



FUNCTIONAL SERVICING REPORT

RIVERFRONT (PHASE 1)

September 27, 2023

INTRODUCTION

The purpose of this report is to address the servicing needs for the residential subdivision known as Riverfront (Phase 1) in the City of Niagara Falls in support of the Submission for Draft Plan of Vacant Land Condominium Approval for Phase 1. The subject lands comprise the first phase of the overall Riverfront Residential development, which is located north of Chippawa Parkway, south of CP Rail tracks, and west of Stanley Avenue.

The currently vacant Phase 1 lands comprise of approximately 213 residential dwellings including 145 single-detached dwellings and 68 townhouse dwellings. The future Phases 2 and 3 lands located west of Phase 1 lands, will be subject to separate Planning Act applications, to be submitted at a later date. Therefore, for the purposes of this report, only the Phase 1 lands will be considered.

The objectives of this report are as follows:

1. Identify domestic and fire protection water servicing needs for Phase 1;
2. Identify sanitary servicing needs for Phase 1; and,
3. Identify stormwater management needs for Phase 1.

WATER SERVICING

There are presently no municipal watermains located on Chippawa Parkway, in front of the subject lands. Therefore, it is proposed to extend the existing 300mm diameter watermain located in front of the existing 8100 Dorchester road property, which is supplied by the existing 1050mm diameter Regional watermain on Old Field Road, Southerly on Dorchester Road / Chippawa Parkway to the eastern limit of the subject lands. The extension of this existing 300mm diameter watermain was proposed to service the subject lands as part of the Thundering Waters Secondary Plan; therefore, there is expected to be adequate domestic water supply and fire protection for the development. In the future, this proposed 300mm diameter watermain will be extended easterly to the existing 300mm diameter watermain on Stanley Avenue, providing a looped watermain system.

The private hydrants located within the development site are prepared to provide fire protection for the proposed dwellings. The spacing and location of the proposed private fire hydrants will be identified as part of the detailed engineering design.

SANITARY SERVICING

There are presently no municipal Sanitary Sewers on Chippawa Parkway, in front of the subject lands and it is not feasible to construct a gravity sanitary sewer to the nearest feasible Sanitary outlet (the existing 825mm diameter Regional Sanitary Sewer in front of the 8100 Dorchester Road property). Therefore, in accordance with the Thundering Waters Secondary Plan, it is proposed to extend a new 600mm diameter municipal Sanitary sewer southerly on Dorchester Road, and construct a new Sanitary Sewage Pumping Station on Chippawa Parkway.

A Sanitary Drainage Area Plan (2209-OVL SANDA), and associated sewer design sheet for the new Sanitary Sewage Pumping Station and existing 825mm diameter Regional sanitary sewer on Dorchester Road has been prepared by Upper Canada Consultants, and has been included in Appendix A for reference. This Drainage Area Plan includes the subject lands, the Riverfront Phase 2 and 3 lands to the west which are also owned by the applicant and future development areas to the north and north west, which are owned by others.

As shown in the enclosed Drainage Area Plan, the proposed development has been allocated capacity within the design of the proposed Riverfront Sanitary Sewer Pumping Station. This Pumping Station has been submitted to the Ministry of the Environment, Conservation, and Parks (MECP) for Environment Compliance Approval based on the flows calculated from the drainage areas and populations shown on the enclosed Drainage Area Plan and associated design sheet. Therefore, the Riverfront Sanitary Sewage Pumping Station will have adequate capacity to receive the peak sanitary flows from the proposed Riverfront Phase 1 development.

The sanitary drainage area for Riverfront Phase 1 development (Drainage Area A1) is 9.93 hectares with a total population of approximately 692 people. The peak sanitary flows from the proposed Riverfront Phase 1 development is approximately 10.79L/s. Full build-out within the areas shown in the enclosed Drainage Area Plan will utilize approximately 56.5% of the flow capacity of the proposed 600mm diameter sanitary sewer on Dorchester Road and 24.2% of the flow capacity of the existing 825mm diameter Regional sanitary sewer on Dorchester Road.

Therefore, there is expected to be adequate capacity for the subject lands in the existing and proposed sanitary sewer networks and the proposed sanitary Sewage Pumping Station.

STORMWATER MANAGEMENT

A separate Stormwater Management Plan has been prepared by Upper Canada Consultants (UCC) and has been enclosed in Appendix B for reference.



CONCLUSIONS AND RECOMMENDATIONS

Therefore, based on the above comments and design calculations provided for this site, the following summarizes the servicing for this site:

1. The existing 300mm diameter watermain on Dorchester Road is expected to have adequate capacity to provide both domestic water supply and fire protection to service the Phase 1 lands.
2. The receiving 825mm diameter sanitary sewer on Dorchester Road will have adequate capacity to service the Phase 1 lands.
3. Stormwater quantity controls are not considered necessary for the subject lands (See enclosed Stormwater Management Plan).
4. Stormwater quality protection is being provided by the wet pond facility up to Enhanced (80% TSS) Level Protection as per the recommendation of the Region of Niagara (See enclosed Stormwater Management Plan).
5. Servicing for the Riverfront Phase 2 and 3 lands will be addressed in as part of future Planning Act applications. The future Phases will not impact the allocated servicing capacity (watermain / sanitary sewer) or Stormwater Management criteria for Phase 1.

Based on the above and the accompanying calculations, there exists adequate municipal servicing for this development. We trust the above comments and enclosed calculations are satisfactory for approval. If you have any questions or require additional information, please do not hesitate to contact our office.

Yours very truly,
Prepared By:

Anu Jacob, E.I.T.

Reviewed By:

Brendan Kapteyn, P.Eng.





**UPPER CANADA
CONSULTANTS**
ENGINEERS / PLANNERS

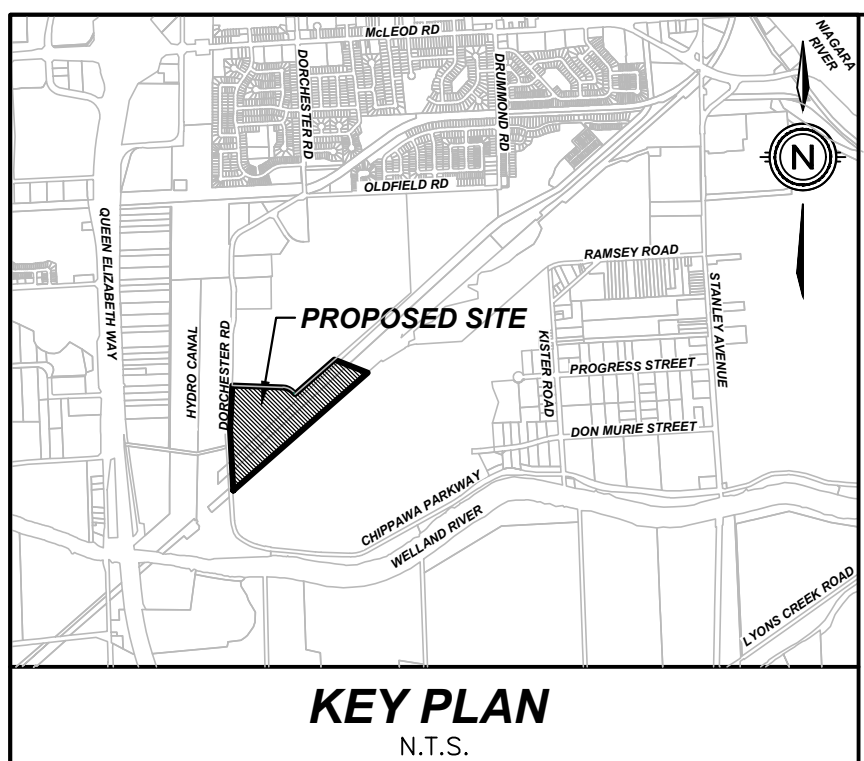
APPENDICES



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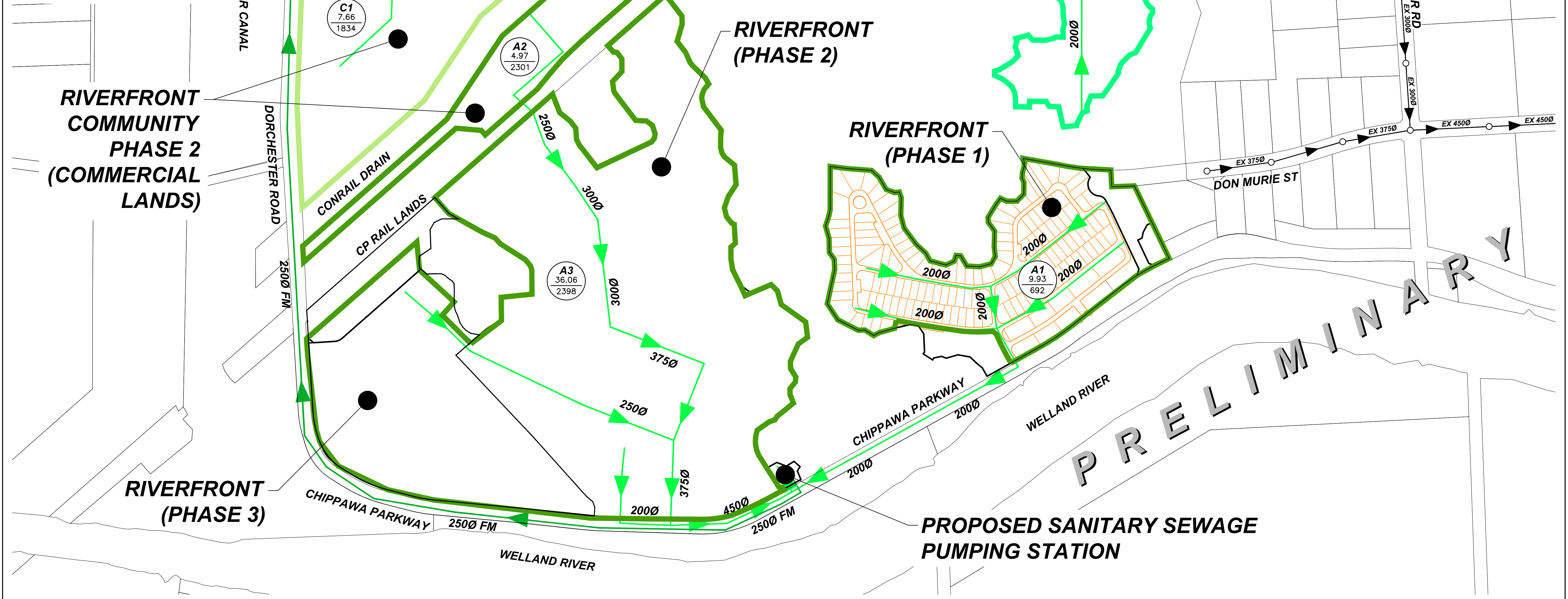
APPENDIX A

**Overall Sanitary Drainage Area Plan
Overall Sanitary Sewer Calculation Sheet**



LEGEND

A0	DRAINAGE AREA NUMBER
0.00	DRAINAGE AREA IN HECTARES
00	EQUIVALENT RESIDENTIAL POPULATION
	DRAINAGE AREA BOUNDARY
	PROPOSED SANITARY SEWER W/ FLOW DIRECTION
	PROPOSED FORCEMAIN W/ FLOW DIRECTION
	EXISTING SANITARY SEWER W/ FLOW DIRECTION



PRELIMINARY



RIVERFRONT DEVELOPMENT AREA
CITY OF NIAGARA FALLS
OVERALL SANITARY DRAINAGE AREA PLAN

CONSULTANT FILE No.	2209
DATE	2023-09-27
PRINTED	2023-09-27
SCALE	1:3000 m
DWG No.	2209-OVL SANDA

UPPER CANADA CONSULTANTS
30 HANNOVER DRIVE, UNIT 3
ST.CATHARINES, ON, L2W 1A3

DESIGN FLOWS

RESIDENTIAL: 275 LITRES/PERSON/DAY (AVERAGE DAILY FLOW)
 INFILTRATION RATE: 0.286 L / s / ha (M.O.E FLOW ALLOWANCE IS BETWEEN 0.10 & 0.28 L / s / ha)
 POPULATION DENSITY: 3 PERSONS PER UNIT

SEWER DESIGN

PIPE ROUGHNESS: 0.013 FOR MANNING'S EQUATION
 PIPE SIZES: 1.016 IMPERIAL EQUIVALENT FACTOR
 PERCENT FULL: TOTAL PEAK FLOW / CAPACITY

MUNICIPALITY:

CITY OF NIAGARA FALLS

PROJECT :

RIVERFRONT PHASE 1

SANITARY SEWER DESIGN SHEET

$$\text{Peaking Factor} = M = 1 + \frac{14}{4 + P^{0.5}}$$

PROJECT NO:

2209

LOCATION	AREA		POPULATION			ACCUMULATED PEAK FLOW					Pipe Diameter (mm)	Pipe Slope (%)	Full Flow Velocity (m/s)	Full Flow Capacity (L/s)	Percent Full
	Location and Description	Increment (hectares)	Accumulated (hectares)	Population Density (ppha)	Population Increment	Total Population Served	Peaking Factor	Flow (L/s)	Infiltration Flow L/s	Total Peak Flow (L/s)					
DRAINAGE AREAS DISCHARGING TO EXISTING FALLS INDUSTRIAL PARK SEWERS (SOUTH SIDE LOW LIFT SPS)															
B - RIVERFRONT COMMUNITY PHASE 2	11.07	11.07	101	1117	1117	3.77	13.40	3.17	16.56	200	0.40	0.7	21.64	76.5%	
DRAINAGE AREAS DISCHARGING TO PROPOSED RIVERFRONT SANITARY SEWAGE PUMPING STATION															
A1 - RIVERFRONT PHASE 1	9.93	9.93	70	692	692	3.90	8.58	2.84	11.42	200	0.40	0.7	21.64	52.8%	
A2 - RIVERFRONT COMMUNITY PHASE 2	4.97	4.97	463	2301	2301	3.54	25.91	1.42	27.33	250	0.28	0.6	32.83	83.3%	
A3 - RIVERFRONT PHASE 2	36.06	41.03	67	2398	4699	3.27	48.91	11.73	60.64	375	0.15	0.6	70.84	85.6%	
TRUNK SEWER TO PUMPING STATION		50.96			5391	3.21	55.16	14.57	69.73	450	0.15	0.7	115.20	60.5%	
DRAINAGE AREAS DISCHARGING BY GRAVITY TO PROPOSED SANITARY SEWER EXTENSION ON DORCHESTER ROAD															
C1 - RIVERFRONT COMMUNITY PHASE 2	7.66	7.66	239	1834	1834	3.61	21.10	2.19	23.29						
C2 - FUTURE DEVELOPMENT LANDS	10.19	10.19	604	6156	6156	3.16	61.92	2.91	64.83						
PROPOSED SEWER TO DORCHESTER ROAD		17.85			7990	3.05	77.58	5.11	82.69	450	0.15	0.7	115.20	71.8%	
DORCHESTER ROAD SEWER EXTENSION		68.81			13381	2.83	120.45	19.68	140.13	600	0.15	0.9	248.09	56.5%	
EXISTING REGIONAL SEWER		68.81			13381	2.83	120.45	19.68	140.13	825	0.15	1.1	579.98	24.2%	



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ENGINEERS / PLANNERS

APPENDIX B

Riverfront (Phase 1) - Stormwater Management Plan