SITE
	TRANSCANADA GAS PIPELINE		NORTH WEST BRAMPTON POLICY AREA

Last Amended Date
October 5, 2006

Printed Date
October 5, 2006

NOTES:
This map forms part of the Official Plan of the City of Brampton and must be read in conjunction with the text, other schedules and secondary plans. The boundaries and alignments of designations on this schedule are approximate and are not intended to be scaled.

Information regarding existing or former waste disposal sites has been compiled based on information from the Ministry of Environment or the Region of Peel. Please contact the Ministry of Environment or the Region of Peel directly for further information and/or clarification regarding the status of these sites.

Schedule F

Infrastructure, Utilities and Resources

Appendix B

Utility Stakeholder Consultation

Contact List

List of Meetings

Contact Letters

Comments Received

Contact List

City of Brampton Infrastructure Capacity Review
AECOM Project Number: 4020-012-00

Utility Vendor Contacts

Utility	Contact Name	Address	Telephone Number	Email Address	Comments
Primary Contacts:					
Bell Canada	John La Chapelle, MCIP, RPP Manager of the Development and Municipal Services Control Centre.	R.O.W Control Centre Floor 5 BLUE, 100 Borough Dr. Scarborough, ON M1P 4W2	416-735-0009	john.lachapelle@bell.ca	Contact provided by City Met with John Provided feedback
Hydro One Networks Inc.	Doug Magee Team Leader, Environmental Services & Approvals	483 Bay Street North Tower, 12 th Floor Toronto, ON M5G 2P5	416-345-6596	d.magee@hydroone.com	Contact provided by City Sent documentation May 11, 2009
Hydro One Brampton	Andy Kuchowicz, P.Eng. Project Engineer	175 Sandalwood Parkway West Brampton, ON L7A 1E8	905-840-6300	akuchowicz@hydroonebrampton.com	Contact provided by City Met with Andy & staff Provided feedback
Rogers Cable	Darryl Dimitroff Team Manager, Outside Plant Engineering	3573 Wolfdale Road Mississauga, ON L5C 3T6	Bus: 905-897-3912 Cell: 416-509-8772	darryl.dimitroff@rci.rogers.com	Met with Darryl & Tony Ranieri No major comments provided
Enbridge Consumer Gas	Shelley Van Sickle, P.Eng. Manager, Special Projects - Distribution Planning	PO Box 650 Scarborough, ON M1K 5E3	416-498-3842	Shelley.VanSickle@enbridge.com	Shelley replacing Carmelo Tancioco No major comments provided
Allstream (Telecommunications)	Peter Rutkowski Corey Knight, GIS/CAD Specialist	50 Worcester Road Etobicoke, ON M9W 5X2	416-649-7531 416-649-7509	peter.rutkowski@mtsallstream.com corey.knight@mtsallstream.com	Did not meet in person No comments rec'd via e-mail
Secondary Contacts:					
Bell Canada	Frank Fucile, C. Tech.	Municipal Operation Centre: Floor 5 - Blue 100 Borough Drive Scarborough, ON M1P 4W2	416-296-6034	frank.fucile@bell.ca	Present at meeting with John L.
Hydro One Brampton	Wolf Schaefer	175 Sandalwood Parkway West Brampton, ON L7A 1E8	905-840-6300 Ext. 5531	wschaefer@hydroonebrampton.com	
Enbridge Consumer Gas	Kent Todd Manager, Long Range Planning	500 Consumers Road North York, ON M2J 1P8	416-758-7953	kent.todd@enbridge.com	Communicated via e-mail.
TransCanada Pipelines, Toronto Regional Office (Natural Gas Pipelines)	Ken McBride	11200 Weston Road P.O. Box 790 Maple, ON L6A 1S7	905-832-7390	ken_mcbride@transcanada.com	

List of Meetings

**CITY OF BRAMPTON
INFRASTRUCTURE CAPACITY REVIEW**

LIST OF MEETINGS

Meeting	Date	Location	Time	Attendees
Kick-Off Meeting	17-Jun-08	City of Brampton 2 Wellington St. West, Brampton	10:00 – 11:00 a.m.	Sabeen Makki (COB) Janice Given (COB) Adrian Smith (COB) Chris Hamel (AECOM) Laura Borowiec (AECOM)
Stormwater Review Meeting	29-Jul-08	City of Brampton 2 Wellington St. West, Brampton	9:00 – 10:30 a.m.	Sabeen Makki (COB) Janice Given (COB) David Kenth (COB) Michael Won (COB) Frank Azello (COB) Chris Hamel (AECOM) Steve Hollingworth (AECOM) Janelle Weppler (AECOM) Laura Borowiec (AECOM)
Hydro One Brampton	28-Aug-08	Hydro One Brampton 165 Sandalwood Pkwy, Brampton	1:00 – 3:00 p.m.	Andy Kuchowicz (HOB) Chris Hamel (AECOM) Sabeen Makki (COB) Laura Borowiec (AECOM)
Bell Canada	11-Sep-08	AECOM 220 Advance Blvd., Brampton	9:30 – 10:30 a.m.	John LaChapelle (BC) Frank Fucile (BC) Chris Hamel (AECOM) Laura Borowiec (AECOM)
Rogers Communications	15-Sep-08	Rogers Communications 3573 Wolfedale Rd., Mississauga	10:00 – 11:00 a.m.	Darryl Dimitroff (RC) Tony Ranieri (RC) Chris Hamel (AECOM) Laura Borowiec (AECOM)
Downtown Brampton Development & Hydro One	06-Oct-08	Hydro One Brampton 165 Sandalwood Pkwy, Brampton	1:30 – 3:30 p.m.	Andy Kuchowicz (HOB) Walter Rose (HOB) Robert E. (HOB) Allan Sharp (HOB) Bernie Steiger (COB) Anthony Wong (COB) Sabeen Makki (COB) Chris Hamel (AECOM) Laura Borowiec (AECOM)
Enbridge Gas	08-Oct-08	AECOM 220 Advance Blvd., Brampton	9:45 – 10:30 a.m.	Carmelo Tancioco (EG) Chris Hamel (AECOM) Laura Borowiec (AECOM)

Note: Acronyms are described below:

- COB – City of Brampton
- HOB – Hydro One Brampton
- BC – Bell Canda
- RC – Rogers Communications
- EG – Enbridge Gas

Comments Received

Hydro One Networks Inc.
483 Bay Street
ICT12, North Tower
Toronto, Ontario, M5G 2P5
mccormick.bj@hydroone.com

Tel: 416-345-6597
Fax: 416-345-6919
Cell: 416-525-1051



Brian McCormick
Manager, Environmental Services and Approvals

May 20, 2009

Mr. Chris Hamel, Regional Manager, Infrastructure Planning
AECOM
105 Commerce Valley Drive West, Floor 7
Markham, Ontario
L3T 7W3

RE: City of Brampton Infrastructure Capacity Review

Dear Chris Hamel:

In response to your letter dated May 11, 2009, Hydro One Networks Inc. has reviewed the City of Brampton's Infrastructure Capacity Review. Please find below our comments regarding the report.

Page iii

- Please include the following sentence at the end of the first paragraph: "Hydro One Networks Inc. is sensitive to the concerns of the City. However, there are technical and safety challenges with using a corridor of such narrow width. Hydro One and other users of a joint corridor will explore economic measures to reduce the total width of the corridor."
- The above sentence also refers to the passage regarding the corridor width on page 18

Page 18

- A typical 2 circuit or even 4 circuit lattice tower design requires a greenfield right-of-way of approximately 45m, as opposed to 65m
- The cost of underground high voltage transmission is closer to 5 to 7 times more than that of overhead, as opposed to three times more

Page 48

- It takes approximately 4 to 6 years from the beginning of the environmental assessment to the facility being in service, as opposed to 10 years

Table of Contents

- Figure numbers in the table of contents do not match figures in the report

If you have any questions please feel free to contact me at 416-345-6597.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian McCormick". The signature is stylized and somewhat abstract, with loops and flourishes.

Brian McCormick
Manager, Environmental Services & Approvals



FAX TRANSMITTAL

175 Sandalwood Parkway West, Brampton, Ontario

From: Andy Kuchowicz

Telephone: 905-452-5534

Fax: 905-840-1305

Date: May 26, 2009

To: City of Brampton

Attention: Miss Daniella Grosvenor

Page: 1 of 2

Re: Comments on draft version of Infrastructure Capacity study

Hi Daniella:

With regards to the draft version of the Infrastructure Capacity Review of Utilities and Services within the City of Brampton please find Hydro One Brampton comments as follows:

- A) **On page #15 – the paragraph starting with “Brampton Goreway TS.....”**, It seems that the paragraph is related to the Goreway Generating Station. The Goreway Generating Station is located on the west side of Goreway Drive, half way between Queen Street East and HWY #407. The Generating Station is producing electricity which feeds the hydro transmission grid/system at 230 kV level. This electrical energy flows through the transmission grid and can be utilized at any location in the province. In addition, the Goreway Generating Station is not under Hydro One Brampton’s jurisdiction. The Transformer Station (TS) conveys the transmission voltage level to a distribution level which is utilized by the Local Distribution Utility (LDC) to feed hydro’s distribution system and Utility’s customers. The Goreway Transformer Station is located on the east side of Goreway Drive, half way between Castlemore Road and Queen Street East. The station is owned by Hydro One Networks Inc. and Hydro One Brampton connects the distribution feeders to the distribution breakers at the transformer station.
- B) **Figure #11 – Recommended Hydro System Upgrades**
Figure #11 has already been discussed with Miss Laura Borowiec of AECOM. Laura has been advised to contact Hydro One Networks Inc. with regards to the proposed transmission lines and new transformer station locations.

However, Hydro One Brampton Networks Inc. would be satisfied if the new transformer stations (new DESNs) are located as follows:

- First new TS - in the vicinity of Chinguacousy Road/ McLaughlin Road and Wanless Drive/Mayfield Road
- Second new TS - in the vicinity of Goreway Drive/Airport Road and Countryside Drive/Mayfield Road.
- Third new TS – in the vicinity of Hwy #407 and Kennedy Road

Should you require any additional information, clarification or to set up brief meeting please contact me at 905-452-5534.

Regards

Andy Kuchowicz

Cc: Laura Borowiec - AECOM

Hydro One Brampton Inc. Infrastructure Capacity study

Contest:

1. Scope
2. Background of Hydro One Brampton Network Inc. (HOBNI)
3. Forecasting horizon and data
4. Transmission lines and Transformers stations (TS)
5. Forecasted hydro load growth
6. Primary feeders
7. Downtown core and Queen St corridor

1. Scope:

This report has been prepared by Hydro One Brampton Network Inc. for City of Brampton to examine and evaluate the hydro current and planned utility services for the City's anticipated growth up to year 2031. This study has been enforced by Provincial Government to implement the Provincial Growth Plan policies and subsequently the City's Official Plan in June 2009.

2. Background of Hydro One Brampton Network Inc.

The Hydro One Brampton Network Inc. is a subsidiary of Hydro One Network Inc. (HONI) and is responsible for supplying and distributing hydro power within boundary of City of Brampton. The City of Brampton is located within GTA in the Region of Peel, north-west from City of Toronto. The Hydro One Brampton Network Inc. is responsible to supply power to 127,000 customers (residential, commercial and industrial). The existing hydro infrastructure contains as follows:

- 14,500 distribution line poles
- 15,000 distribution transformers
- 2200km of underground primary feeder and distribution cable
- 8000km of overhead primary bare conductor (feeder and distribution)

- The main operating voltages are 44 and 27.6kV , however there are legacy voltages of 13.8, 8.23 and 4.16kV which have to be maintain for local loads
- There are four Transformer stations (TS) supplying power to HOBNI grid system
- There are 13 active Municipal Station (MS)

3. Forecasting horizon and data

For the purpose of hydro load forecast, Hydro One Brampton Network Inc. has selected two sources of available data as follows:

- Historical data of hydro load growth and the extrapolation of the trend into the future. This method has a limitation for a time line horizon and is limited to a 10 years forecast.
- Forecasted employment and population growth study conducted by AECOM consulting office.

Both sources of data has been accepted for this study

4. Transmission lines and Transformers stations (TS)

4.1.Existing data of Transmission Lines and Transformer Station (TS)

All existing transmission lines are rated as 230kV double line in radial configuration to each transformer station. Three of them are overhead tower lines and one underground line to Goreway Transformer Station. The data of Transmission Lines and Transformer Station has been included in Table 1 – Transformer Stations -2008 -2010.

4.2. Future expansion of Transmission Lines and Transformer Station

The Transmission Lines and Transformer Stations are under jurisdiction of Hydro One Network Inc. (HONI) and need to be examined by HONI from following perspective :

- Existing and future capacity of transmission lines and each DESN in the City of Brampton
- Secure land for future expansion of transmission line and TS location with relation to Right Of Way, easements, encroachments.

The existing Transformer Stations and all available DESN (existing and already approved for expansion) may cover power supply to City of Brampton up to year 2022 when it's expected that the peak load may reach a level of 1000MW (See Table 2- 2010fLoad Forecast by Population Growth Vs HOBNI Projected Growth)).

Additional transformer station capacity will be required to meet the load requirements, identified by HOBNI, in 2022. Future sites for evaluation would depend on load growth patterns resulting from population/employment growth within the City. Power supply requirements beyond 2022 could prompt HOBNI to initiate TS studies in the following areas :

- The transmission utility corridor, Kennedy Road/ Highway 407 area.
- The transmission utility corridor, Airport Road/Highway 407 area.
- The transmission utility corridor, Heritage Road/ Highway 407 area.
- North West sector of the City, Mayfield Road/Chinguacousy Road area.
- North East sector of the City, Mayfield Road, Airport Road to Goreway Drive area.
- Expansion of the existing 44kV yard at Goreway TS.
- Expansion of the existing 44kV yard at Bramalea TS.

The location and number of future sites required would depend on the future load growth patterns for the areas noted above.

5. Forecasted hydro load growth

The peak load, which is quite a good indicator for evaluation of existing and future expansion of hydro infrastructure (transmission lines, DESN's, number of breakers and feeders needed) to be as follows:

- 2005 – peak load of 731.20MW
- 2006 – peak load of 784.90MW
- 2007 – peak load of 772.10MW
- 2008 – peak load of 729.20MW actual and 801.5MW forecasted

The peak load is the summer factor of loading and it's closely related to weather condition and temperature.

The load forecast up to 2031 has been shown in TABLE 2.

According to load growth study and Table 2, the new DESN will be required by 2022.

6. Primary feeders and breakers requirement.

Hydro One Brampton Network Inc. has been assigned to use and utilize 77 breakers in total at the 27.6 and 44 kV voltage level.

The HOBNI feeder network has been designed to achieve the following criteria:

- For 27.6kV feeders the maximum loading is to be between 13 to 17 MW depending on the servicing distance from TS and the voltage drop. The 27.6kV feeders are designated to provide supply to residential, commercial and small industrial customers. The feeder load needs to be reduced if customer is located more the 6 km from the TS.
- For 44kV feeders the maximum loading is to be between 22 to 27 MW depending on the servicing distance from TS and voltage drop. The feeder load should be significantly reduced if the customer is located more the 10 km from TS. The 44kV feeders are designated to provide supply to large industrial customers and municipal stations.

In conclusion, it's has been forecasted to develop one or two new 27.6kV feeders per year up to year 2031 to accommodate the load growth.

7. Downtown core and Queen St corridor

The Downtown Brampton and Queen St corridor are located some distance from the existing TS which creates some challenges regarding future power supply to the Queen St. corridor. The existing infrastructure at Queen St. corridor can support only existing load. Any new development will require new underground infrastructure including cable replacements and the installation of new concrete encased duct bank.

As mentioned, the practical solution to supply power (primary feeder) at Queen St. corridor is the installation of a new TS at the vicinity of Kennedy Rd and Utility corridor or HWY 407.

Prepared by: Andy Kuchowicz - Project Engineer - Hydro One Brampton Network Inc.

October 27, 2008



May 7, 2009

Daniella Grosvenor, MCIP, RPP
Growth Management Policy Planner III
Planning, Design and Development Department
2 Wellington Street West
Brampton, On, L6Y 4R2

Re: Infrastructure Capacity Review of Utilities and Services within the City of Brampton

Dear Ms. Grosvenor

Further to our meeting held on September 11, 2008, Bell is pleased to have the opportunity to review and provide input into the City of Brampton's Infrastructure Capacity Review. We would like to thank staff for their efforts to date to incorporate Bell's interests into the City's growth management strategy.

As you are aware, Bell Canada is Ontario's principal telecommunications infrastructure provider. The *Bell Canada Act*, a federal statute, requires that Bell manage and operate most of the trunk telecommunications system in Ontario. Bell is also responsible for the infrastructure that supports most 911 emergency services in the Province.

The Provincial Policy Statement (PPS) and the Places to Grow document both strongly support the integrated planning of communities, including telecommunications infrastructure. The PPS specifically requires that "planning for infrastructure and public service facilities shall be integrated with planning for growth so that these are available to meet current and projected needs" (Section 1.6.1). Furthermore, the PPS states that infrastructure should be located to support the delivery of emergency management services (Section 1.6.3). We note that the definition of infrastructure in the PPS includes communications/ telecommunications.

In light of Provincial policy, it is critical to understand the complexity of expanding and enhancing the telecommunications network to accommodate growth, both through outward expansion of an urban area and through intensification, infill and redevelopment. All types of growth and development place demands on the telecommunications network and its associated support infrastructure. Beyond simply extending fibre or copper cable, growth and development can precipitate the need for reinforcement and replacement of the support infrastructure. Reinforcement and replacement of the telecommunications network can represent an extensive and costly undertaking, which needs to be managed to avoid disruption of public services. This is particularly critical in relation to the provision of 911 emergency services and the operating services essential to the City of Brampton's businesses operating in a global economy.

Bell Canada
Development and Municipal Services Control Centre
Floor 5 BLUE, 100 Borough Drive
Toronto, Ontario
M1P 4W2

Telephone 905-853-4044
Fax 905-895-3872
john.lachapelle@bell.ca

One of Bell's main objectives is to become more involved early in the planning process. This allows us to coordinate with the City on the provision of appropriate telecommunications infrastructure for new growth and development in a timely fashion. It also allows for greater consideration of the size and locational needs of large telecommunications infrastructure and equipment that houses key electronics.

We understand that central to the growth management program for the City is the development of a proactive strategy for providing utilities. The Infrastructure Capacity Review has clearly identified the constraints that telecommunication providers must address to meet customer demands. We would like to thank staff for recognizing that system upgrades/expansions rely on being well informed of planned growth within the City. We were also pleased to see the recommendation to establish a two-way information exchange process that would alleviate risks to the infrastructure system and provide support for growth. While specific suggestions for coordination requirements have been provided for the Downtown/Queen Street Corridor in Section 7.1.2, we would like to see a more formalized process for the entire City, particular for developments that represent infill and intensification relative to infrastructure projects.

It is critical to Bell that the City ensures that telecommunication providers are kept informed of these type of initiatives, particularly any future road and related infrastructure improvements that will occur as a result of the City's growth management program. As well as being provided with the opportunity to plan infrastructure development and utility placement in conjunction with the other utility providers and public works, to be consistent with the planned development/growth. Therefore, we would ask that the City ensure that the necessary provisions for the efficient and effective delivery of services to existing and future residents of the community be undertaken during the planning process and be identified prior to undertaking extensive works.

Further, the continual advancement of telecommunications technology, coupled with the need of rapid information transfer, have a significant impact on the future growth, development and economic vitality of the City of Brampton. As communities move towards an emphasis on industry standards technological advancement to support the growth of existing businesses and ensure an areas ability to attract new employment opportunities, it is important to be cognisant that much of the "backbone" of these new advancements is Bell's infrastructure. Telecommunications has had, and will continue to have, a significant impact on the sustainability and competitiveness of Brampton. Recognizing that the document provides policy directions, we would request that the City considers the following policies to be incorporated that support the infrastructure provisioning needs of telecommunications providers, as follows:

- The City of Brampton will support the completion of a technology audit to determine the existing capabilities of the existing telecommunications network;

- The City of Brampton will facilitate coordination between growth management and the maintenance and expansion of the telecommunication sector, both in terms of technological advancement and service provision;
- The City of Brampton will protect and enhance existing communications networks;
- The City of Brampton will undertake discussions with telecommunications providers regarding the feasibility of servicing existing and future employment areas with industry standard telecommunications services, including broadband technology, to attract knowledge-based industries and support the technological advancement and growth of existing businesses;
- In order to implement the recommendations of this review, the City of Brampton will cooperate with both private and public telecommunication providers responsible for the regulation, transmission and delivery of telecommunications services within the City of Brampton in planning the future development and staging of the networks.

Once again, on behalf of Bell, we thank you for the continued opportunity to participate in the process and the consideration of our comments. We kindly request that all documents and information related to this initiative be forwarded to our Development and Municipal Services Control Centre:

Mr. John La Chapelle, MCIP, RPP
Manager – Municipal Relations
Access Network Provisioning, Ontario
Development and Municipal Services Control Centre
Bell Canada
Floor 5 BLUE, 100 Borough Drive
Toronto, Ontario
M1P 4W2

Should you have any questions, please direct them to the undersigned.

Yours truly,



John La Chapelle, MCIP, RPP
Manager – Municipal Relations, Access Network Provisioning, Ontario

cc: Wayne Corrigan - Associate Director - Access Network – Bell Canada
Scott Moon - Regional Manager – Bell Canada
Chris Hamel - AECOM
Chris Tyrrell - MMM Group Ltd

From: Rutkowski, Peter [Peter.Rutkowski@mtsallstream.com]
Sent: 2009/05/21 3:41 PM
To: Grosvenor, Daniella
Subject: RE: Brampton's Draft Infrastructure Capacity Review Report
Hi Daniella,

MTS Allstream is supportive of the content that is presented in the Brampton's Draft Infrastructure Capacity Review Report.

As a telecommunications service provider to large and medium size companies only, MTS Allstream is not proactive in the planning process of future infrastructure, but rather our planning and service is based on day to day customer acquisition and/or customer needs.

Thank you,

Peter Rutkowski
MTS-Allstream Inc.
Network Engineering
50 Worcester Road
Toronto, ON M9W 5X2
Tel: 416-649-7531
Fax: 416-649-7500
peter.rutkowski@mtsallstream.com
www.mtsallstream.com

Contact Letters

AECOM

105 Commerce Valley Drive West, Floor 7, Markham, ON, Canada L3T 7W3
T 905.886.7022 F 905.886.9494 www.aecom.com

May 11th, 2009

Project No.:4020-012-00

Doug Magee
Hydro One Networks Inc.
Environmental Services and Approvals
483 Bay Street
North Tower, 12th Floor
Toronto, ON M5G 2P5

Subject: City of Brampton Infrastructure Capacity Review

Dear Mr. Magee:

As you may be aware, AECOM (previously UMA Engineering Ltd.) has been retained to undertake the Infrastructure Capacity Review for the City of Brampton as part of the City's overall Growth Plan conformity exercise. The purpose of this study is to broadly examine and evaluate the ability of current and planned municipal services and private vendor utilities to meet the City's anticipated growth needs to 2031. This study is one of several which are part of a current exercise being undertaken by the City to implement the Provincial Growth Plan policies in the City of Brampton by June 2009.

As part of this study, AECOM has contacted private vendors and utilities providing services for the City of Brampton to determine future plans for extension of infrastructure or services, including hydro, gas, cable, and telecommunication, within the City of Brampton. In particular, we have contacted and engaged Andy Kuchowicz, P.Eng. at Hydro One Brampton. Based on the consultation carried out at thus far, we have recently completed a draft study report for stakeholder review.

Recognizing that Hydro One Networks Inc. is a key utility stakeholder and that the issues of proposed transformer stations and transmission lines falls within its jurisdiction, we would like to ensure that Hydro One Networks Inc. is also engaged and has an opportunity to provide input into this study. Based on your involvement with the City of Brampton regarding the Class Environmental Assessment Studies being undertaken for the Bram West Parkway / North-South Transportation Corridor, we would like to engage you as our primary point of contact for this study to ensure that comments from Hydro One Networks Inc. are incorporated and accurately reflected in the final study report.

As such, we will be sending you a hardcopy of the draft study report for your review. We would appreciate it if you could take the time to review this report, focusing on the hydro related sections, and provide comments no later than **May 22nd, 2009**. In efforts to facilitate this process and to provide you with the necessary background information and context for this study and its objectives, we would like to set up a conference call with you during the week of **May 11th, 2009**. Please let us know what date and time works for you and we will make the necessary arrangements at our end.

We appreciate in advance your cooperation in supporting this study. Should you require any additional information or have any questions, please do not hesitate to contact the undersigned by phone at 905-747-7562 or via e-mail at chris.hamel@aecom.com. You can also contact Daniella Grosvenor at the City of Brampton by phone at 905-874-2061 or via e-mail at daniella.grosvenor@brampton.ca.

Sincerely,
AECOM Canada Ltd.



Chris Hamel, P.Eng.
Regional Manager, Infrastructure Planning

LB:lb

UMA Engineering Ltd
220 Advance Boulevard
Brampton, ON L6T 4J5
T 905 459 4780 F 905 459 7369 www.uma.aecom.com

August 18, 2008

Peter Rutkowski
Allstream
50 Worcester Road
Etobicoke, ON M9W 5X2

Dear Peter:

Re: City of Brampton Infrastructure Capacity Review

We are consultants to the City of Brampton for the above-noted project, which involves carrying out a capacity review on utilities such as hydro, gas, cable and telecommunication. As part of this work, we are required to gather an inventory of the City's current and planned infrastructure in order to provide comment on the capacity to meet current and future needs. This study is intended to support an overall population and employment growth plan required by the Province.

As a service provider, we would appreciate your cooperation in providing data as it relates to telecommunication services within the City of Brampton to support this study. Enclosed is a figure indicating our study area. It would be appreciated if you could provide mapping for the same area, indicating the location, size and depth of your existing and proposed facilities, so that our recommendations bear these considerations in mind. The information we are requesting is similar to what is typically provided for locates but on a city-wide scale. If mapping is available in digital format, such as AutoCAD or GIS shapefiles, that would be ideal, although hard copies would also meet our information needs.

We trust that you are the appropriate contact for this request, or that you will be able to forward it to the right person. Should you require any additional information or have any questions, please do not hesitate to contact the undersigned by phone at 905-459-4780 ext. 174 or via e-mail at laura.borowiec@uma.aecom.com.

Sincerely,

UMA Engineering Ltd.



Laura Borowiec, B.A.Sc., E.I.T.
Engineering Designer

LB:lb

Encl.

cc: file

UMA Engineering Ltd
230 Advance Boulevard
Brampton, ON L6T 4J5
T 905 459-4780 F 905 459-7365 www.uma.aecom.com

August 18, 2008

John La Chapelle
Manager of the Development and Municipal Services Control Centre
Bell Canada, R.O.W. Control Centre
Floor 5 BLUE, 100 Borough Drive
Scarborough, ON M1P 4W2

Dear John:

Re: City of Brampton Infrastructure Capacity Review

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Sincerely,

UMA Engineering Ltd.



Laura Borowiec, B.A.Sc., E.I.T.
Engineering Designer

LB:lb

Encl.

cc: file

UMA Engineering Ltd
220 Advance Boulevard
Brampton, ON L6T 4J8
T 905 459 4780 F 905 459 7839 www.uma.aecom.com

August 18, 2008

Joe Marozzo
Enbridge Consumer Gas
500 Consumers Road
North York, ON M2J 1P8

Dear Joe:

Re: City of Brampton Infrastructure Capacity Review

We are consultants to the City of Brampton for the above-noted project, which involves carrying out a capacity review on utilities such as hydro, gas, cable and telecommunication. As part of this work, we are required to gather an inventory of the City's current and planned infrastructure in order to provide comment on the capacity to meet current and future needs. This study is intended to support an overall population and employment growth plan required by the Province.

As a service provider, we would appreciate your cooperation in providing data as it relates to natural gas services within the City of Brampton to support this study. Enclosed is a figure indicating our study area. It would be appreciated if you could provide mapping for the same area, indicating the location, size and depth of your existing and proposed facilities, so that our recommendations bear these considerations in mind. The information we are requesting is similar to what is typically provided for locates but on a city-wide scale. If mapping is available in digital format, such as AutoCAD or GIS shapefiles, that would be ideal, although hard copies would also meet our information needs.

We trust that you are the appropriate contact for this request, or that you will be able to forward it to the right person. Should you require any additional information or have any questions, please do not hesitate to contact the undersigned by phone at 905-459-4780 ext. 174 or via e-mail at laura.borowiec@uma.aecom.com.

Sincerely,

UMA Engineering Ltd.



Laura Borowiec, B.A.Sc., E.I.T.
Engineering Designer

LB:lb

Encl.

cc: file

UMA Engineering Ltd.
220 Advance Boulevard
Brampton, ON L6T 4J8
T 905 459-4780 F 905 459-7400 www.uma.aecom.com

August 18, 2008

Andy Kuchowicz
Project Engineer
Hydro One Brampton
175 Sandalwood Parkway West
Brampton, ON L7A 1E8

Dear Andy:

Re: City of Brampton Infrastructure Capacity Review

We are consultants to the City of Brampton for the above-noted project, which involves carrying out a capacity review on utilities such as hydro, gas, cable and telecommunication. As part of this work, we are required to gather an inventory of the City's current and planned infrastructure in order to provide comment on the capacity to meet current and future needs. This study is intended to support an overall population and employment growth plan required by the Province.

As a service provider, we would appreciate your cooperation in providing data as it relates to hydro services within the City of Brampton to support this study. Enclosed is a figure indicating our study area. It would be appreciated if you could provide mapping for the same area, indicating the location, size, depth, age, suitability and the approximate density that your existing and proposed facilities can support. The information we are requesting is similar to what is typically provided for locates but on a city-wide scale. If mapping is available in digital format, such as AutoCAD or GIS shapefiles, that would be ideal, although hard copies would also meet our information needs.

We trust that you are the appropriate contact for this request, or that you will be able to forward it to the right person. Should you require any additional information or have any questions, please do not hesitate to contact the undersigned by phone at 905-459-4780 ext. 174 or via e-mail at laura.borowiec@uma.aecom.com.

Sincerely,

UMA Engineering Ltd.



Laura Borowiec, B.A.Sc., E.I.T.
Engineering Designer

LB:lb

Encl.

cc: file

UMA Engineering Ltd.
226 Advance Boulevard
Brampton, ON L6T 4J8
T 905-459-4780 F 905-459-7809 www.uma.aecom.com

August 18, 2008

Darryl Dimitroff
Manager
Rogers Cable
3573 Wolfdale Road
Mississauga, ON L5C 3T6

Dear Darryl:

Re: City of Brampton Infrastructure Capacity Review

We are consultants to the City of Brampton for the above-noted project, which involves carrying out a capacity review on utilities such as hydro, gas, cable and telecommunication. As part of this work, we are required to gather an inventory of the City's current and planned infrastructure in order to provide comment on the capacity to meet current and future needs. This study is intended to support an overall population and employment growth plan required by the Province.

As a service provider, we would appreciate your cooperation in providing data as it relates to cable services within the City of Brampton to support this study. Enclosed is a figure indicating our study area. It would be appreciated if you could provide mapping for the same area, indicating the location, size and depth of your existing and proposed facilities, so that our recommendations bear these considerations in mind. The information we are requesting is similar to what is typically provided for locates but on a city-wide scale. If mapping is available in digital format, such as AutoCAD or GIS shapefiles, that would be ideal, although hard copies would also meet our information needs.

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Sincerely,

UMA Engineering Ltd.



Laura Borowiec, B.A.Sc., E.I.T.
Engineering Designer

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UMA Engineering Ltd
220 Advance Boulevard
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August 19, 2008

Ken McBride
TransCanada Pipelines
11200 Weston Road, P.O. Box 790
Maple, ON
L6A 1S7

Dear Ken:

Re: City of Brampton Infrastructure Capacity Review

We are consultants to the City of Brampton for the above-noted project, which involves carrying out a capacity review on utilities such as hydro, gas, cable and telecommunication. As part of this work, we are required to gather an inventory of the City's current and planned infrastructure in order to provide comment on the capacity to meet current and future needs. This study is intended to support an overall population and employment growth plan required by the Province.

As a service provider, we would appreciate your cooperation in providing data as it relates to natural gas pipelines within the City of Brampton to support this study. Enclosed is a figure indicating our study area. It would be appreciated if you could provide mapping for the same area, indicating the location, size and depth of your existing and proposed facilities, so that our recommendations bear these considerations in mind. The information we are requesting is similar to what is typically provided for locates but on a city-wide scale. If mapping is available in digital format, such as AutoCAD or GIS shapefiles, that would be ideal, although hard copies would also meet our information needs.

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Sincerely,

UMA Engineering Ltd.



Laura Borowiec, B.A.Sc., E.I.T.
Engineering Designer

LB:lb

Encl.

cc: file



Planning, Design & Development Department

September 4, 2008

Joe Marozzo
Enbridge Consumer Gas
500 Consumers Road
North York, ON M2J 1P8

Dear Joe:

Re: City of Brampton Infrastructure Capacity Review –

This letter is to inform you that UMA Engineering Ltd. has been hired to undertake the Infrastructure Capacity Review for the City of Brampton as part of the City's overall Growth Plan conformity exercise. The purpose of this study is to broadly examine and evaluate the ability of current and planned municipal or private vendor utilities and services to service the City's anticipated growth to 2031. This study is one of several which are part of a current exercise being undertaken by the City to implement the Provincial Growth Plan policies in the City of Brampton in various ways, including amending the City's Official Plan by June 2009.

As part of the scope of work, UMA Engineering Ltd. is required to contact private vendors providing services for the City of Brampton to determine future plans for infrastructure or services that include the City of Brampton (hydro, gas, cable, telecommunication, etc.). You will have received contact from UMA requesting relevant information. We appreciate in advance your cooperation in providing the relevant information in support of this study.

Should you require any additional information or have any questions, please do not hesitate to contact the undersigned by phone at 905-874-3847 or via e-mail at sabeen.makki@brampton.ca or Chris Hamel, Project Manager, at 905-459-4780 or via e-mail at chris.hamel@uma.aecom.com.

Sincerely,

Sabeen Makki
Growth Management Policy Planner III

LB:lb

Encl.

cc: file



Planning, Design & Development Department

September 4, 2008

Darryl Dimitroff
Manager
Rogers Cable
3573 Wolfdale Road
Mississauga, ON L5C 3T6

Dear Darryl:

Re: City of Brampton Infrastructure Capacity Review –

This letter is to inform you that UMA Engineering Ltd. has been hired to undertake the Infrastructure Capacity Review for the City of Brampton as part of the City's overall Growth Plan conformity exercise. The purpose of this study is to broadly examine and evaluate the ability of current and planned municipal or private vendor utilities and services to service the City's anticipated growth to 2031. This study is one of several which are part of a current exercise being undertaken by the City to implement the Provincial Growth Plan policies in the City of Brampton in various ways, including amending the City's Official Plan by June 2009.

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Should you require any additional information or have any questions, please do not hesitate to contact the undersigned by phone at 905-874-3847 or via e-mail at sabeen.makki@brampton.ca or Chris Hamel, Project Manager, at 905-459-4780 or via e-mail at chris.hamel@uma.aecom.com.

Sincerely,

Sabeen Makki
Growth Management Policy Planner III

LB:lb

Encl.

cc: file



Planning, Design & Development Department

September 4, 2008

Andy Kuchowicz
Project Engineer
Hydro One Brampton
175 Sandalwood Parkway West
Brampton, ON L7A 1E8

Dear Andy:

Re: City of Brampton Infrastructure Capacity Review –

This letter is to inform you that UMA Engineering Ltd. has been hired to undertake the Infrastructure Capacity Review for the City of Brampton as part of the City's overall Growth Plan conformity exercise. The purpose of this study is to broadly examine and evaluate the ability of current and planned municipal or private vendor utilities and services to service the City's anticipated growth to 2031. This study is one of several which are part of a current exercise being undertaken by the City to implement the Provincial Growth Plan policies in the City of Brampton in various ways, including amending the City's Official Plan by June 2009.

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Should you require any additional information or have any questions, please do not hesitate to contact the undersigned by phone at 905-874-3847 or via e-mail at sabeen.makki@brampton.ca or Chris Hamel, Project Manager, at 905-459-4780 or via e-mail at chris.hamel@uma.aecom.com.

Sincerely,

City of Brampton

Sabeen Makki
Growth Management Policy Planner III

LB:lb

Encl.

cc: file



Planning, Design & Development Department

September 4, 2008

John La Chapelle
Manager of the Development and Municipal Services Control Centre
Bell Canada, R.O.W. Control Centre
Floor 5 BLUE, 100 Borough Drive
Scarborough, ON M1P 4W2

Dear John:

Re: City of Brampton Infrastructure Capacity Review –

This letter is to inform you that UMA Engineering Ltd. has been hired to undertake the Infrastructure Capacity Review for the City of Brampton as part of the City's overall Growth Plan conformity exercise. The purpose of this study is to broadly examine and evaluate the ability of current and planned municipal or private vendor utilities and services to service the City's anticipated growth to 2031. This study is one of several which are part of a current exercise being undertaken by the City to implement the Provincial Growth Plan policies in the City of Brampton in various ways, including amending the City's Official Plan by June 2009.

As part of the scope of work, UMA Engineering Ltd. is required to contact private vendors providing services for the City of Brampton to determine future plans for infrastructure or services that include the City of Brampton (hydro, gas, cable, telecommunication, etc.). You will have received contact from UMA requesting relevant information. We appreciate in advance your cooperation in providing the relevant information in support of this study.

Should you require any additional information or have any questions, please do not hesitate to contact the undersigned by phone at 905-874-3847 or via e-mail at sabeen.makki@brampton.ca or Chris Hamel, Project Manager, at 905-459-4780 or via e-mail at chris.hamel@uma.aecom.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Sabeen Makki'.

Sabeen Makki
Growth Management Policy Planner III

LB:lb

Encl.

cc: file



Planning, Design & Development Department

September 4, 2008

Peter Rutkowski
Allstream
50 Worcester Road
Etobicoke, ON M9W 5X2

Dear Peter:

Re: City of Brampton Infrastructure Capacity Review –

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Sincerely,

Sabeen Makki
Growth Management Policy Planner III

LB:lb

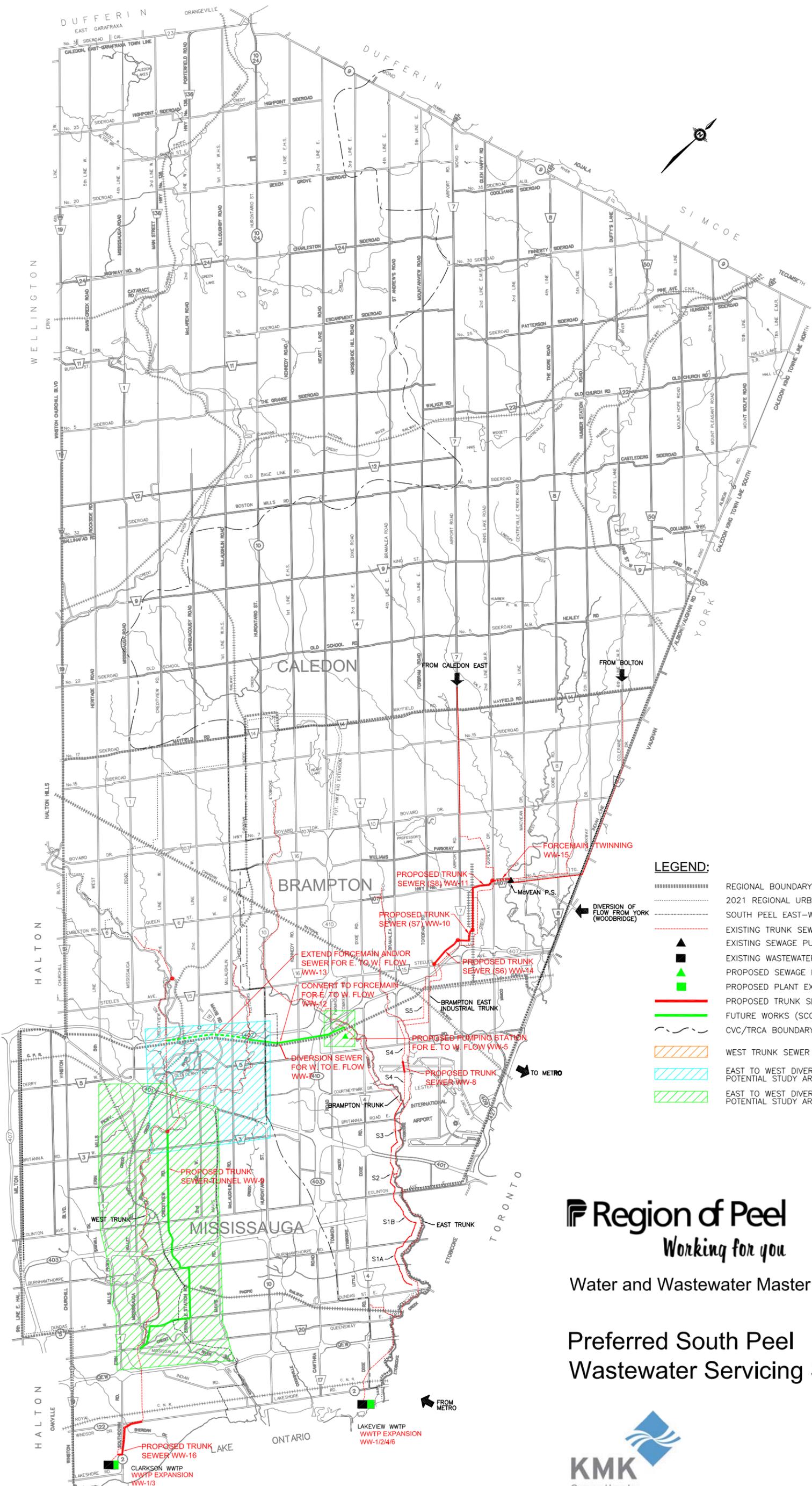
Encl.

cc: file

Appendix C

Region of Peel Water & Wastewater Master Plan

Recommended Water & Wastewater Servicing Strategy Maps



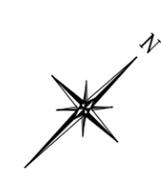
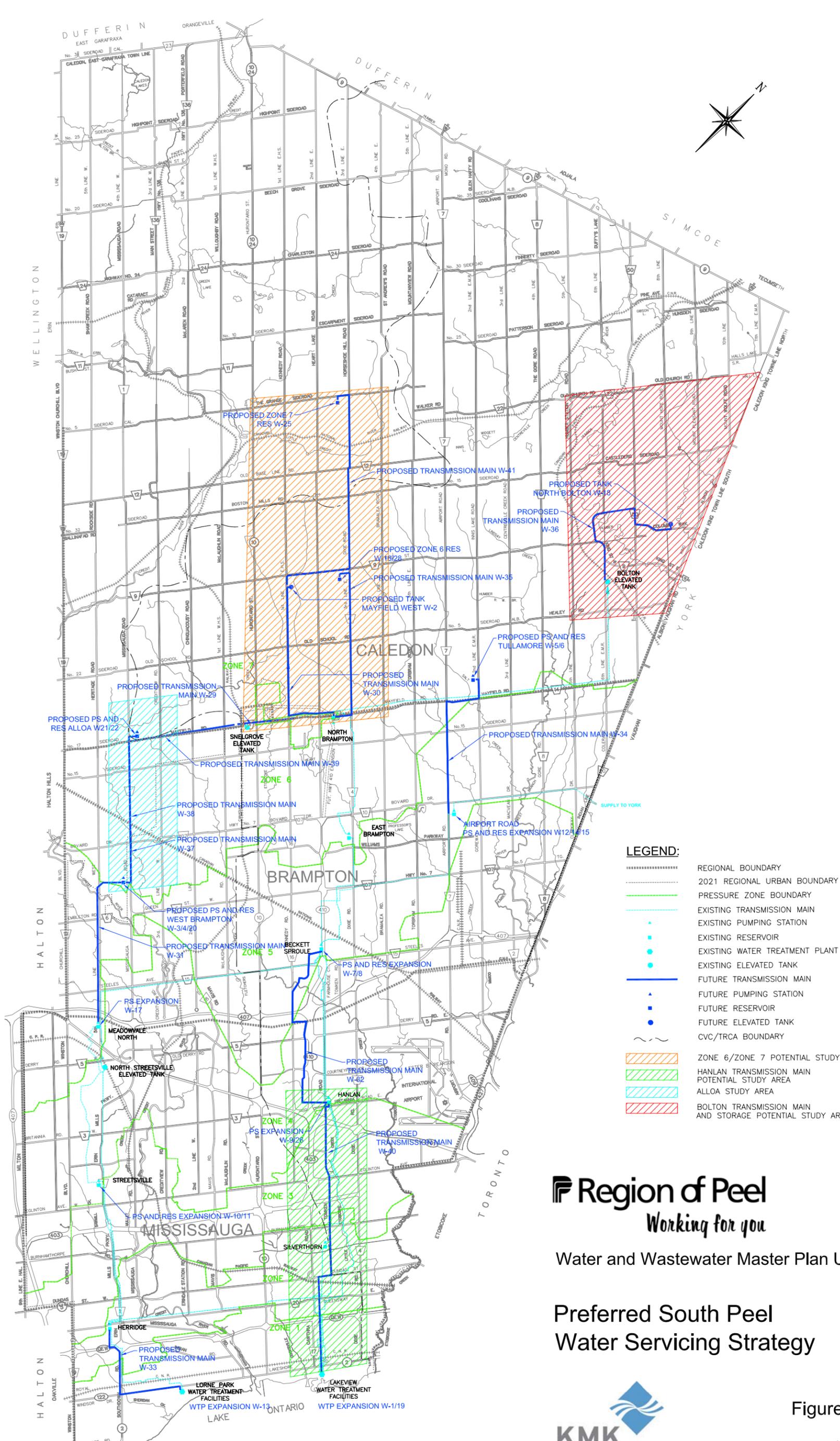
Region of Peel
Working for you

Water and Wastewater Master Plan Update

**Preferred South Peel
Wastewater Servicing Strategy**

Figure No.14





- LEGEND:**
- REGIONAL BOUNDARY
 - 2021 REGIONAL URBAN BOUNDARY
 - PRESSURE ZONE BOUNDARY
 - EXISTING TRANSMISSION MAIN
 - ▲ EXISTING PUMPING STATION
 - EXISTING RESERVOIR
 - EXISTING WATER TREATMENT PLANT
 - EXISTING ELEVATED TANK
 - FUTURE TRANSMISSION MAIN
 - ▲ FUTURE PUMPING STATION
 - FUTURE RESERVOIR
 - FUTURE ELEVATED TANK
 - CVC/TRCA BOUNDARY
 - ▨ ZONE 6/ZONE 7 POTENTIAL STUDY AREA
 - ▨ HANLAN TRANSMISSION MAIN POTENTIAL STUDY AREA
 - ▨ ALLOA STUDY AREA
 - ▨ BOLTON TRANSMISSION MAIN AND STORAGE POTENTIAL STUDY AREA

Region of Peel
Working for you

Water and Wastewater Master Plan Update

Preferred South Peel
Water Servicing Strategy



Figure No.12

4 JULY 2007
N.T.S.
2484.01-D-55

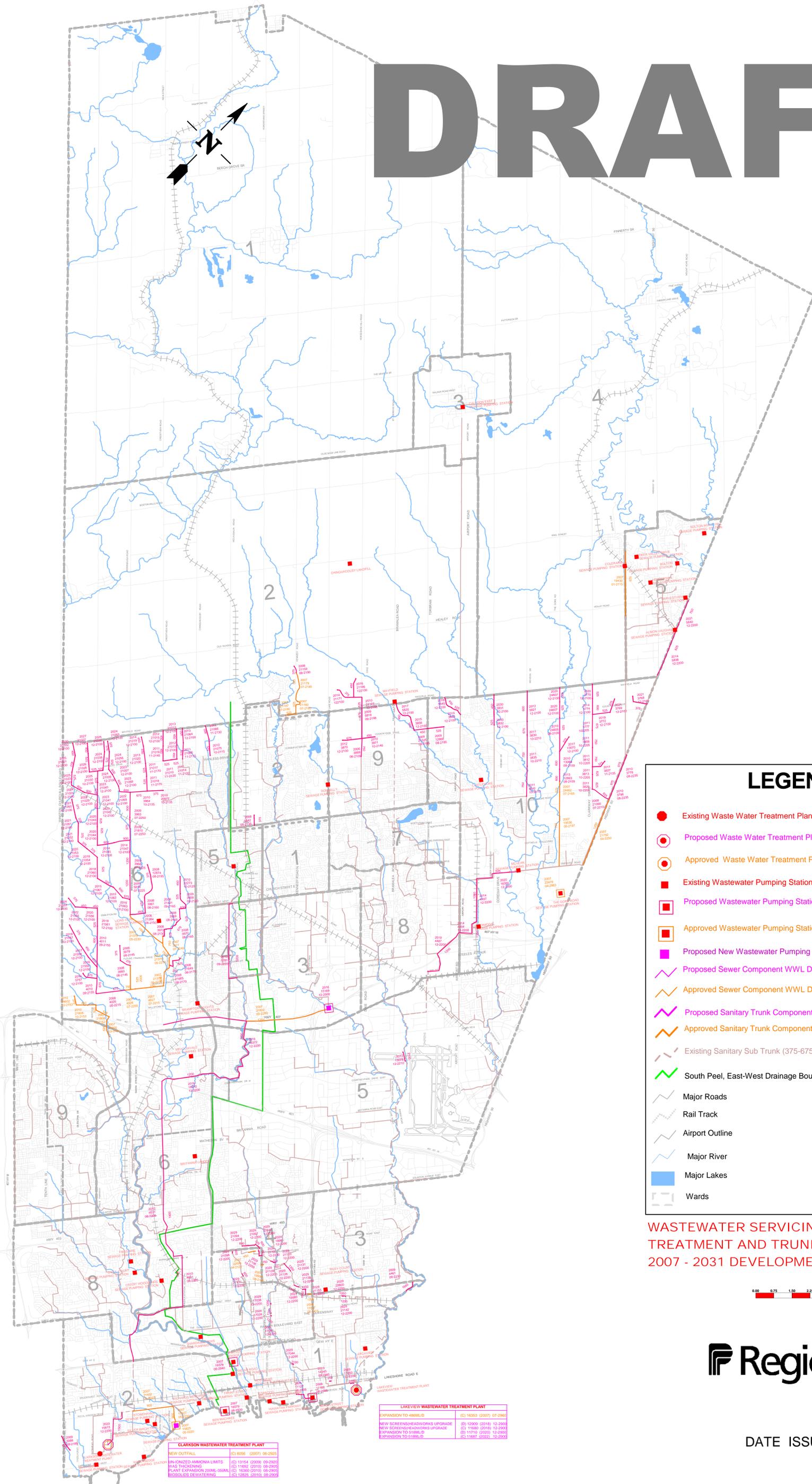
EXACT LOCATION OF PROPOSED WORKS TO BE DETERMINED IN THE SUBSEQUENT EA PHASE

Appendix D

Region of Peel Development Charges

Water & Wastewater DC Maps

DRAFT



LEGEND

- Existing Waste Water Treatment Plants
- Proposed Waste Water Treatment Plant Components (2008-2031)
- Approved Waste Water Treatment Plant Components (2007)
- Existing Wastewater Pumping Stations and Landfills
- Proposed Wastewater Pumping Station Components (2008-2031)
- Approved Wastewater Pumping Station Components (2007)
- ▭ Proposed New Wastewater Pumping Station (2008-2031)
- Proposed Sewer Component WWL Development (2008-2031)
- Approved Sewer Component WWL Development (2007)
- Proposed Sanitary Trunk Components WWP Collection Gen (2008-2031)
- Approved Sanitary Trunk Component WWP Collection Gen (2007)
- Existing Sanitary Sub Trunk (375-675 mm)
- South Peel, East-West Drainage Boundary
- Major Roads
- Rail Track
- Airport Outline
- Major River
- Major Lakes
- Wards

WASTEWATER SERVICING INFRASTRUCTURE
TREATMENT AND TRUNK SEWER SYSTEM
2007 - 2031 DEVELOPMENT CHARGES

0.00 0.75 1.50 2.25 3.00 3.75 km

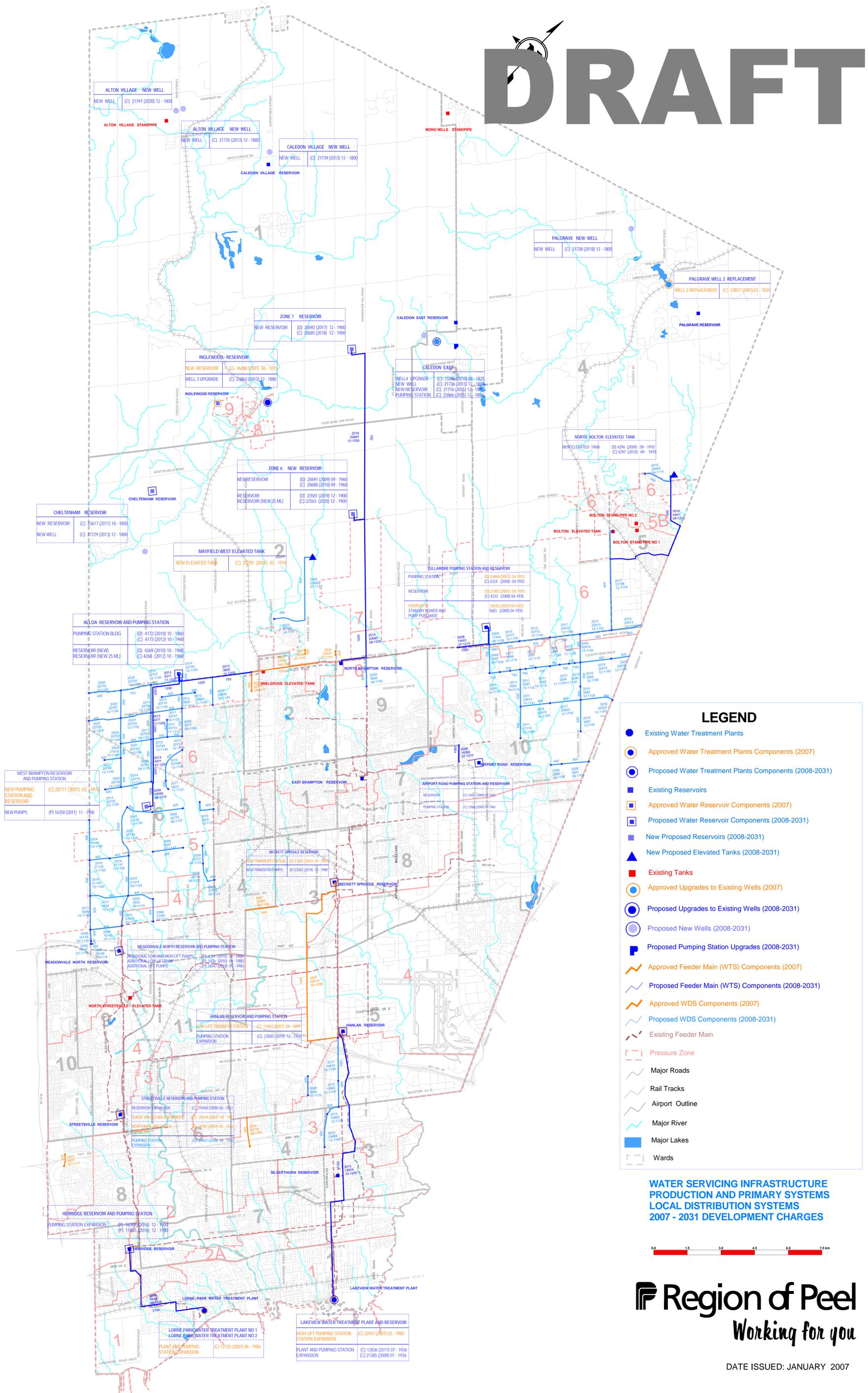
Region of Peel
Working for you

DATE ISSUED: JANUARY 2007

LAKEVIEW WASTEWATER TREATMENT PLANT	
EXPANSION TO 488ML/D	(IC) 16383 (2007) 07-2900
NEW SCREENS/HEADWORKS UPGRADE	(ID) 12009 (2018) 12-2900
NEW SCREENS/HEADWORKS UPGRADE	(IC) 11680 (2018) 12-2904
EXPANSION TO 518ML/D	(ID) 11710 (2020) 12-2900
EXPANSION TO 518ML/D	(IC) 11867 (2020) 12-2904

CLARKSON WASTEWATER TREATMENT PLANT	
NEW OUTFALL	(IC) 8056 (2007) 06-2905
NON-IONIZED AMMONIA LIMITS	(IC) 13154 (2009) 09-2900
WAS THICKENING	(IC) 11692 (2010) 08-2900
PLANT EXPANSION 200ML/300ML	(IC) 10300 (2010) 08-2900
BIOSOLIDS DEWATERING	(IC) 13829 (2010) 08-2900

DRAFT



Appendix E

Stormwater System Test Area Calculations

CITY OF BRAMPTON INFRASTRUCTURE CAPACITY REVIEW
RESIDENTIAL STORM SEWER SYSTEM TEST AREA - Main Street North



City of Brampton Works and Transportation Department, Drawing No. 343:

R=AT^B (mm/hr)

	2-year	5-year	10-year	25-year	50-year	100-year
A =	22.1	29.9	35.1	41.6	46.5	51.3
B =	-0.714	-0.701	-0.695	-0.691	-0.688	-0.686

City of Brampton Works and Transportation Department, Drawing No. 342:

Inlet time =	10	minutes
Runoff Coefficients =	0.25	(Parks)
	0.50	(Single & Semi-Detached)
	0.75	(Multiples, Institutional, Industrial)
	0.90	(Commercial)

Manning's Roughness Coefficient = 0.013 (concrete pipe)

Storm 1 =	10	-year
Storm 2 =	100	-year
A (Storm 1) =	35.1	
B (Storm 1) =	-0.695	
A (Storm 2) =	51.3	
B (Storm 2) =	-0.686	
upstream invert el. =	200	m (arbitrary)

PRE-INTENSIFICATION

STREET	AREA NO.	UPSTREAM MH INV (m)		DOWNSTREAM MH INV (m)		NO. OF HECTARES		AREA x STORM CO-EFF.				TOTAL A x C	TIME		i		FLOW 2.78ACi/1000 m3/s		PIPE		TIME		% FULL			
		MH	INV	MH	INV	IN AREA	CONTRI.	TOTAL	0.25	0.50	0.75		0.90	IN AREA	TOTAL	STORM 1	STORM 2	Q	Q	LENGTH	SIZE	GRADE	CAPACITY	VEL.	TIME	STORM 1
GREENLEAF CRESCENT	4	1	200.0	4	199.5	0.676	100%	0.676				0.34	10.0	10.0	122	175	0.115	0.165	89.5	375	0.545%	0.130	1.173	1.272	88%	127%
GREENLEAF CRESCENT	5	4	199.5	5	199.5	0.296	100%	0.296				0.49	11.3	11.3	112	162	0.152	0.218	13.4	450	0.344%	0.167	1.052	0.212	91%	130%
GREENLEAF CRESCENT	6	5	199.5	6	199.0	0.502	100%	0.502				0.74	11.5	11.5	111	159	0.227	0.327	89.5	525	0.476%	0.297	1.372	1.087	76%	110%
GREENLEAF CRESCENT	7	6	199.0	7	198.9	0.294	100%	0.294				0.88	12.6	12.6	104	150	0.256	0.368	47.7	525	0.348%	0.254	1.173	0.678	101%	145%
GREENLEAF CRESCENT	8	3	200.0	7	198.9	0.803	100%	0.803				0.40	10.0	10.0	122	175	0.136	0.196	107.9	450	1.055%	0.293	1.843	0.975	46%	67%
OUTLET		7	198.9	8	198.3							1.29		13.2	100	145	0.358	0.517	18.4	525	2.924%	0.736	3.401	0.090	49%	70%

POST-INTENSIFICATION

STREET	AREA NO.	UPSTREAM MH INV (m)		DOWNSTREAM MH INV (m)		NO. OF HECTARES		AREA x STORM CO-EFF.				TOTAL A x C	TIME		i		FLOW 2.78ACi/1000 m3/s		PIPE		TIME		% FULL			
		MH	INV	MH	INV	IN AREA	CONTRI.	TOTAL	0.25	0.50	0.75		0.90	IN AREA	TOTAL	STORM 1	STORM 2	Q	Q	LENGTH	SIZE	GRADE	CAPACITY	VEL.	TIME	STORM 1
GREENLEAF CRESCENT	4	1	200.0	4	199.5	0.676	100%	0.676				0.34	10.0	10.0	122	175	0.115	0.165	89.5	375	0.545%	0.130	1.173	1.272	88%	127%
GREENLEAF CRESCENT	5	4	199.5	5	199.5	0.296	100%	0.296			0.296	0.60	11.3	11.3	112	162	0.189	0.271	13.4	450	0.344%	0.167	1.052	0.212	113%	162%
GREENLEAF CRESCENT	6	5	199.5	6	199.0	0.623	100%	0.623		0.193	0.43	1.09	11.5	11.5	111	159	0.335	0.482	89.5	525	0.476%	0.297	1.372	1.087	113%	162%
GREENLEAF CRESCENT	7	6	199.0	7	198.9	0.394	100%	0.394		0.06	0.334	1.42	12.6	12.6	104	150	0.410	0.591	47.7	525	0.348%	0.254	1.173	0.678	162%	233%
GREENLEAF CRESCENT	8	3	200.0	7	198.9	0.803	100%	0.803				0.40	10.0	10.0	122	175	0.136	0.196	107.9	450	1.055%	0.293	1.843	0.975	46%	67%
OUTLET		7	198.9	8	198.3							1.82		13.2	100	145	0.507	0.732	18.4	525	2.924%	0.736	3.401	0.090	69%	99%

POST-INTENSIFICATION WITH UPSIZED PIPES (10-YEAR POST BACK TO 10-YEAR PRE)

STREET	AREA NO.	UPSTREAM MH INV (m)		DOWNSTREAM MH INV (m)		NO. OF HECTARES		AREA x STORM CO-EFF.				TOTAL A x C	TIME		i		FLOW 2.78ACi/1000 m3/s		PIPE		TIME		% FULL			
		MH	INV	MH	INV	IN AREA	CONTRI.	TOTAL	0.00	0.00	0.00		AREA	IN AREA	TOTAL	STORM 1	STORM 2	Q	Q	LENGTH	SIZE	GRADE	CAPACITY	VEL.	TIME	STORM 1
GREENLEAF CRESCENT	4	1	200.0	4	199.5	0.676	100%	0.676				0.34	10.0	10.0	122	175	0.115	0.165	89.5	375	0.545%	0.130	1.173	1.272	88%	127%
GREENLEAF CRESCENT	5	4	199.5	5	199.5	0.296	100%	0.296			0.296	0.60	11.3	11.3	112	162	0.189	0.271	13.4	525	0.344%	0.252	1.166	0.191	75%	107%
GREENLEAF CRESCENT	6	5	199.5	6	199.0	0.623	100%	0.623		0.193	0.43	1.09	11.5	11.5	111	160	0.335	0.483	89.5	600	0.476%	0.424	1.500	0.995	79%	114%
GREENLEAF CRESCENT	7	6	199.0	7	198.9	0.394	100%	0.394		0.06	0.334	1.42	12.5	12.5	105	151	0.413	0.595	47.7	750	0.348%	0.657	1.488	0.534	63%	90%
GREENLEAF CRESCENT	8	3	200.0	7	198.9	0.803	100%	0.803				0.40	10.0	10.0	122	175	0.136	0.196	107.9	450	1.055%	0.293	1.843	0.975	46%	67%
OUTLET		7	198.9	8	198.3							1.82		13.0	102	147	0.514	0.741	18.4	600	2.924%	1.051	3.717	0.082	49%	71%

POST-INTENSIFICATION WITH UPSIZED PIPES (100-YEAR POST BACK TO 10-YEAR PRE)

STREET	AREA NO.	UPSTREAM MH INV (m)		DOWNSTREAM MH INV (m)		NO. OF HECTARES		AREA x STORM CO-EFF.				TOTAL A x C	TIME		i		FLOW 2.78ACi/1000 m3/s		PIPE		TIME		% FULL			
		MH	INV	MH	INV	IN AREA	CONTRI.	TOTAL	0.00	0.00	0.00		AREA	IN AREA	TOTAL	STORM 1	STORM 2	Q	Q	LENGTH	SIZE	GRADE	CAPACITY	VEL.	TIME	STORM 1
GREENLEAF CRESCENT	4	1	200.0	4	199.5	0.676	100%	0.676				0.34	10.0	10.0	122	175	0.115	0.165	89.5	450	0.545%	0.211	1.325	1.126	54%	78%
GREENLEAF CRESCENT	5	4	199.5	5	199.5	0.296	100%	0.296			0.296	0.60	11.1	11.1	113	163	0.190	0.274	13.4	600	0.344%	0.360	1.275	0.175	53%	76%
GREENLEAF CRESCENT	6	5	199.5	6	199.0	0.623	100%	0.623		0.193	0.43	1.09	11.3	11.3	112	161	0.339	0.488	89.5	750	0.476%	0.769	1.740	0.857	44%	63%
GREENLEAF CRESCENT	7	6	199.0	7	198.9	0.394	100%	0.394		0.06	0.334	1.42	12.2	12.2	106	153	0.420	0.605	47.7	750	0.348%	0.657	1.488	0.534	64%	92%
GREENLEAF CRESCENT	8	3	200.0	7	198.9	0.803	100%	0.803				0.40	10.0	10.0	122	175	0.136	0.196	107.9	525	1.055%	0.442	2.043	0.880	31%	44%
OUTLET		7	198.9	8	198.3							1.82		12.7	103	149	0.523	0.753	18.4	750	2.924%	1.906	4.313	0.071	27%	40%

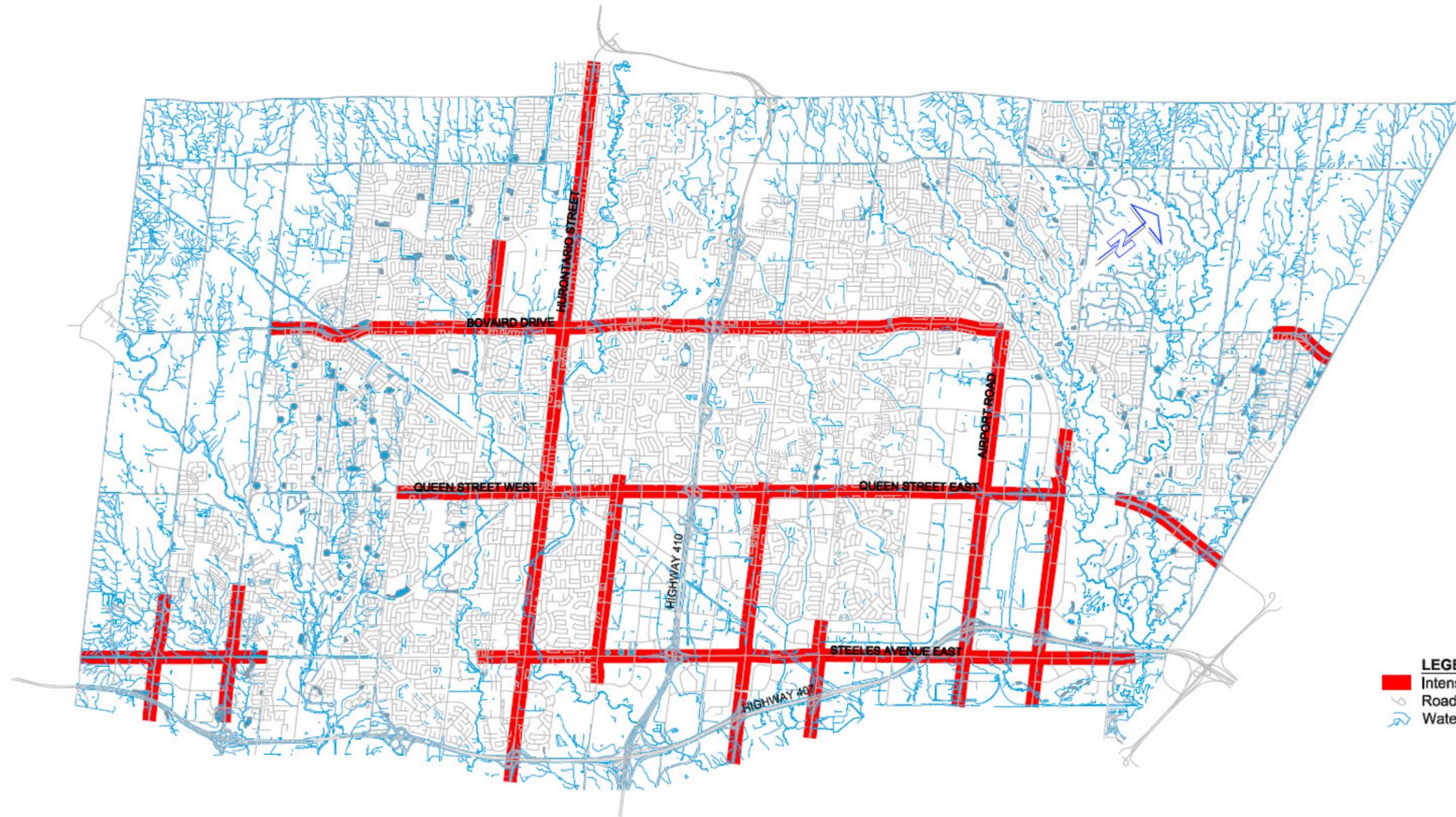
CITY OF BRAMPTON INFRASTRUCTURE CAPACITY REVIEW
RESIDENTIAL STORM SEWER SYSTEM TEST AREA - Main Street North

SCENARIO 1					SCENARIO 2				
Control 10-year post to 10-year existing					Control 100-year post to 10-year existing				
<i>Pre-Intensification:</i>					<i>Pre-Intensification:</i>				
		Storm =	10	-year			Storm =	10	-year
	Allowable Flow (Pre-Intens.) =		0.358	m ³ /s		Allowable Flow (Pre-Intens.) =		0.358	m ³ /s
<i>Post-Intensification:</i>					<i>Post-Intensification:</i>				
		Storm =	10	-year			Storm =	100	-year
		A =	35.1				A =	51.3	
		B =	-0.695				B =	-0.686	
	AC (Calculated) =		1.82			AC (Calculated) =		1.82	
	Required Storage =		196	m ³		Required Storage =		329	m ³
	Total Area =		2.792	ha		Total Area =		2.792	ha
	Average Depth =		7	mm		Average Depth =		12	mm
Time (min)	Intensity (mm/hr)	Flow Proposed (m ³ /s)	Required Storage (m ³)		Time (min)	Intensity (mm/hr)	Flow Proposed (m ³ /s)	Required Storage (m ³)	
1	604	3.079	163		1	851	4.337	239	
2	373	1.902	185		2	529	2.696	280	
3	282	1.435	194		3	401	2.041	303	
4	231	1.175	196		4	329	1.676	316	
5	197	1.006	194		5	282	1.438	324	
6	174	0.886	190		6	249	1.269	328	
7	156	0.796	184		7	224	1.141	329	
8	142	0.726	176		8	204	1.041	328	
9	131	0.669	168		9	189	0.961	325	
10	122	0.621	158		10	175	0.894	321	
11	114	0.582	147		11	164	0.837	316	
12	107	0.547	136		12	155	0.789	310	
13	102	0.518	124		13	146	0.746	303	
14	97	0.492	112		14	139	0.709	295	
15	92	0.469	99		15	133	0.677	286	
16	88	0.448	86		16	127	0.647	277	
17	84	0.430	73		17	122	0.621	268	
18	81	0.413	59		18	117	0.597	258	
19	78	0.398	45		19	113	0.575	247	
20	75	0.384	31		20	109	0.555	237	

Appendix F

Stormwater Drawings

B SIZE 11" x 17" (279.4mm x 431.8mm)
 PLOT: 08/09/04 2:05:24 PM
 Saved By: jweppeler
 4020-012-00_00-CW1001_RX.dwg



LEGEND
█ Intensification Corridors
— Roads
~ Watercourses



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 ALL MEASUREMENTS MUST BE OBTAINED FROM STATED DIMENSIONS.

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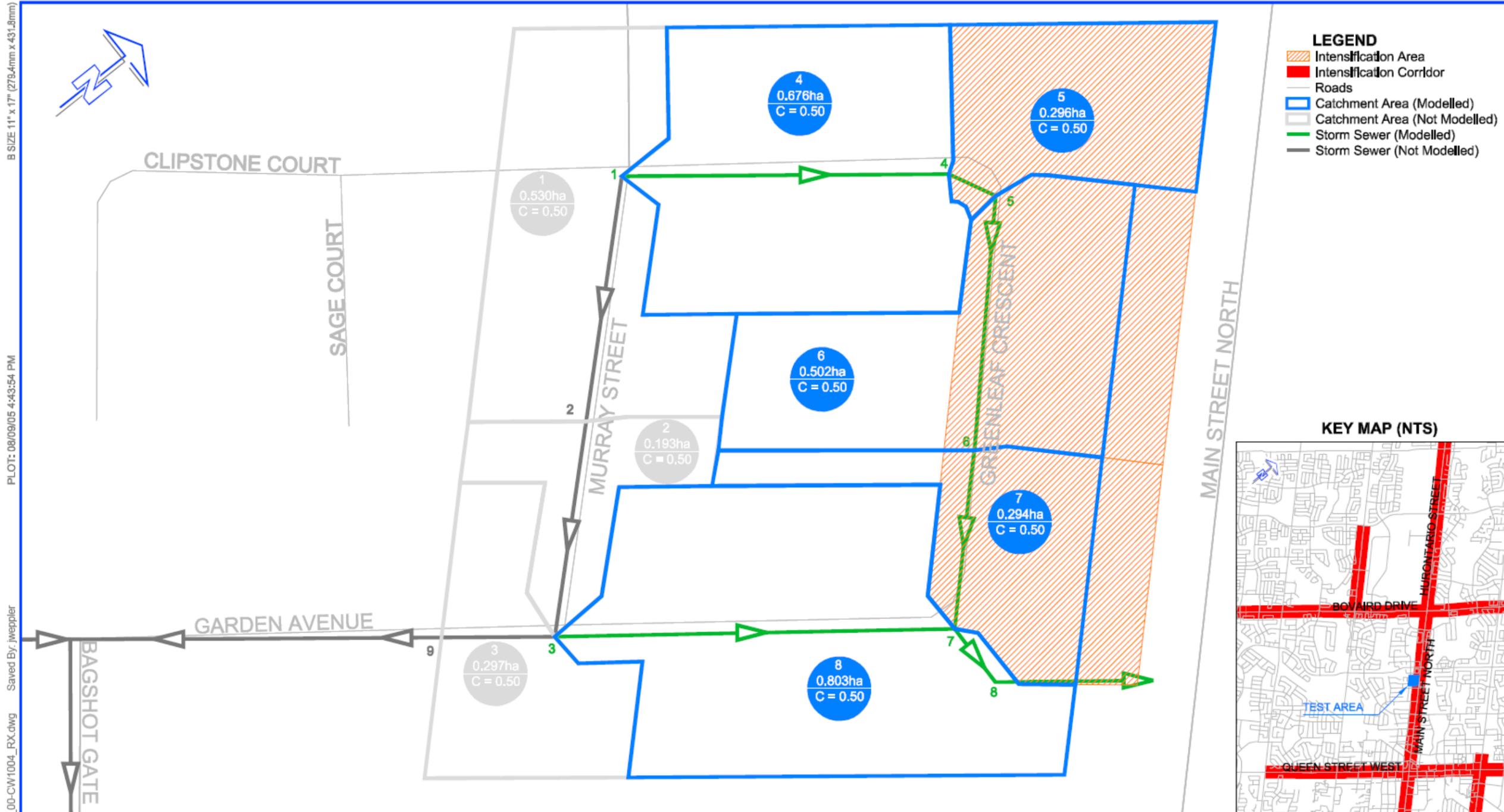
IR	YYMMDD	ISSUE/REVISION DESCRIPTION	DRN	CHK	DES	ENG	IDR	APP
A								



City of Brampton
 Infrastructure Capacity Review

Intensification Corridors

PROJECT NUMBER 4020-012-00	DRAWING NUMBER 00-CW1001	ISSUE/REVISION A
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B SIZE 11" x 17" (279.4mm x 431.8mm)
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 4020-012-00_00-CW1004_RX.dwg
 UMA FILE NAME:

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MR	YY/MM/DD	ISSUE/REVISION DESCRIPTION	DRN	CHK	DES	ENG	IDR	APP
A								

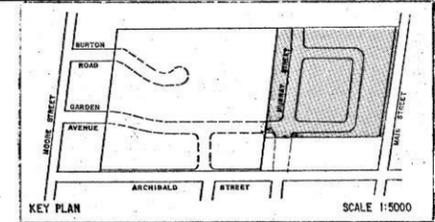
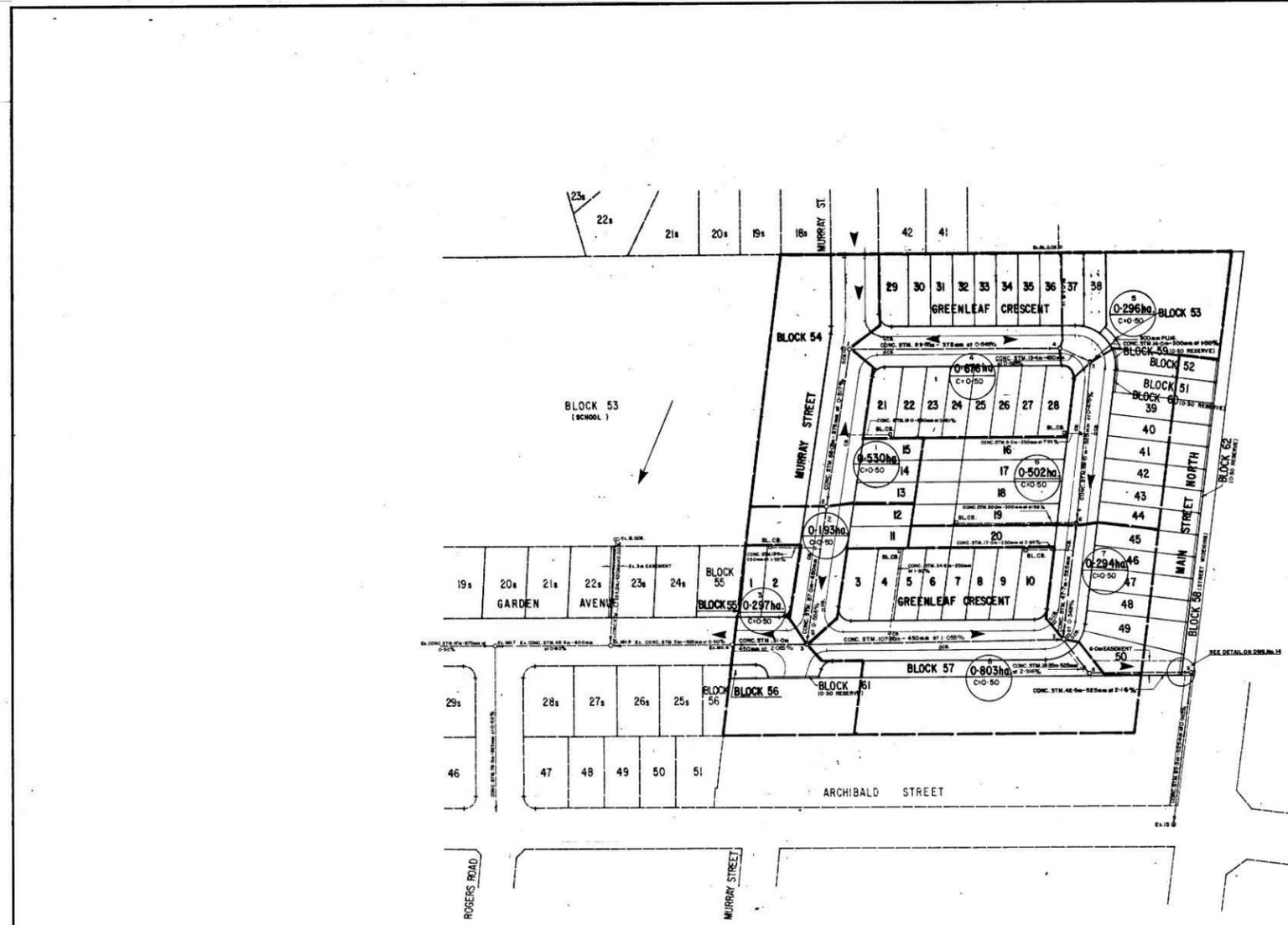
UMA | AECOM

City of Brampton
Infrastructure Capacity Review

Storm Sewer System
Residential Test Case

PROJECT NUMBER 4020-012-00	DRAWING NUMBER 00-CW1004	ISSUE/REVISION A
-------------------------------	-----------------------------	---------------------

F3-3-25



BENCH MARK No. 737
SPIKE IN HYDRO TRANSFORMER SOUTH-WEST CORNER OF ISABELLA STREET AND ENGLISH STREET.
ELEVATION: 221.571m.

AS CONSTRUCTED
JULY, 1986

No.	By	Date	Revision	Checked

CITY OF BRAMPTON
ENGINEERING DEPARTMENT
CITY ENGINEER: J.F. CURRAN P. Eng.

FRED SCHAEFFER & ASSOCIATES LTD.
Landscape and Consulting Engineers
488 Wilson Avenue
Brampton, Ontario N6A 1T9
Telephone (905) 878-8484



APPROVED
MAY 10 1986
A. R. Steedman
CITY OF BRAMPTON
ENGINEERING DEPT.

Project: 81-ES-588

EMMITT DEVELOPMENTS LTD.
21 T-780568
**STORM DRAINAGE PLAN
AND OVERLAND FLOW**

Surveyed By	Date	Contract No.
Drawn By F.S./C.A.B.	Checked By M.J.	Drawing No.
Designed By K.A./Y.R.	Checked By A.R.S.	F3-3-25
Scale: 1:1000	Date: NOVEMBER 1981	