Shiplake LTD.

86 & 70 Lynn Williams Street, City of Toronto

Functional Servicing and Stormwater Management Report (FSR/SWM)

October 4, 2023

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1 Introduction

1.1 Background

Arcadis Professional Services (Canada) Inc. (Arcadis) has been retained by (the “Owner”) to prepare a Functional Servicing Report to support the Zoning By-Law Amendment (ZBA) and Site Plan Application (SPA) processes for a proposed mixed-use development located at 70 & 86 Lynn Williams Street (the “Subject Site”), in the City of Toronto (the “City”). The purpose of this report is to develop a municipal site servicing strategy (stormwater, sanitary discharge, and water supply), and to identify any potential constraints within the existing municipal infrastructure.

More specifically, the report will present the following:

- Calculate allowable and proposed runoff rates for the development;
- Evaluate suitable methods for attenuation and treatment of stormwater runoff;
- Develop on-site control measures and examine theoretical performance to satisfy the City’s Wet Weather Flow Management Guidelines (WWFMG);
- Evaluate groundwater quantity and quality parameters from the hydrogeological report and develop a strategy to manage groundwater under both short- and long-term conditions to comply with the City of Toronto’s Discharge By-Law criteria;
- Develop a Stormwater Management (SWM) plan that complies with the City’s Wet Weather Flow Management Guidelines (WWFMG);
- Identify sanitary servicing opportunities and constraints and evaluate the capacity of the receiving municipal sewer; and,
- Identify water servicing opportunities and constraints, calculate the proposed domestic water and firefighting supply needs; and evaluate the capacity of the municipal infrastructure.

The following documents have been obtained from various sources:

- City of Toronto plan and profile drawings for Lynn Williams Street and Western Battery Road;
- City of Toronto CUMAP Digital Water and sewer network;
- Topographic Survey prepared by J.D. Barnes Ltd., dated March 2022;
- Topographic Survey prepared by KRCMAR, dated April 2023; and,
- Architectural plans and site statistics prepared by gh3 Architects.

1.2 Existing Site Description

Located in the City of Toronto, the site currently encompasses the entirety of the existing properties 70 and 80 Lynn Williams Street. A severance is proposed to divide the existing 80 Lynn Williams Street into two properties as follows:

- 86 Lynn Williams Street: The north portion of the existing 80 Lynn Williams Street.
- 80 Lynn Williams Street: The south portion of the existing 80 Lynn Williams Street. This portion of the existing building is designated as a heritage building.

The 3,315 m^2 (0.33 ha) subject site will include 70 and 86 Lynn Williams Street and is bounded by the existing heritage building to the south, Western Battery Road to the east, an existing residential tower to the north, and a private road to the west. Please see **Figure 1** following the report for an aerial view of the site.

The subject site currently hosts an existing commercial building, an asphalt parking surface, and a grassy area. The site is relatively flat with ground surface elevations ranging from 87.28 m to 86.31 m and is self-contained with no external drainage areas to consider.

The subject site is split between Basement Flooding Study Areas (BFA) #42 and #62 which are currently in progress. Please see **Appendix A** for BFA mapping.

1.3 Site Proposal

The proposed development includes the construction of a 43-storey mixed-use building with (1) residential tower and ground-floor retail space. Two underground levels are proposed which will contain parking, storage, and the utility rooms. A private laneway at the north end of the subject site will connect the private road west of the site to Western Battery Road.

A 337 m^2 parkland dedication will be provided at the southeast corner of the site. A paver walkway shall be provided between the park and the existing heritage building. Detailed servicing for the parkland shall be discussed in **Section 7**.

Sample architectural drawings can be found in **Appendix A** for reference.

1.4 Service Connections

The City of Toronto requires individual service connections for each built form. As only one building is proposed, a single set of connections will be provided.

Furthermore, the Ontario Building Code (OBC) requires two fire service connections separated by an isolation value for any building above 84 m in height. As the proposed building will exceed this threshold, two fire service connections will be required. Specific site servicing details will be further discussed in subsequent sections.

2 Terms of Reference and Methodology

2.1 Terms of Reference

The terms of reference used for the scope of this report have been based on the City of Toronto Design Criteria for Sewers and Watermains, dated January 2021, and the City of Toronto Wet Weather Flow Management Guidelines, dated November 2006. The City's Sewer Capacity Assessment Guidelines (July 2021) were referenced to assess the capacity of the existing sanitary sewers.

2.2 Methodology: Stormwater Management

As the proposed development has a total site area less than 5.0 ha (Table 7, Section 2, WWFMG), the following SWM criteria shall apply:

Quantity Control
The allowable release rate to the municipal storm sewer system from the development site during a 2- year design storm event must not exceed the peak runoff rate from the site under pre-development conditions during the same storm event, or existing capacity of the receiving storm sewer, whichever is less.

A maximum runoff coefficient of 0.50 shall be used in calculating the pre-development peak runoff. An overland flow route (major system) shall be provided within the developed site to direct runoff in excess of the 100-year storm to an approved overland flow outlet.

Quality Control
Long-term average removal of 80% of the total suspended solids (TSS) on an annual loading basis must be achieved. TSS removal efficiency is to be based on 100% of the runoff leaving the site from all storm events that occurs in an average year.

Water Balance
The criteria provided in the City's WWFMG outline that controls should be in place such that 50% of average annual rainfall volume is retained on-site and that this can be achieved by retaining all runoff from a 5 mm rainfall event through infiltration, evapotranspiration, and/or for rainwater re-use.

2.3 Methodology: Sanitary Discharge

Pre- and post-development peak sewer flows will be calculated based on the following City design criteria:

Table 2.1 Sanitary Design Parameters

Design Flows		Population Densities	
Residential Flow	240 L/c/day		
ICI Flow	250 L/c/day		
Infiltration Allowance	0.26 L/s/ha	1 Bedroom Units	1.4 people / unit
Peaking Factor	Harmon Equation	2 Bedroom Units	2.1 people / unit
Sanitary Service Connection Sizing		3 Bedroom Units	3.1 people / unit
Population Flow	450 L/c/day	Retail Space	1.1 people/100m^2
Infiltration Allowance	0.26 L/s/ha	Office Space	3.3 people/100m^2
Peaking Factor	Harmon Equation		

Based on the calculated peak flows, the adequacy of the existing infrastructure to support the proposed development will be discussed.

2.4 Methodology: Water Supply

The domestic water usage will be calculated based on the following City of Toronto and Ontario Building Code design criteria:

Table 2.2 Water Design Parameters

Average Daily Demand		Peaking Factors		
		Land Use	Peak Hour	Max Day
Single Family	310 L/c-day	Residential	2.25	1.50
Multi-Unit	190 L/c-day	Commercial	1.20	1.10

Pressure and flow testing to determine the adequacy of the existing watermain to support the development with fire suppression in accordance with the Fire Underwriters Survey (FUS) Guidelines will be discussed in the subsequent sections.

3 Foundation Drainage

3.1 Groundwater Quality

A hydrogeological assessment was carried out by Terrapex Environmental Ltd, dated March 25, 2022, to assess existing groundwater conditions. Per the assessment, the groundwater quality was found to be below the City's limits for discharge to either storm sewers or sanitary sewers.

It is therefore proposed that any required dewatering be directed to the 525 mm sanitary sewer within Lynn Williams Street without pre-treatment.

3.2 Short-Term Construction Dewatering

The anticipated short-term groundwater discharge has been estimated by Terrapex to be 81.9 m^3/day (0.95 L/s). At the time of this report, a dewatering plan was not made available. It is therefore assumed that groundwater pumping will operate for 8 hours per day resulting in a maximum pumping rate as shown:

Table 3.1 Short-Term Groundwater Discharge Summary

Average Discharge	Average Discharge	Hours Of Pumping	Peak Discharge	Connection Outlet	Treatment Required
102.5 m^3/day	1.19 L/s	8 Hours	3.57 L/s	525mm SAN (Lynn Williams Street)	None

As the post-development sanitary design flow exceeds the anticipated short-term pumping rate, the post-development sanitary design flow governs and will be used to assess downstream sewer capacity. It should be noted that a Permit to Take Water (PTTW) application must be submitted to the Ministry of the Environment, Conservation and Parks (MECP) if the dewatering rate exceeds 50 m^3/day.

3.3 Long-Term Groundwater Discharge

Per the City's Foundation Drainage Policy, the site is proposed to be designed as water-tight without the need for a foundation drain connection to the municipal sewer system. Confirmation letters regarding this approach have been provided by the owner, the mechanical consultant, and the structural consultant, and can be found in **Appendix B** for reference.

4 Stormwater Management

4.1 Pre-Development Conditions

Local storm infrastructure consists of a 450 mm storm sewer within Western Battery Road which conveys flows south to a 450 mm storm sewer within Lynn Williams Street which conveys flows east. A separate 450 mm storm sewer within Lynn Williams Street conveys flows west. Storm drainage at the site is conveyed to the 450 mm storm sewer within Western Battery Road and the 450 mm storm sewer within Lynn Williams Street that conveys flows west. The pre-development flows from the subject site to each sewer are summarized as follows:

Table 4.1 Pre-Development Storm Flows: 2-Year Storm

Municipal Street	Storm Sewer Size	Drainage Area (ha)	Runoff Coefficient	Time Of Concentration	Intensity (mm/hr)	Flow (L/s)
Lynn Williams Street	450 mm	0.2630	0.54	10 min	88.2	34.7
Western Battery Road	450 mm	0.0252	0.90	10 min	88.2	5.6

As shown above, storm flows from the majority of the site are conveyed to the 450 mm storm sewer within Lynn Williams Street.

As previously mentioned, the site currently hosts an existing building, a grassy area, and a surface asphalt parking lot resulting in a pre-development runoff coefficient in excess of 0.50, however as the WWFMG limits the allowable release rate using a pre-development runoff coefficient of 0.50, this shall govern. Please refer to the Pre-Development Drainage Area Plan (Figure **DAP-1**) which can be found in **Appendix C**.

4.2 Grading

Under pre-development conditions, no external drainage enters the site. All surface drainage within the site is conveyed to catchbasins within the asphalt parking areas. Emergency overland flow from 80 & 86 Lynn Williams is conveyed to the private road to the west, while overland flow from 70 Lynn Williams Street is conveyed to Western Battery Road. All overland flow is ultimately conveyed to Lynn Williams Street which drains in a westerly direction.

The proposed grades will match current drainage patterns wherever feasible. Grades will be maintained along property lines to the extent practical. Emergency overland flow route in excess of a 100-year storm event will continue to be directed to the adjacent rights-of-way and ultimately Lynn Williams Street matching pre-development conditions.

A 108 m^2 external area will drain to the site from 80 Lynn Williams Street to the south. This external drainage area is part of a proposed pedestrian walkway between the proposed building and the existing heritage building and will be taken into consideration as part of the overall stormwater management strategy.

Due to grading constraints, the paver walkway that is proposed between the parkland dedication and the existing heritage building shall be graded towards the park, and storm flows shall be picked up by proposed CBs within the parkland dedication. This drainage area shall be taken into consideration as part of the overall stormwater management strategy for the park, which shall be further discussed in **Section 7**.

In summary, site areas for stormwater management shall be taken as follows:

Table 4.2 Site Area

	Area (ha)
Subject Site	0.2882
Parkland Dedication	0.0433
Total Site Area	**0.3315**

Please refer to Figure **DAP-1** which can be found in **Appendix C**.

4.3 Allowable Release Rate

As previously mentioned, a 0.018 ha external area will drain towards the subject site and shall therefore be included as part of the overall stormwater management strategy. The allowable release rate shall therefore be based on the following:

Table 4.3 Allowable Release Rate Area

	Area (ha)
Subject Site	0.2882
External Drainage Area	0.0108
Total Area Used to Calculate Allowable Release Rate	**0.2990**

Using the City's IDF data for a 2-year storm event and a time of concentration of 10 minutes, the allowable release rate for the site is calculated as follows:

$$Q_{Allowable} = \frac{(A \times R) * I_2}{360} = \frac{(0.2990 \text{ ha} \times 0.50) \times 88.2 \text{ mm / hr}}{360} \times \left(\frac{1000 \text{ L}}{\text{m}^3}\right) = \mathbf{36.6\ L/s}$$

As shown above, the gross allowable release rate from the subject site shall be limited to a maximum of **36.6 L/s**. Furthermore, the release rate may be further reduced to the capacity of the receiving sewer, should this be less than the allowable release rate calculated above.

4.4 Quantity Control

As previously mentioned, the allowable release rate for the subject site shall be limited to the 2-year target flow which has been calculated to be **36.6 L/s** or the capacity of the receiving sewer, whichever is less.

To attenuate flows, the subject site will require a stormwater management tank with a minimum storage area of 85.0 m^2 and a 100 mm orifice tube. Setting the 100-year storage depth at 0.93 m, the orifice discharge is calculated as follows:

$$Q_{Orifice} = (0.82) * \frac{\pi * (0.100)^2}{4} * \sqrt{2 * 9.81 * (0.93\text{-}0.100/2)} \times \frac{1000 \text{ L}}{1 \text{ m}^3} = \mathbf{26.8\ L/s}$$

The following provides a summary of the stormwater management parameters pertaining to quantity control:

Table 4.4 Quantity Control Summary

Building	Storage Req'd (m^3)	Storage Provided (m^3)	Allowable Release Rate (L/s)	Orifice Release Rate (L/s)	Uncontrolled Flow (L/s)	Total Release Rate (L/s)
Main Building	79.2	99.5	36.6	26.8	0.0	26.8

As shown above, the total site discharge is less than the allowable release rate of 36.6 L/s, however as previously mentioned, the release rate to the municipal sewer may be further reduced to the capacity of the receiving sewer. As the majority of the site drains to the 450 mm storm sewer within Lynn Williams Street, it is proposed to connect the proposed storm service to this sewer. Thus, the increase in post-development flows to each sewer from the subject site are summarized as follows:

Table 4.5 Pre- and Post-Development Storm Flow Comparison: 2-Year Storm

Municipal Sewer	Municipal Sewer Size	Pre-Dev Storm Flow (L/s)	Orifice Release Rate (L/s)	Uncontrolled Flow (L/s)	Total Post-Dev Flow (L/s)	Decrease In Flow (L/s)
Lynn Williams Street	450mm STM	37.1	10.9	0.0	10.9	26.2
Western Battery Road	450mm STM	5.6	0.0	0.0	0.0	5.6

Table 4.6 Pre- and Post-Development Storm Flow Comparison: 100-Year Storm

Municipal Sewer	Municipal Sewer Size	Pre-Dev Storm Flow (L/s)	Orifice Release Rate (L/s)	Uncontrolled Flow (L/s)	Total Post-Dev Flow (L/s)	Decrease In Flow (L/s)
Lynn Williams Street	450mm STM	105.4	26.8	0.0	26.8	78.6
Western Battery Road	450mm STM	15.8	0.0	0.0	0.0	15.8

As shown above, post-development flows to each sewer are decreased under both the 2-year and 100-year storm events and it can therefore be concluded that the receiving storm sewer has sufficient capacity to convey the proposed 100-year storm flows from the subject site. Therefore, by providing on-site storage and an orifice control, the City's objectives for quantity control have been met. Please see detailed calculations which can be found in **Appendix C**.

It should be noted that regular inspection and maintenance of any storage element and orifice control should be conducted on a regular basis to ensure that the system is functioning as designed.

4.5 Quality Control

As previously mentioned, 80% TSS removal is required in order to meet the City's WWFMG. Based on the proposed site conditions and surface treatment, the following table summarizes the inferred TSS removal rate of the site:

Table 4.7 TSS Performance

Surface Type	Area (m^2)	Effective TSS	Overall TSS
Conv. Roof	1,070	80	29.7
Extensive Green Roof	474	80	13.2
Intensive Green Roof	218	80	6.0
Landscape	52	80	1.4
Pavers	0	80	0.0
Impervious	1,068	0	0.0
Total	**2,882**		**50.4**

Left untreated, the site will not achieve the City's requirement for 80% TSS removal. Therefore, it is proposed that a Stormfilter© system complete with (5) media cartridges be installed. All "dirty" areas within the drive aisle shall first be directed to the Contech chamber, whereas all other areas can be considered clean and routed directly to the stormwater management tank. Please refer to the Contech Sizing Report which can be found in **Appendix C**.

The Stormfilter© system is accepted as a standalone off-line treatment unit and meets the City of Toronto's criteria for 80% TSS per the WWMFG's. Any proposed substitutions will require approval from both the engineer of record and the City of Toronto.

It is recommended that the Stormfilter© system be inspected on a regular basis to ensure proper operation. Per Contech's recommendations, inspection and maintenance should be carried out at a minimal interval of 12 months with inspections prior to each winter season with filter replacements as required.

By adding this stormwater quality treatment unit, the City requirements for quality control (i.e. minimum 80% TSS removal) have been satisfied.

4.6 Water Balance

As required by the City's WWFMG, controls should be in place such that 50% of average annual rainfall volume is retained on-site, which can be achieved by retaining all runoff from a 5 mm rainfall event. The water balance volume required to be retained is calculated as follows:

$$\text{Vol.}_{5\text{ mm}} = 2{,}882\ \text{m}^2 * 5\ \text{mm} * \left(\frac{1\ \text{m}}{1000\ \text{mm}}\right) = \mathbf{14.4\ m^3}$$

To achieve the required volume, a combination of initial abstraction, and water re-use will be incorporated.

Based on initial abstraction values for each surface type, the total abstraction is calculated as follows:

Table 4.8 Initial Abstraction

Area	Area (m^2)	Initial Abstraction	Total (m^3)
Conv. Roof	1,070	1	1.1
Extensive Green Roof	474	5	2.4
Intensive Green Roof	218	7	1.5
Landscape	52	5	0.3
Pavers	0	5	0.0
Impervious	1,068	1	1.1
Total	**2,882**		**6.3**

As shown above, 6.3 m^3 is retained on-site through initial abstraction. The irrigation consultant has indicated that a volume of 19.6 m^3 can be used on-site within a 72-hour period. Please see **Appendix C** for the detailed calculations from the irrigation consultant confirming the re-use volume.

The following is a summary of the various proposed strategies:

Table 4.9 Water Balance Summary

Water Balance Strategy	Volume (m^3)
Initial Abstraction	6.3
Landscape Irrigation	19.6
Total	**25.9**

Through a combination of initial abstraction and water re-use within a 72-hour period (landscape irrigation), the site achieves a total water balance volume of 25.9 m^3, which exceeds the City's requirements of 14.4 m^3. An adequate sump within the stormwater management tank will be provided within the P1 level to retain the total water re-use volume. Please see **Appendix C** for the detailed design sheet and detailed **Drawing SS-01**.

4.7 Storm Service Connection

It is proposed that a new 250 mm storm service at a 1.0% slope be installed from the stormwater management tank through an easement within the 80 Lynn Williams property to a new control manhole at the property line. It is further proposed that a new 250 mm storm service at a 2.0% slope be installed from the control manhole to the existing 450 mm storm sewer within Lynn Williams Street. The following table illustrates the peak flow and corresponding capacity of both the private on-site service and the proposed service within the municipal right-of-way:

Table 4.10 Storm Service Performance

From	To	Pipe Size (mm)	Pipe Slope	Peak Flow (L/s)	Capacity (L/s)	Percent Of Full Flow
SWM Tank	MH1 (Cntrl.MH)	250	1.0 %	26.8	59.5	45 %
MH1 (Cntrl.MH)	Ex. Storm	250	2.0 %	26.8	84.1	32 %

As shown above, both legs of the storm service can convey the controlled discharge while operating at 45 % (or less) of full flow capacity. Please refer to the detailed design calculations which can be found in **Appendix C**, and the design **Drawing SS-01**.

4.8 Emergency Overflow

It is recommended that rooftop scuppers be installed to ensure emergency overflow from roof areas should rooftop drains become plugged.

- All areas at grade level have been designed with positive drainage (away from the building).
- The stormwater management tank shall be designed with a catchbasin lid (open grate) to allow storm flows to spill to the adjacent municipal right-of-way in an emergency situation.
- Maximum ponding within the development site shall not exceed City requirements of 0.30 m.

4.9 Erosion and Sediment Control

It is recommended that a sediment control fence per T-219.130-1 be installed along the perimeter of the site as required during demolition activities. All existing and proposed catch basins within close proximity of the subject site shall be protected with a geotextile fabric. A mud mat shall be installed as required to minimize distribution of mud into the public realm.

5 Sanitary Drainage System

5.1 Pre-Development Conditions

Per the City's record information, local sanitary infrastructure consists of a 525 mm sanitary sewer flowing west on Lynn Williams Street.

As previously mentioned, the site currently hosts an existing commercial building, an asphalt parking surface, and a grassed area. Using the City's population densities, the pre-development population is calculated to be 13. The corresponding pre-development peak sanitary flow is calculated as follows:

$$Q_{Pre\text{-}Dev.} = \left(\frac{250\ L/c{\cdot}d \cdot 13\ pers \cdot 4.4_{P.F.}}{86400\ s / day}\right) + (0.26\ \ L/s{\cdot}ha \cdot 0.29\ ha) = \mathbf{0.2\ L/s}$$

5.2 Post-Development Sanitary Flows

The anticipated sanitary discharge flows for the proposed site were calculated based on the site statistics provided by gh3 Architects dated May 10, 2023 along with the design criteria outlined in **Section 2.3.**. The population calculations are shown in **Table 5.1**.

Table 5.1 Proposed Development Site Populations

	Units/Area	Rate	Population
1 Bedroom	443	1.4 pp/unit	620
2 Bedroom	86	2.1 pp/unit	181
3 Bedroom	59	3.1 pp/unit	183
Retail	800 m^2	1.1 pp/100 m^2	9
		Total Proposed Population	**993**

The corresponding post-development sanitary sewer flow is calculated as follows:

$$Q_{Post\text{-}Dev.} = \left(\frac{240\ L/c{\cdot}d \cdot 993\ pers \cdot 3.80}{86400\ s / day}\right) + (0.26\ \ L/s{\cdot}ha \cdot 0.29\ ha) = \mathbf{10.6\ L/s}$$

As shown above, the subject site represents an increase in dry weather flow, therefore a downstream sanitary capacity analysis will be required.

5.3 Existing Downstream Capacity

At the time of this report, there was no flow monitoring data available from the City for the applicable sewershed. As such, the downstream sanitary capacity will be analyzed once the City's BFA 62 InfoWorks model has been made available.

5.4 Sanitary Service Connection

It is proposed that a new private 200 mm sanitary service at a 1.0% slope be installed within a private easement from the subject site to a new control manhole at the southern property limit for 80 Lynn Williams Street, and a new 200 mm sanitary service at a 1.0% slope be installed from the new control manhole to the existing 525 mm sanitary sewer on Lynn Williams Street. A 1.0% slope for the service is proposed due to the shallow depth of the existing municipal sewer. Using the design flow of 450 L/cd, the corresponding post-development sanitary sewer flow is calculated as follows:

$$Q_{Post\text{-}Dev.} = \left(\frac{450\ L/c{\cdot}d \cdot 993\ pers \cdot 3.80}{86400\ s / day}\right) + (0.26\ \ L/s{\cdot}ha \cdot 0.29\ ha) = \mathbf{19.7\ L/s}$$

The following table summarizes the peak flow and corresponding capacity of the service:

Table 5.2 Sanitary Service Performance

From	To	Pipe Size (mm)	Pipe Slope	Peak Flow (L/s)	Capacity (L/s)	Percent Of Full Flow
Subject Site	MH3A	200	1.0 %	19.7	34.2	58 %
MH3A	MH2A (Cntrl MH)	200	1.0 %	19.7	34.2	58 %
MH2A (Cntrl MH)	525mm SAN	200	1.0%	19.7	34.2	58 %

As shown above, the sanitary service has capacity to convey the post-development peak sanitary flow while operating at 58 % of full flow capacity. Please see the detailed design sheet which can be found in **Appendix D**, and **Drawing SS-01**.

6 Water Supply System

6.1 Existing Water Infrastructure

Per the City's record information, local water infrastructure consists of a 300 mm watermain within Western Battery Road, and a 300 mm watermain within Lynn Williams Street.

Hydrant flow testing was performed at existing fire hydrants along Lynn Williams Street and Western Battery Road to confirm the available water supply's flow-pressure response curve. These tests were performed on June 16, 2021, and were conducted in accordance with NFPA 291. The results are summarized as follows:

Table 6.1 Hydrant Response Curve

Western Battery Road				Lynn Williams Street			
Flow (gpm)	Flow (L/s)	Pressure (psi)	Pressure (kPa)	Flow (gpm)	Flow (L/s)	Pressure (psi)	Pressure (kPa)
0	0	72	496	0	0.0	72	496
1,244	78.5	66	455	1,186	74.8	66	455
1,744	110.0	63	434	1,744	110.0	63	434

As shown above, static pressure within the system is expected to be approximately 72 psi. A copy of both hydrant flow tests can be found in **Appendix E** for reference.

6.2 Domestic Water Supply Demands

Using the criteria set in **Section 2.4** and the site statistics provided by the architect, the Average Day Demand (ADD), Peak Hour Demand (PHD), and Max Day Demand (MDD) have been calculated, and are summarized as follows:

Table 6.2 Domestic Water Demands

Building	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
1 Bedroom	620	1.4	3.4	1.8
2 Bedroom	181	0.4	1.0	0.5
3 Bedroom	183	0.4	1.0	0.5
Retail	9	0.0	0.0	0.0
Total	**993**	**2.2**	**5.4**	**2.8**

The domestic supply line for the building will be designed based on PHD while maintaining a minimum available pressure of 40 psi (275 kPa) at the face of the building. Please see **Appendix E** for the detailed calculations.

6.3 Fire Supply Demands

The recommended fire flow demand for the subject site has been calculated using the design criteria outlined in the Water Supply for Public Fire Protection Manual, 2010 by the Fire Underwriters Survey (FUS).

As the building will be constructed using fire resistive materials, the effective floor area is taken as the largest floor area plus 25 % of the two adjacent floors.

- Effective Floor Area = Largest Floor Area + 25 % (two adjoining floors).
- Effective Floor Area = 1,774 m^2 + 25 % (1,774 m2 + 1,774 m^2).
- Effective Floor Area = 2,661 m^2.

The corresponding floor area and FUS factors will be applied as follows:

Table 6.3 Fire Underwriters Survey Factors

Construction Coefficient	Building Occupancy	Sprinkler Adjustment	Proximity Factor
0.6 (resistive)	- 15 % (limited)	- 30 %	+ 45 %

Using the effective floor area for each building and the appropriate FUS factors, the required fire flow for each building is calculated as follows:

Table 6.4 Fire Demand Calculations

Fire Flow (F) Calculation	Applying FUS Factors	Adjusted Fire Flow	Total Demand (TD)
F = 220 · 0.6 √Area	F_1=F·0.85 = 5,950 L/min	Fire Flow = F_1 - F_2 + F_3	TD= FF + MDD
F = 220 · 0.6 √2,661 m^2	F_2=F_1·0.30 = 1,785 L/min	FF= 7,000 L/min (rnd'd)	TD= 116.7 L/s+ 2.8 L/s
F = 7,000 L/min (rnd'd)	F_3=F_1·0.45 = 2,686 L/min	FF = 116.7 L/s	TD= 119.5 L/s

The fire supply line for the building will be designed based on Total Demand (Fire Flow + MDD) while maintaining a minimum available pressure of 20 psi (140 kPa) at the face of the building. Please see **Appendix E** for the detailed calculations.

6.4 System Pressure Under Normal Operation

As previously mentioned, the domestic service shall be sized to convey domestic demands under normal system operating conditions (PHD) while maintaining a minimum available pressure of 40 psi (275 kPa). The residual pressure at the building is calculated by first interpolating the PHD residual pressure within the existing watermain, and then subtracting head losses within the system using the Hazen-Williams formula. The following table summarizes the residual pressure for the proposed domestic service:

Table 6.5 Residual Pressure Under PHD Conditions

Flow Conditions	PHD (L/s)	Domestic Service (mm)	Residual Pressure @ Main		Residual Pressure @ Bldg.	
			(psi)	(kPa)	(psi)	(kPa)
PHD	5.4	150	72	496	72	496

As shown above, there is no appreciable head loss within the system, and the residual pressure at the building face is above the minimum acceptable pressure of 40 psi (275 kPa) under PHD conditions. Please see **Appendix E** for the detailed design calculations.

6.5 System Pressure Under Fire Flow

The fire service shall be sized to convey the total fire demand (Fire + MDD) while maintaining a minimum available pressure of 20 psi (140 kPa). The residual pressure at the building is calculated by first interpolating the residual pressure within the existing watermain, and then subtracting head losses within the system using the Hazen-Williams formula.

The following table summarizes the residual pressure for the proposed fire service:

Table 6.6 Residual Pressure Under Fire + MDD Conditions

Flow Conditions	FF+MDD (L/s)	Fire Service (mm)	Residual Pressure @ Main		Residual Pressure @ Bldg.	
			(psi)	(kPa)	(psi)	(kPa)
FF+MDD	119.5	200	62	424	61	419

As shown above, the residual pressure at the building face for the fire service is above the minimum acceptable pressure of 20 psi (140 kPa) under fire demand conditions (Fire + MDD). Please see **Appendix E** for the detailed design calculations.

6.6 Water Service Connection

To service the proposed development, a new 200 mm fire service shall be connected to the existing 300 mm watermain within Western Battery Road with a tapping sleeve and valve. A separate 150 mm domestic service will tee off from the fire line within the municipal right-of-way. A new valve and box shall be installed at the property line for each incoming service, and all required water meters, backflow preventers, and double check valves shall be located inside a mechanical room within the proposed P1 level.

As previously mentioned, the OBC requires two fire services separated by an isolation valve to be installed for any building above 84 m. As the proposed building exceeds this threshold a secondary 200 mm fire line will be required and shall be connected to the existing 300 mm watermain within Western Battery Road. The two new fire services shall be separated by an isolation valve.

The National Fire Protection Association (NFPA) considers any building over 23 m in height to be classified as a high-rise building and thus requires a remotely located secondary siamese connection for each zone. Accordingly, a second siamese connection has been provided.

6.7 Hydrant Coverage

Existing municipal hydrants are located on Western Battery Road and Lynn Williams Street. These hydrants will serve to provide the required 90 m of coverage for all building faces along municipal frontage. Additionally, all proposed siamese connections will be strategically placed within 45 m of the aforementioned municipal hydrants to satisfy OBC requirements.

Please see **Drawing SS-01** for the location of all existing and proposed water infrastructure.

7 Parkland Dedication

7.1 Service Connections

As previously mentioned, a 433 m^2 area at the southeast corner of the site is to be dedicated to the City as public parkland. The park will be serviced by one storm service, one sanitary service, and one domestic service. Specific servicing details are discussed in subsequent sections.

7.2 Stormwater Management

7.2.1 Pre-Development Conditions

As previously mentioned, local storm infrastructure consists of a 450 mm storm sewer within Western Battery Road, which conveys flows south and a 450 mm storm sewer within Lynn Williams Street, which conveys flows west.

Existing storm drainage in the 433 m^2 area to be dedicated to the City for the park is conveyed to the 450 mm storm sewer within Western Battery Road via a private catchbasin within the site. Please refer to **Figure DAP-01** which can be found in **Appendix C**.

The site currently hosts a surface asphalt parking lot resulting in a pre-development runoff coefficient in excess of 0.50, however as the WWFMG's limits the allowable release rate using a pre-development runoff coefficient of 0.50, this shall govern.

7.2.2 Allowable Release Rate

Using the City's IDF data for a 2-year storm event and a time of concentration of 10 minutes, the allowable release rate to the 450 mm storm sewer within Western Battery Road is calculated as follows:

$$Q_{2\text{-year}} = \frac{(A \times R) * I_2}{360} = \frac{(0.0433\ \text{ha} \times 0.50) \times 88.2\ \text{mm/hr}}{360} \times \left(\frac{1000\ \text{L}}{\text{m}^3}\right) = 5.3\ \text{L/s}$$

The associated pre-development drainage area plan is shown on the **Figure DAP-1** which can be found in **Appendix C** for reference.

7.2.3 Quantity Control

The park will require a storage element and orifice control to limit discharge to 5.3 L/s. A Hydro-Brake Optimum® vortex valve has been sized to limit the 100-year peak discharge to 5.3 L/s using a design head of 0.600 m. Storage will be provided by 12.5m of 600 mm storm sewer and (2) 1.2 m diameter maintenance holes.

The following is a summary of the stormwater management parameters pertaining to quantity control:

Table 7.1 Quantity Control Summary

Building	Storage Req'd (m^3)	Storage Provided (m^3)	Allowable Release Rate (L/s)	Orifice Release Rate (L/s)	Uncontrolled Flow (L/s)	Total Release Rate (L/s)
Park	5.9	6.2	5.3	5.3	0.0	5.3

As shown above, the park discharge is calculated to be within the allowable release rate. By providing on-site storage and an orifice control, the City's objectives for quantity control have been met.

It should be noted that regular inspection and maintenance of any storage element and orifice control should be conducted on a regular basis to ensure that the system is functioning as designed. Please see detailed calculations and HydroBrake specifications which can be found in **Appendix F** and **Drawing SS-01**.

7.2.4 Quality Control

It is anticipated that the park will be comprised of pedestrian and landscape areas which are considered inherently clean, and therefore the park will provide an overall TSS removal which will satisfy the City's criteria for quality control without the need for additional quality treatment devices.

7.2.5 Water Balance

While the detailed design of the park will be performed by others a later date, it is anticipated that the park will be required to meet the City's 5 mm water balance target, which will likely be achieved through initial abstraction. Additionally, water re-use (irrigation) can also be considered if needed. It should be noted that the hydrogeological investigation indicates groundwater table depths of approximately 1.4 mbgs in the vicinity of the park. As such, it will likely not be feasible to meet the water balance requirement for the park through infiltration.

7.2.6 Storm Service Connection

It is proposed that the existing private catch basin be removed, and a new control manhole be installed in the same location which shall be connected to the existing 200 mm storm service. The existing storm service was installed during the construction of the 450 mm storm sewer within Western Battery Road c. 2002 and is therefore expected to be in adequate condition, however the contractor shall verify the condition of the existing service during construction and notify the engineer of any deficiencies. Please refer to the record drawing **PP-32** which can be found in **Appendix F.** The following table illustrates the peak flow and corresponding capacity of the existing service:

Table 7.2 Park Storm Service Performance

From	To	Pipe Size (mm)	Pipe Slope	Peak Flow (L/s)	Capacity (L/s)	Percent Of Full Flow
MH2 (Cntrl MH)	450mm STM	200	2.0%	5.3	46.4	11%

As shown above, the proposed storm service can easily convey the controlled discharge while operating at 11% of full flow capacity. Please refer to the detailed design calculations which can be found in **Appendix F** and **Drawing SS-01**.

7.3 Sanitary Servicing

It is proposed that a 150 mm sanitary service at 2.0% slope be installed from a new control manhole at the property line to the existing 525 mm sanitary sewer within Lynn Williams Street. Please refer to **Drawing SS-01**.

7.4 Water Servicing

It is proposed that a 50 mm domestic water service be installed from the parkland to the existing 300 mm watermain within Lynn Williams Street. A new curb stop shall be installed at the property line for the incoming service, and the required water meter chamber shall be located just inside the property line. Please refer to **Drawing SS-01**.

8 Conclusions and Recommendations

Storm Sewer and Stormwater Management

The objectives of the City's WWFMG can be met by implementing on-site measures. Storm flows shall be attenuated on-site and released to the municipal storm sewer at an appropriate discharge rate thus meeting the City's target for quantity control. As a Stormfilter system is proposed, the site will meet the City's target for quality control. Through initial abstraction and greywater reuse (irrigation), the site will meet the City's target for water balance.

Additionally, the parkland dedication will meet the objectives of the City's WWFMG by implementing on-site measures. Storm flows shall be attenuated on-site and released to the municipal storm sewer at an appropriate discharge rate thus meeting the City's target for quantity control. As the park will be comprised of inherently clean surfaces, the park will meet the City's target for quality control. It is expected that the park will meet the City's target for water balance using initial abstraction and greywater reuse (irrigation).

Sanitary Sewers

At the time of this report, there was no flow monitoring data available from the City for the applicable sewershed. As such, the downstream sanitary capacity will be analyzed once the City's BFA 62 InfoWorks model has been made available.

Water Supply

The existing 300 mm watermains within Lynn Williams Street and Western Battery Road have sufficient capacity to support the proposed fire and domestic water demands for the proposed development without improvements to the system.

Summary

In summary, it can be concluded that the Zoning By-Law Amendment and Site Plan Application for the development site and the parkland dedication can be supported from a municipal site servicing perspective once the City's BFA 62 Infoworks model has been released and downstream sanitary capacity has been confirmed.

Appendix A

Background Information

Aerial Plan

Topographic Survey (J. D. Barnes)

Topographic Survey (KRCMAR)

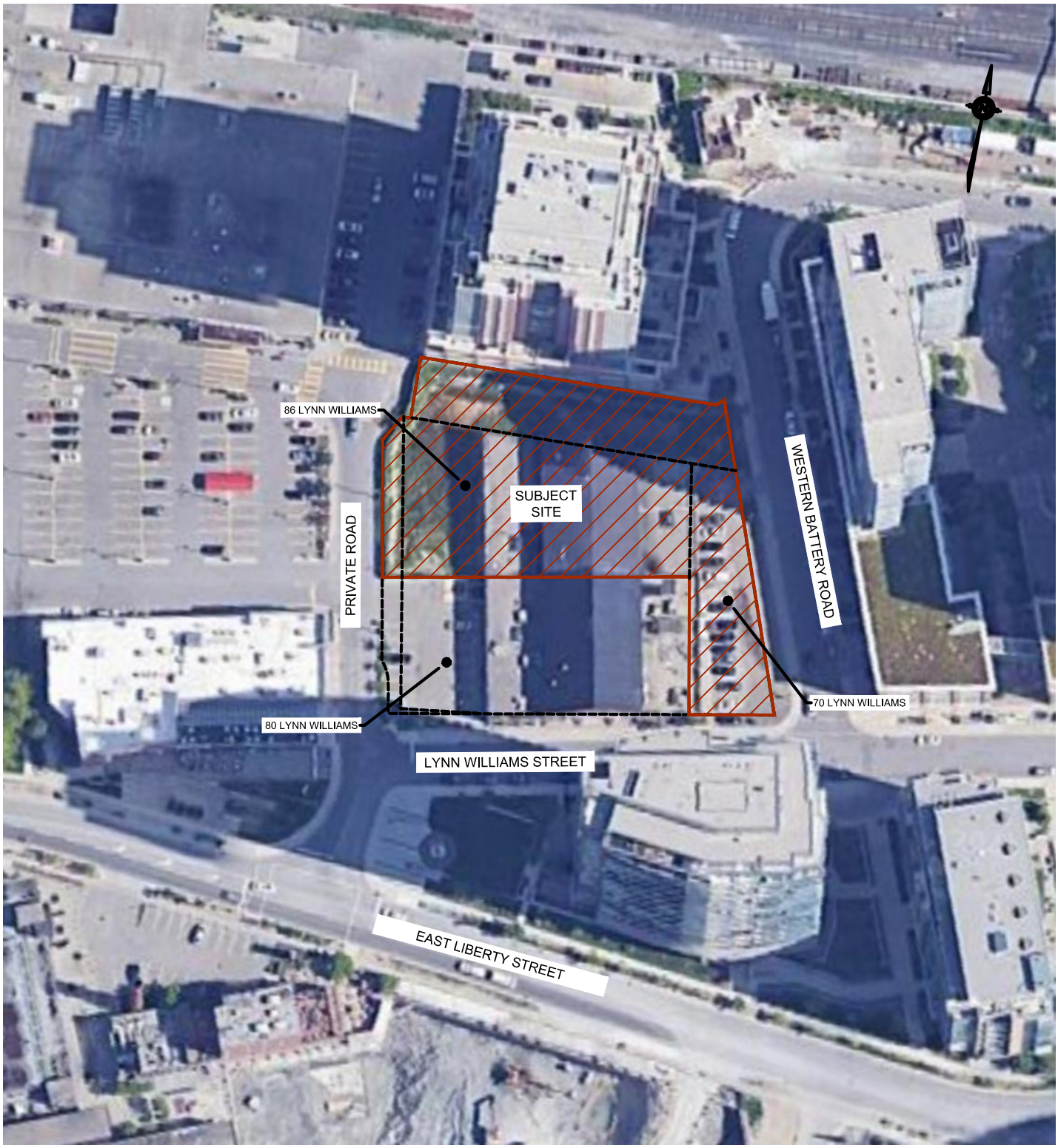
Architectural Plans (gh3)

Plan and Profile Drawings (City of Toronto)

Existing Building Mechanical Plans

SUE Investigation (T2)

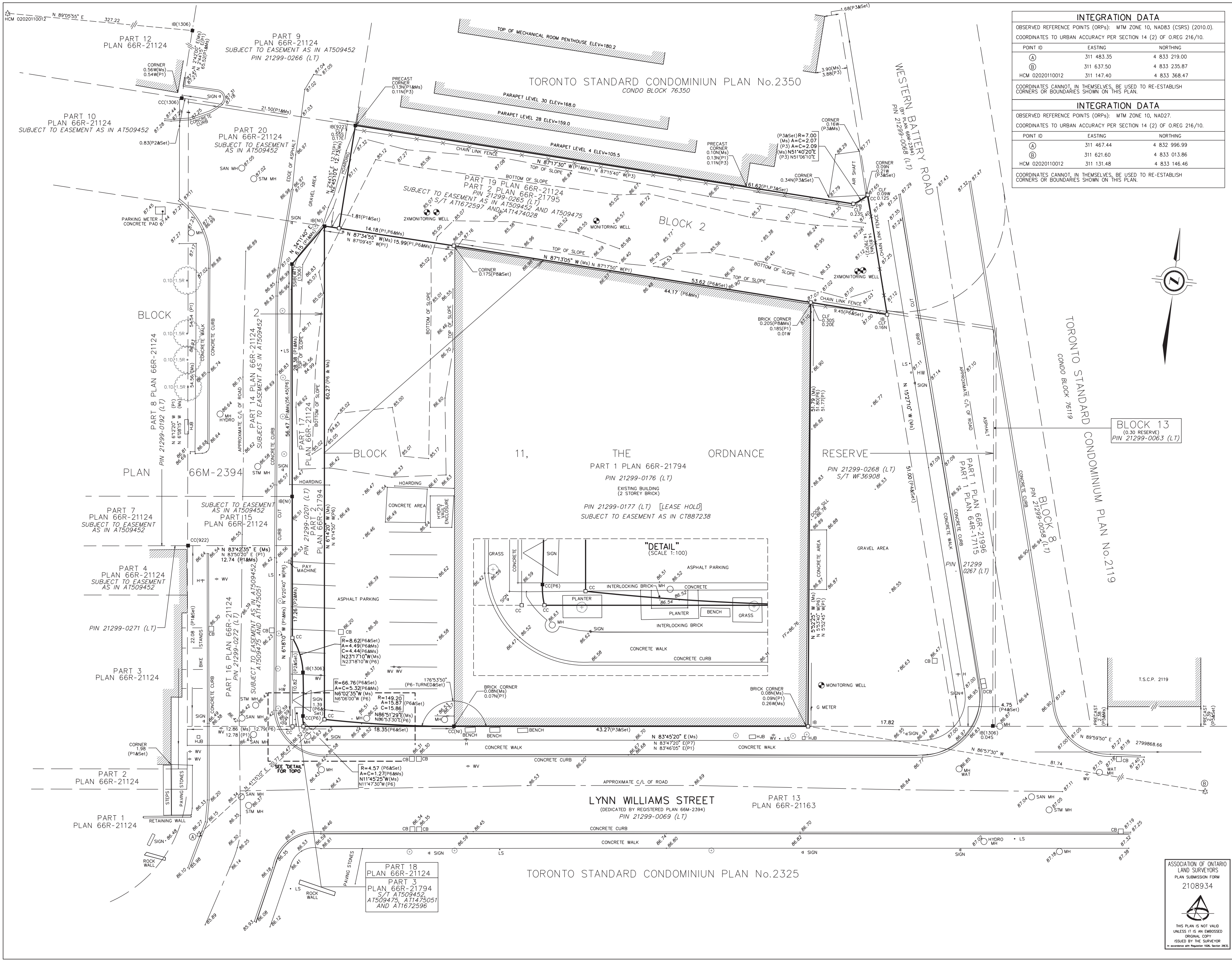
Basement Flooding Area Mapping



CLIENT: COLLECDEV INC. 20 EGLINTON AVENUE WEST, SUITE 1700 TORONTO, ON M4R 1K8	PROJECT NAME: 70 & 86 LYNN WILLIAMS STREET	IBI GROUP Unit 300 – 8133 Warden Avenue Markham ON L6G 1B3 Canada tel 905 763 2322 fax 905 763 9983 ibigroup.com	
	SCALE: NTS / DATE: 2023-07-26	FIGURE NAME: AERIAL PLAN	FIGURE NO.: FIG.1 / REVISION: 1
	PROJECT ENG: JMJ / DRAWN BY: SB		
	CHECKED BY: JMJ / APPROVED BY: JMJ		
	PROJECT NO: 143025		

File Location: J:\143025_LynnWilliams\7.0_Production\7.03_Design\04_Civil\Sheets\Figures\Figure 1 - Aerial Plan.dwg Last Saved: July 26, 2023, by shirley.beaudoin Plotted: Wednesday, July 26, 2023 9:39:40 AM by Shirley Beaudoin

SCALE CHECK 10mm 1 in



INTEGRATION DATA

OBSERVED REFERENCE POINTS (ORPs): MTM ZONE 10, NAD83 (CSRS) (2010.0).

COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.

POINT ID	EASTING	NORTHING
(A)	311 483.35	4 833 219.00
(B)	311 637.50	4 833 235.87
HCM 02020110012	311 147.40	4 833 368.47

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

INTEGRATION DATA

OBSERVED REFERENCE POINTS (ORPs): MTM ZONE 10, NAD27.

COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.

POINT ID	EASTING	NORTHING
(A)	311 467.44	4 832 996.99
(B)	311 621.60	4 833 013.86
HCM 02020110012	311 131.48	4 833 146.46

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

PLAN OF SURVEY OF

PART OF BLOCK 11 THE ORDNANCE RESERVE AND PART OF BLOCK 2 PLAN 66M-2394

CITY OF TORONTO

SCALE 1 : 200

5 0 5 10 metres

J.D. BARNES LIMITED
ONTARIO LAND SURVEYORS

NOTES

BEARINGS ARE MTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, MTM ZONE 10, NAD83 (CSRS) (2010.0).

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999893.

METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO THE CANADIAN GEODETIC VERTICAL DATUM 1928, PRE 1978 ADJUSTMENT (CGVD28:PRE78) AND ARE DERIVED FROM THE CITY OF TORONTO BENCHMARK No.12219741482 (CT1482) HAVING A PUBLISHED ELEVATION OF 88.057 METRES.

LEGEND

■	DENOTES SURVEY MONUMENT FOUND
□	DENOTES SURVEY MONUMENT PLANTED
□*	DENOTES SURVEY MONUMENT UNABLE TO BE SET
CC	DENOTES CUT CROSS
IB	DENOTES IRON BAR
SIB	DENOTES STANDARD IRON BAR
PB	DENOTES PLASTIC BAR
P1	DENOTES SRPR BY SCHAEFFER DZALDOV BENNET LTD., OLS DATED FEBRUARY 23, 2015 (JOB No.10-148-05)
P2	DENOTES PLAN 66R-21124
P3	DENOTES TORONTO STANDARD CONDOMINIUM PLAN No.2350
P4	DENOTES PLAN 66R-21996
P5	DENOTES TORONTO STANDARD CONDOMINIUM PLAN No.2119
P6	DENOTES PLAN 66R-21794
P7	DENOTES PLAN 66M-2394
P8	DENOTES PLAN OF SURVEY BY J.D. BARNES LTD, O.L.S. DATED JULY 23, 1990 (FILE No.89-22-534-0-A)
NI	DENOTES NO IDENTIFIER
922	DENOTES DELPH & JENKINS LIMITED, O.L.S.
1306	DENOTES DELPH & JENKINS LIMITED, O.L.S.
DCB	DENOTES DOUBLE CATCHBASIN
CB	DENOTES CATCHBASIN
HJB	DENOTES HYDRO JUNCTION BOX
G METER	DENOTES GAS METER
MH	DENOTES MANHOLE
SAN MH	DENOTES SANITARY MANHOLE
STM MH	DENOTES STORM MANHOLE
BOL	DENOTES BOLLARD
LS	DENOTES LIGHT STANDARD
H	DENOTES FIRE HYDRANT
WV	DENOTES WATER VALVE
⊙	DENOTES 0.1ø DECIDUOUS SAPLING
HW	DENOTES HANDWELL
CLF	DENOTES CHAIN LINK FENCE

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON APRIL 6, 2020.

APRIL 14, 2020
DATE

M.J. FISHER
ONTARIO LAND SURVEYOR

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR

J.D.BARNES LIMITED
SURVEYING MAPPING GIS
LAND INFORMATION SPECIALISTS
140 RENFREW DRIVE, SUITE 100, MARKHAM, ON L3R 6B3
T: (905) 477-3600 F: (905) 477-3882 www.jdbarnes.com

DRAWN BY: TL	CHECKED BY: MJF	REFERENCE NO.: 20-15-017-00
FILE: G:\Surveys\20-15-017\00\Drawing\20-15-017-00.dgn		DATED: MARCH 13, 2020

PLOTTED: 4/20/2020

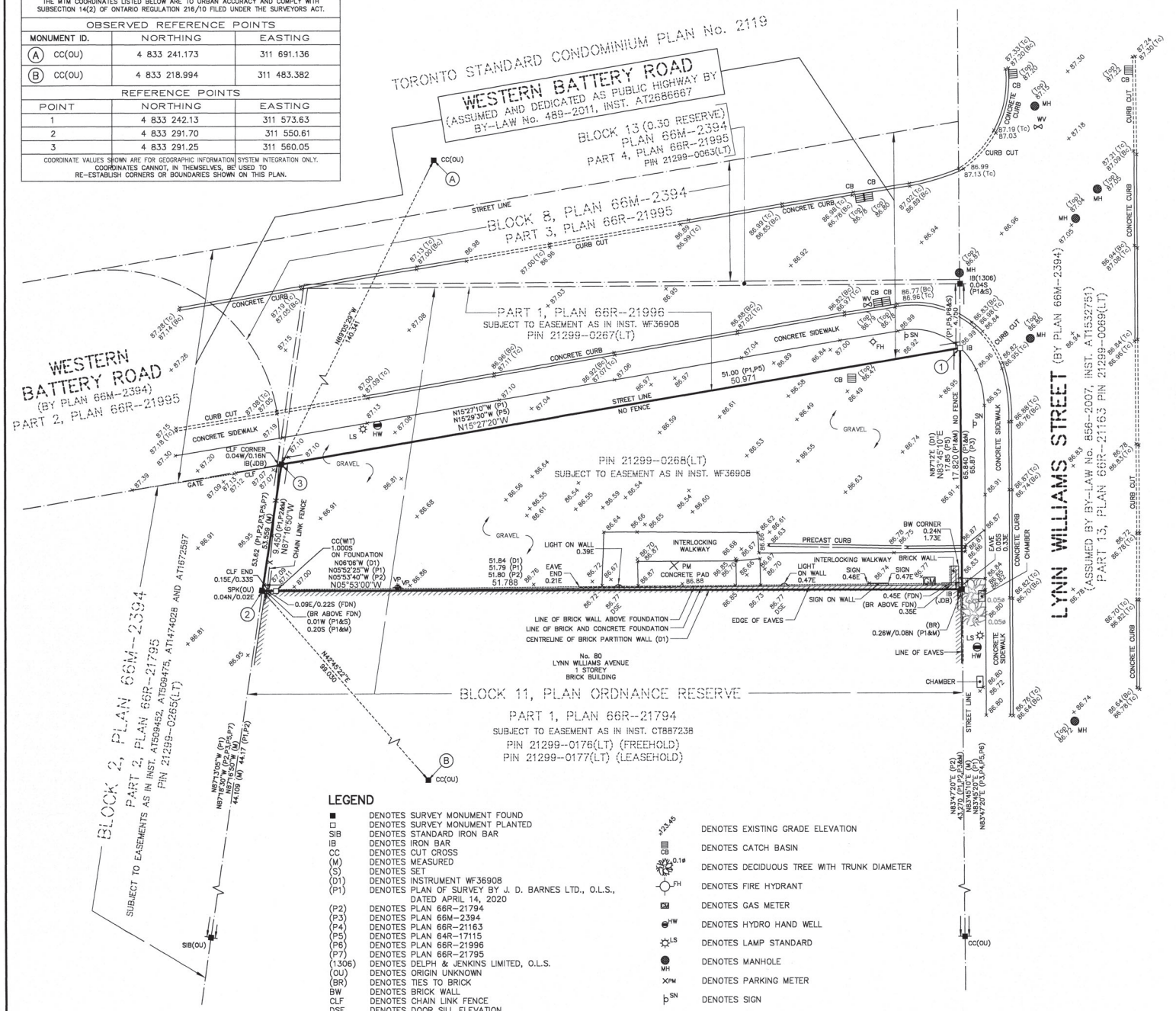
INTEGRATION DATA

3° MTM ZONE 10 COORDINATES
NAD 83 (CSRS)(2010)(CENTRAL MERIDIAN 79°30' WEST LONGITUDE)
THE MTM COORDINATES LISTED BELOW ARE TO URBAN ACCURACY AND COMPLY WITH SUBSECTION 14(2) OF ONTARIO REGULATION 216/10 FILED UNDER THE SURVEYORS ACT.

OBSERVED REFERENCE POINTS		
MONUMENT ID.	NORTHING	EASTING
(A) CC(OU)	4 833 241.173	311 691.136
(B) CC(OU)	4 833 218.994	311 483.382

REFERENCE POINTS		
POINT	NORTHING	EASTING
1	4 833 242.13	311 573.63
2	4 833 291.70	311 550.61
3	4 833 291.25	311 560.05

COORDINATE VALUES SHOWN ARE FOR GEOGRAPHIC INFORMATION SYSTEM INTEGRATION ONLY. COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.



LEGEND

■	DENOTES SURVEY MONUMENT FOUND
□	DENOTES SURVEY MONUMENT PLANTED
SIB	DENOTES STANDARD IRON BAR
IB	DENOTES IRON BAR
CC	DENOTES CUT CROSS
(M)	DENOTES MEASURED
(S)	DENOTES SET
(D1)	DENOTES INSTRUMENT WF36908
(P1)	DENOTES PLAN OF SURVEY BY J. D. BARNES LTD., O.L.S., DATED APRIL 14, 2020
(P2)	DENOTES PLAN 66R-21794
(P3)	DENOTES PLAN 66M-2394
(P4)	DENOTES PLAN 66R-21163
(P5)	DENOTES PLAN 64R-17115
(P6)	DENOTES PLAN 66R-21996
(P7)	DENOTES PLAN 66R-21795
(1306)	DENOTES DELPH & JENKINS LIMITED, O.L.S.
(OU)	DENOTES ORIGIN UNKNOWN
(BR)	DENOTES TIES TO BRICK
BW	DENOTES BRICK WALL
CLF	DENOTES CHAIN LINK FENCE
DSE	DENOTES DOOR SILL ELEVATION
(FDN)	DENOTES TIES TO FOUNDATION
(Bc)	DENOTES BOTTOM OF CURB
(Tc)	DENOTES TOP OF CURB
+123.45	DENOTES EXISTING GRADE ELEVATION
CB	DENOTES CATCH BASIN
0.1ø	DENOTES DECIDUOUS TREE WITH TRUNK DIAMETER
FH	DENOTES FIRE HYDRANT
GM	DENOTES GAS METER
HW	DENOTES HYDRO HAND WELL
LS	DENOTES LAMP STANDARD
MH	DENOTES MANHOLE
PM	DENOTES PARKING METER
SN	DENOTES SIGN
VP	DENOTES PIPE
WV	DENOTES WATER VALVE

PLAN OF SURVEY
SHOWING TOPOGRAPHICAL INFORMATION OF
PART OF BLOCK 11
PLAN ORDNANCE RESERVE
CITY OF TORONTO

SCALE 1:200

5 0 5 10 15 20m

KRCMAR SURVEYORS LTD. 2023

METRIC: DISTANCES AND COORDINATES SHOWN HEREON ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

BEARING

BEARINGS SHOWN HEREON ARE GRID DERIVED FROM GPS OBSERVATIONS OF OBSERVED REFERENCE POINTS 'A' AND 'B', USING THE LEICA SMARTNET RTK NETWORK AND ARE REFERRED TO THE 3° MTM COORDINATE SYSTEM, ZONE 10, CENTRAL MERIDIAN 79°30' WEST LONGITUDE. (3° MODIFIED TRANSVERSE MERCATOR PROJECTION, NAD 83 (CSRS)(2010)).

DISTANCES SHOWN HEREON ARE GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.999899.

ELEVATION

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO CITY OF TORONTO BENCHMARK No. CT1482, HAVING AN ELEVATION OF 88.057 METRES (CGVD28:PRE78).

SURVEY REPORT

1. THE RE-ESTABLISHMENT OF THE SUBJECT PROPERTY BOUNDARIES IS BASED ON INFORMATION CONTAINED IN THE RELEVANT TITLE DOCUMENTS, REGISTERED PLANS AND ON THE EVIDENCE OF PRIOR SURVEYS FOUND DURING THE COURSE OF PREPARING THE SUBJECT SURVEY.
2. THE TYPE AND LOCATION OF THE EXISTING BUILDINGS AND OTHER IMPROVEMENTS, FENCES ETC., ON OR NEAR THE SUBJECT PROPERTY ARE AS SHOWN ON THE SURVEY PLAN.
3. COMPLIANCE WITH MUNICIPAL ZONING REQUIREMENTS IS NOT CERTIFIED BY THIS REPORT.
4. SUBJECT LAND COMPRISES PART OF BLOCK 11, PLAN ORDNANCE RESERVE BEING ALL OF PIN 21299-0268(LT).
5. SUBJECT TO EASEMENT AS IN INST. WF36908.

TOTAL SITE AREA = 690.2 m²

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 11th DAY OF APRIL, 2023

DATE APRIL 12 , 2023

S.N. RAMSAMOOJ
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER V-47495

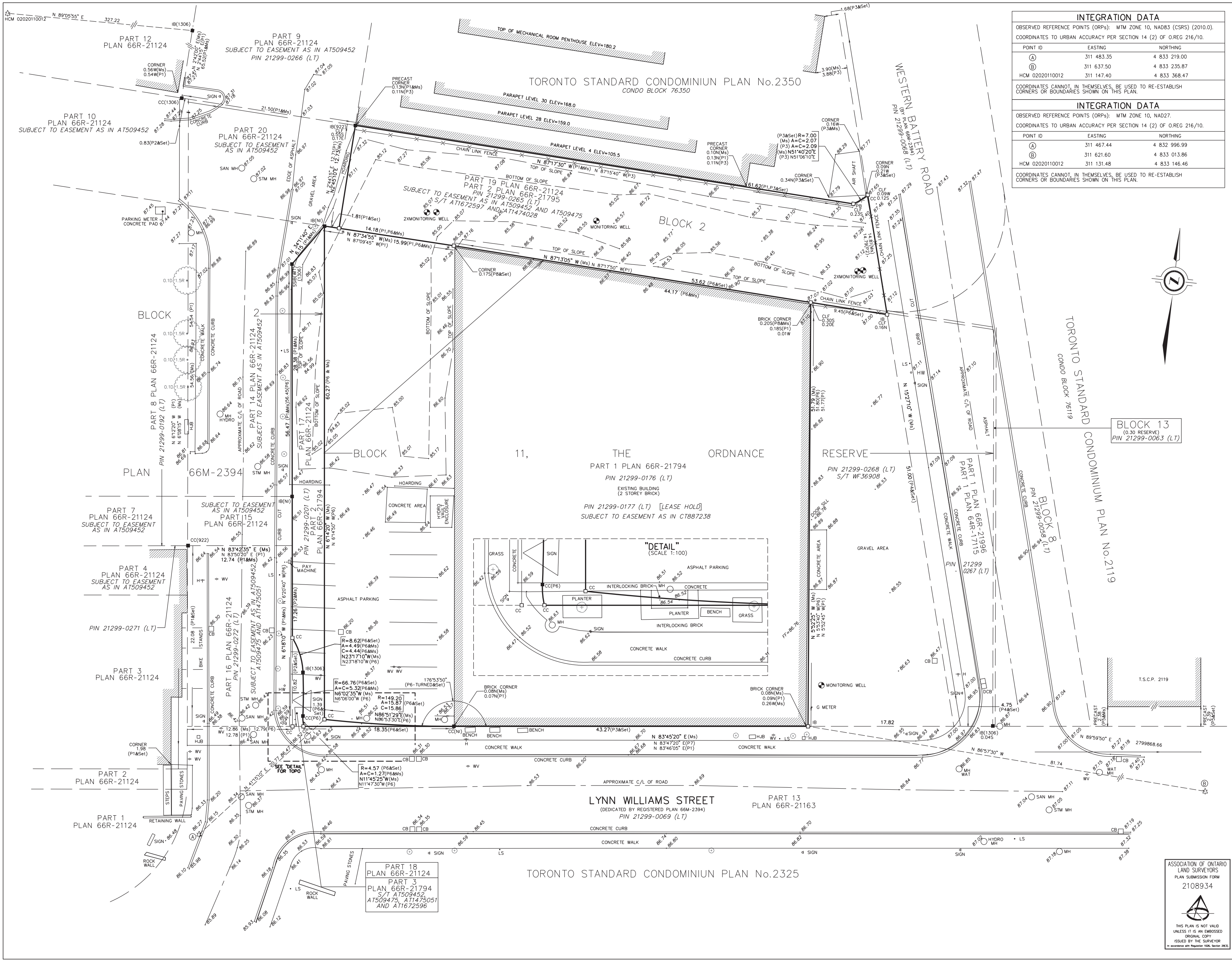
MUNICIPAL ADDRESS: No. 70 LYNN WILLIAMS STREET, TORONTO.

FIELD:	D.L./K.K.	DRAWN:	C.L.	CHECKED:	S.N.R.	JOB NO:	21-136
DWG NAME:	21-136BT01	PLOT INFO:	09:51 12/Apr/2023			WORK ORDER NO:	37940

1137 Centre Street Thornhill ON L4J 3M6 905.738.0053 F 905.738.9221 www.krcmar.ca

PLAN AVAILABLE AT www.ProtectYourBoundaries.ca

KRCMAR



PLAN OF SURVEY OF
PART OF BLOCK 11 THE ORDNANCE RESERVE AND PART OF BLOCK 2 PLAN 66M-2394 CITY OF TORONTO

SCALE 1 : 200

5 0 5 10 metres

J.D. BARNES LIMITED
ONTARIO LAND SURVEYORS

INTEGRATION DATA

OBSERVED REFERENCE POINTS (ORPs): MTM ZONE 10, NAD83 (CSRS) (2010.0).

COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.

POINT ID	EASTING	NORTHING
(A)	311 483.35	4 833 219.00
(B)	311 637.50	4 833 235.87
HCM 02020110012	311 147.40	4 833 368.47

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NOTES

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BENCHMARK

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LEGEND

■	DENOTES SURVEY MONUMENT FOUND
□	DENOTES SURVEY MONUMENT PLANTED
□*	DENOTES SURVEY MONUMENT UNABLE TO BE SET
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IB	DENOTES IRON BAR
SIB	DENOTES STANDARD IRON BAR
PB	DENOTES PLASTIC BAR
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P5	DENOTES TORONTO STANDARD CONDOMINIUM PLAN No.2119
P6	DENOTES PLAN 66R-21794
P7	DENOTES PLAN 66M-2394
P8	DENOTES PLAN OF SURVEY BY J.D. BARNES LTD, O.L.S. DATED JULY 23, 1990 (FILE No.89-22-534-0-A)
NI	DENOTES NO IDENTIFIER
922	DENOTES DELPH & JENKINS LIMITED, O.L.S.
1306	DENOTES DELPH & JENKINS LIMITED, O.L.S.
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CB	DENOTES CATCHBASIN
HJB	DENOTES HYDRO JUNCTION BOX
G METER	DENOTES GAS METER
MH	DENOTES MANHOLE
SAN MH	DENOTES SANITARY MANHOLE
STM MH	DENOTES STORM MANHOLE
BOL	DENOTES BOLLARD
LS	DENOTES LIGHT STANDARD
H	DENOTES FIRE HYDRANT
WV	DENOTES WATER VALVE
⊕	DENOTES 0.1ø DECIDUOUS SAPLING
HW	DENOTES HANDWELL
CLF	DENOTES CHAIN LINK FENCE

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON APRIL 6, 2020.

APRIL 14, 2020
DATE

M.J. FISHER
ONTARIO LAND SURVEYOR

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2108934
THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR
In accordance with Regulation 1026, Section 29(3).

J.D.BARNES LIMITED
SURVEYING MAPPING GIS
LAND INFORMATION SPECIALISTS
140 RENFREW DRIVE, SUITE 100, MARKHAM, ON L3R 6B3
T: (905) 477-3600 F: (905) 477-3882 www.jdbarnes.com

DRAWN BY:	CHECKED BY:	REFERENCE NO.:
TL	MJF	20-15-017-00
FILE: G:\Surveys\20-15-017\00\Drawing\20-15-017-00.dgn		DATED: MARCH 13, 2020

PLOTTED: 4/20/2020

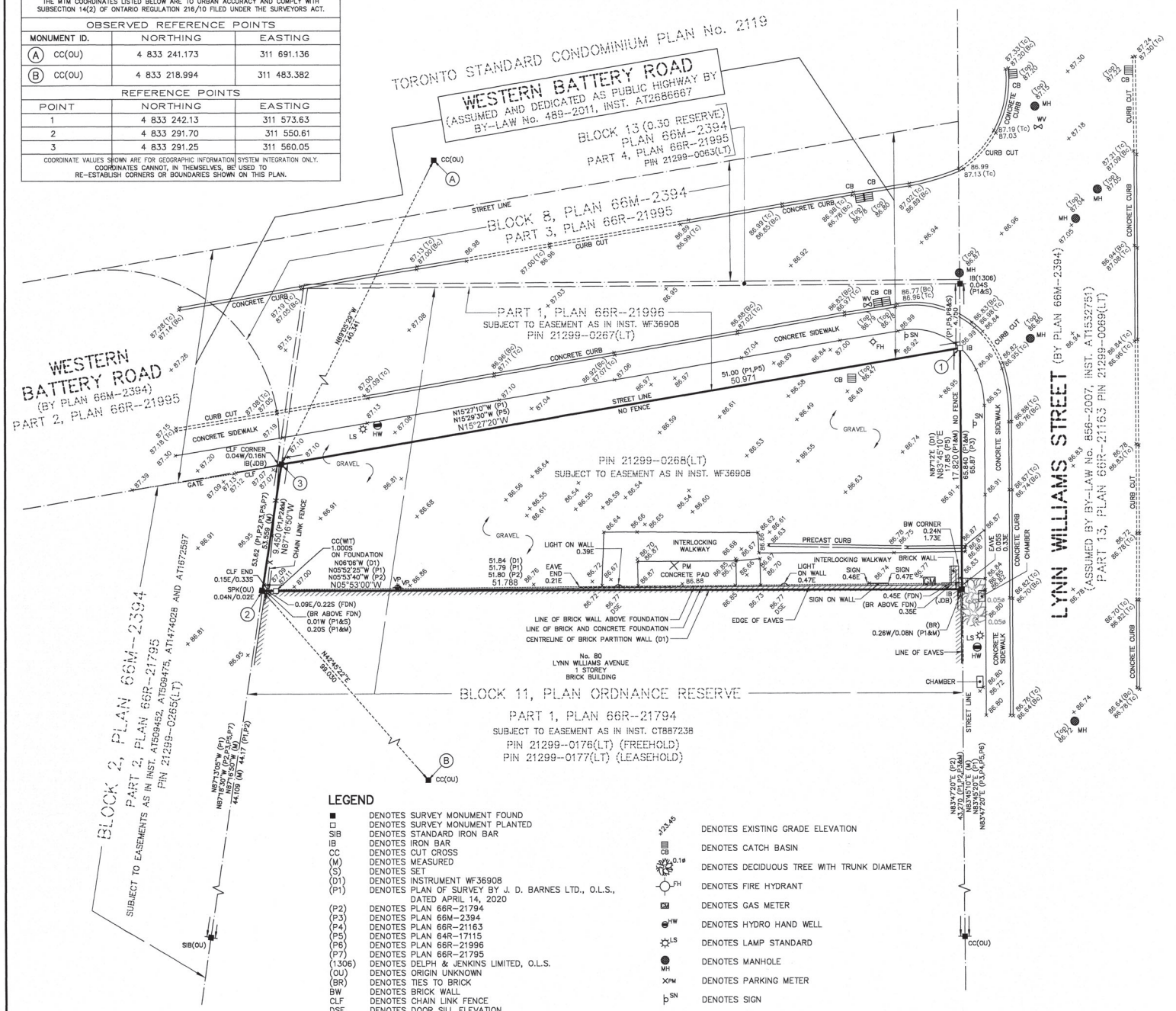
INTEGRATION DATA

3° MTM ZONE 10 COORDINATES
NAD 83 (CSRS)(2010)(CENTRAL MERIDIAN 79°30' WEST LONGITUDE)
THE MTM COORDINATES LISTED BELOW ARE TO URBAN ACCURACY AND COMPLY WITH SUBSECTION 14(2) OF ONTARIO REGULATION 216/10 FILED UNDER THE SURVEYORS ACT.

OBSERVED REFERENCE POINTS		
MONUMENT ID.	NORTHING	EASTING
(A) CC(OU)	4 833 241.173	311 691.136
(B) CC(OU)	4 833 218.994	311 483.382

REFERENCE POINTS		
POINT	NORTHING	EASTING
1	4 833 242.13	311 573.63
2	4 833 291.70	311 550.61
3	4 833 291.25	311 560.05

COORDINATE VALUES SHOWN ARE FOR GEOGRAPHIC INFORMATION SYSTEM INTEGRATION ONLY. COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.



LEGEND

■	DENOTES SURVEY MONUMENT FOUND
□	DENOTES SURVEY MONUMENT PLANTED
SIB	DENOTES STANDARD IRON BAR
IB	DENOTES IRON BAR
CC	DENOTES CUT CROSS
(M)	DENOTES MEASURED
(S)	DENOTES SET
(D1)	DENOTES INSTRUMENT WF36908
(P1)	DENOTES PLAN OF SURVEY BY J. D. BARNES LTD., O.L.S., DATED APRIL 14, 2020
(P2)	DENOTES PLAN 66R-21794
(P3)	DENOTES PLAN 66M-2394
(P4)	DENOTES PLAN 66R-21163
(P5)	DENOTES PLAN 64R-17115
(P6)	DENOTES PLAN 66R-21996
(P7)	DENOTES PLAN 66R-21795
(1306)	DENOTES DELPH & JENKINS LIMITED, O.L.S.
(OU)	DENOTES ORIGIN UNKNOWN
(BR)	DENOTES TIES TO BRICK
BW	DENOTES BRICK WALL
CLF	DENOTES CHAIN LINK FENCE
DSE	DENOTES DOOR SILL ELEVATION
(FDN)	DENOTES TIES TO FOUNDATION
(Bc)	DENOTES BOTTOM OF CURB
(Tc)	DENOTES TOP OF CURB
+123.45	DENOTES EXISTING GRADE ELEVATION
CB	DENOTES CATCH BASIN
0.1ø	DENOTES DECIDUOUS TREE WITH TRUNK DIAMETER
FH	DENOTES FIRE HYDRANT
GM	DENOTES GAS METER
HW	DENOTES HYDRO HAND WELL
LS	DENOTES LAMP STANDARD
MH	DENOTES MANHOLE
PM	DENOTES PARKING METER
SN	DENOTES SIGN
VP	DENOTES PIPE
WV	DENOTES WATER VALVE

PLAN OF SURVEY
SHOWING TOPOGRAPHICAL INFORMATION OF
PART OF BLOCK 11
PLAN ORDNANCE RESERVE
CITY OF TORONTO

SCALE 1:200

5 0 5 10 15 20m

KRCMAR SURVEYORS LTD. 2023

METRIC: DISTANCES AND COORDINATES SHOWN HEREON ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

BEARING

BEARINGS SHOWN HEREON ARE GRID DERIVED FROM GPS OBSERVATIONS OF OBSERVED REFERENCE POINTS 'A' AND 'B', USING THE LEICA SMARTNET RTK NETWORK AND ARE REFERRED TO THE 3° MTM COORDINATE SYSTEM, ZONE 10, CENTRAL MERIDIAN 79°30' WEST LONGITUDE. (3° MODIFIED TRANSVERSE MERCATOR PROJECTION, NAD 83 (CSRS)(2010)).

DISTANCES SHOWN HEREON ARE GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.999899.

ELEVATION

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO CITY OF TORONTO BENCHMARK No. CT1482, HAVING AN ELEVATION OF 88.057 METRES (CGVD28:PRE78).

SURVEY REPORT

1. THE RE-ESTABLISHMENT OF THE SUBJECT PROPERTY BOUNDARIES IS BASED ON INFORMATION CONTAINED IN THE RELEVANT TITLE DOCUMENTS, REGISTERED PLANS AND ON THE EVIDENCE OF PRIOR SURVEYS FOUND DURING THE COURSE OF PREPARING THE SUBJECT SURVEY.
2. THE TYPE AND LOCATION OF THE EXISTING BUILDINGS AND OTHER IMPROVEMENTS, FENCES ETC., ON OR NEAR THE SUBJECT PROPERTY ARE AS SHOWN ON THE SURVEY PLAN.
3. COMPLIANCE WITH MUNICIPAL ZONING REQUIREMENTS IS NOT CERTIFIED BY THIS REPORT.
4. SUBJECT LAND COMPRISES PART OF BLOCK 11, PLAN ORDNANCE RESERVE BEING ALL OF PIN 21299-0268(LT).
5. SUBJECT TO EASEMENT AS IN INST. WF36908.

TOTAL SITE AREA = 690.2 m²

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 11th DAY OF APRIL, 2023

DATE APRIL 12 , 2023

S.N. RAMSAMOOJ
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER V-47495

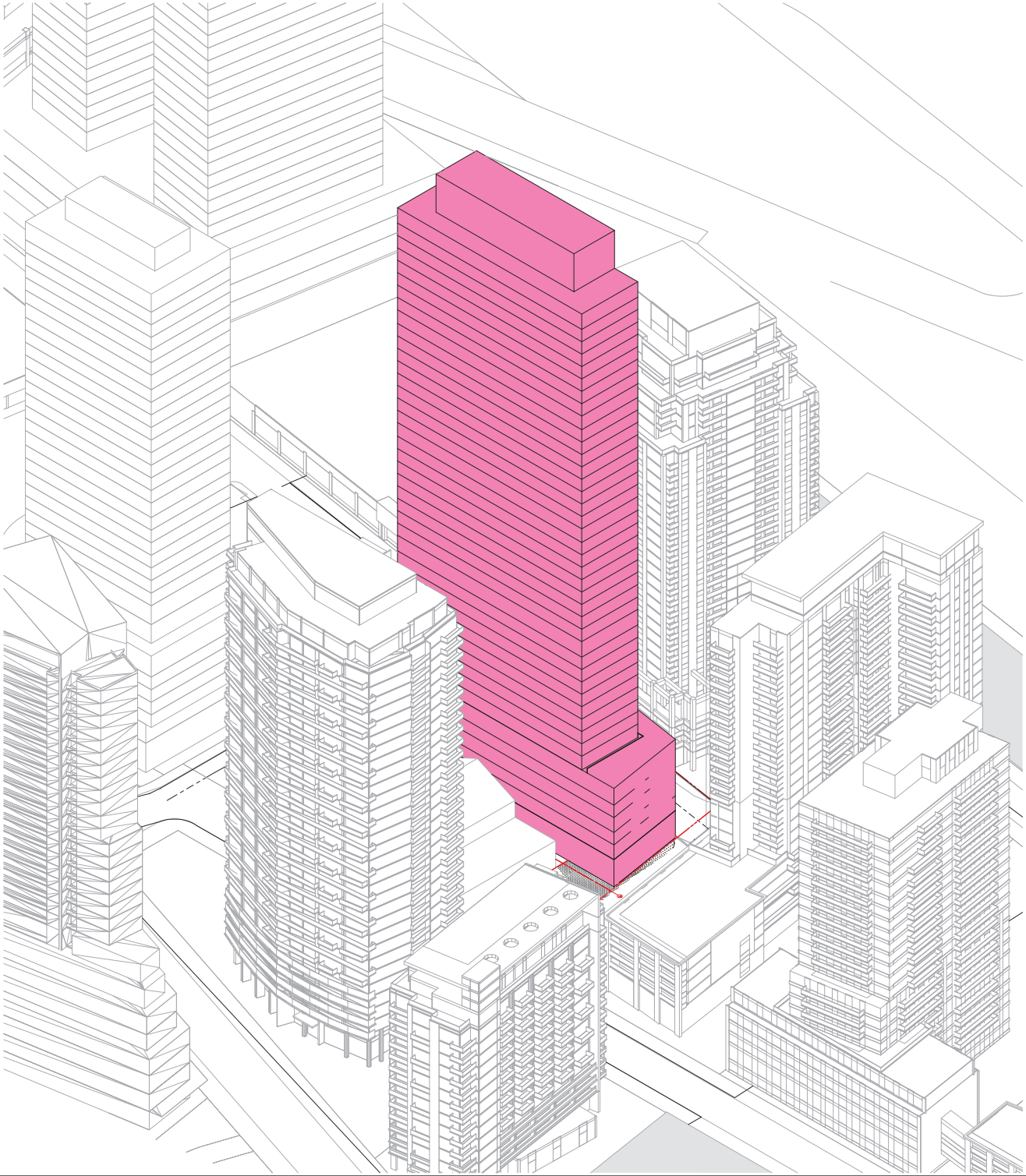
MUNICIPAL ADDRESS: No. 70 LYNN WILLIAMS STREET, TORONTO.

FIELD:	D.L./K.K.	DRAWN:	C.L.	CHECKED:	S.N.R.	JOB NO:	21-136
DWG NAME:	21-136BT01	PLOT INFO:	09:51 12/Apr/2023			WORK ORDER NO:	37940

1137 Centre Street Thornhill ON L4J 3M6 905.738.0053 F 905.738.9221 www.krcmar.ca

PLAN AVAILABLE AT www.ProtectYourBoundaries.ca

KRCMAR



GENERAL NOTES:

1. Drawings are not to be scaled. Contractor will verify all existing conditions and dimensions required to perform the Work and will report any discrepancies with the Contract Documents to the Architect before commencing work.
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No.	Date	Issued
1	2023 05 10	Issued For Concept Approval

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gh3

gh3®
55 OSSINGTON AVE. SUITE 100
Toronto, ON, Canada M6J 2Y9
416 915 1791

86 LYNN WILLIAMS STREET

TORONTO

Project North | True North

SCALE
PROJECT NO. 201803
ISSUE DATE May 10, 2023

COVER SHEET

A000

1.0 SUMMARY

SITE AREA - (BLOCK 11 - PART 2) 1,669.9 m² (+691.0 m² EAST EXTENSION)
(BLOCK 2 - PART 3) 120.7 m²
TOTAL 2481.6 m²
PARK DEDICATION 264.0 m² (5m SETBACK, 10.6%>10%) 334.0 m² (3m SETBACK, 13.5%>10%)

TOTAL GFA - 33,540m²
FSI - 13.3
NEW RESIDENTIAL UNITS - 588

BUILDING HEIGHTS
Tower: 132 m (43 STORIES)
Mechanical/Amenity Penthouse: 9 m
TOTAL: 141 m

2.0 UNIT MIX

2.1 RESIDENTIAL UNIT MIX

Unit Type	No. Units	Minimum Size (SF)	Maximum Size (SF)	% of Units
1B	302	400	538	**51%**
1B (BF)	55	400	464	**9%**
1B+D	25	477	737	**4%**
1B+D (BF)	5	718	718	**1%**
2B	74	569	624	**13%**
2B (BF)	12	607	932	**2%**
3B	49	661	1039	**8%**
3B (BF)	10	1036	1217	**2%**
STUDIO	56	371	436	**10%**
	588	(82 BARRIER FREE UNITS)		

2.2 UNITS BY FLOOR

Unit Type	No. Units	% of Units
Level 2		
1B	2	0%
1B+D	3	1%
1B+D (BF)	1	0%
2B (BF)	0	0%
3B	3	1%
3B (BF)	2	0%
STUDIO	4	1%
Level 2: 16	15	
Level 3-4		
1B	4	1%
1B+D	6	1%
1B+D (BF)	2	0%
2B (BF)	2	0%
3B	8	1%
3B (BF)	4	1%
STUDIO	8	1%
Level 3: 17	34	

2.2 UNITS BY FLOOR

Unit Type	No. Units	% of Units
Level 5-6		
1B	4	1%
1B+D	6	1%
1B+D (BF)	2	0%
2B	2	0%
3B	12	2%
3B (BF)	4	1%
STUDIO	8	1%
Level 5: 19	38	
Level 7		
1B	4	1%
1B (BF)	2	0%
1B+D	1	0%
2B	2	0%
2B (BF)	1	0%
STUDIO	1	0%
Level 7: 11	11	

2.2 UNITS BY FLOOR

Unit Type	No. Units	% of Units
Level 8-16		
1B	54	9%
1B (BF)	27	5%
1B+D	9	2%
2B	18	3%
2B (BF)	9	2%
STUDIO	9	2%
Level 8: 14	126	
Level 17-42		
1B	234	40%
1B (BF)	26	4%
2B	52	9%
3B	26	4%
STUDIO	26	4%
Level 23: 14	364	
	588	

2.3 BF UNITS - BREAKDOWN

Unit Type	No. Units
Level 2	
1B+D (BF)	1
2B (BF)	0
3B (BF)	2
Level 2: 4	**3**
Level 3-4	
1B+D (BF)	2
2B (BF)	2
3B (BF)	4
Level 3: 4	**8**

2.3 BF UNITS - BREAKDOWN

Unit Type	No. Units
Level 5-6	
1B+D (BF)	2
3B (BF)	4
Level 5: 3	**6**
Level 7	
1B (BF)	2
2B (BF)	1
Level 7: 3	**3**

2.3 BF UNITS - BREAKDOWN

Unit Type	No. Units
Level 8-16	
1B (BF)	27
2B (BF)	9
Level 8: 4	**36**
Level 17-42	
1B (BF)	26
Level 23: 1	**26**
	82

3.0 FLOOR AREA

*GFA calculated per Area Plans, A1001 - A1002

3.1 FLOOR AREA - TOTALS

Total GCA (m²)	GFA Deductions (m²)	Total GFA (m²)	Indoor Amenity (m²)	Outdoor Amenity (m²)
44,659	**10,915**	**33,555**	**1,171**	**1,208**

2.2 FLOOR AREA

Level	GCA/Level (m²)	Total GCA (m²)	GFA Deductions (m²)	Total GFA (m²)	Residential GFA (m²)	Retail GFA (m²)	Leasable (m²)	Indoor Amenity (m²)	Outdoor Amenity (m²)
BELOW-GRADE									
P2	2,731	2,731	2,708	22	22	0	0	0	0
P1	2,691	2,691	2,670	21	21	0	0	0	0
	5,422	**5,422**	**5,378**	**43**	**43**	**0**	**0**	**0**	**0**
ABOVE-GRADE									
Level 1	1,594	1,594	640	953	169	785	785	0	0
Level 2	1,758	1,691	432	1,214	1,214	0	1,051	282	0
Level 3-4	1,712	3,425	718	2,707	2,707	0	2,275	564	0
Level 5-6	1,740	3,480	154	3,326	3,326	0	2,567	0	0
Level 7	924	1,069	208	717	717	0	498	127	851
Level 8-16	780	7,020	683	6,337	6,337	0	5,647	0	0
Level 17-42	780	20,280	2,038	18,243	18,243	0	16,312	0	0
Level 43	423	423	409	14	14	0	0	198	357
MPH	256	256	256	0	0	0	0	0	0
	9,966	**39,237**	**5,536**	**33,512**	**32,727**	**785**	**29,134**	**1,171**	**1,208**

4.0 AMENITY

4.1 AMENITY

Total Units	Amenity			
	Outdoor	Outdoor / Unit	Indoor	Indoor / Unit
588	1208.24 m²	2m²/Unit	1171.06 m²	2m²/Unit

5.0 PARKING

5.1 CAR PARKING

Level	Residential Car Parking			Visitor Car Parking			Retail Car Parking			Car Share Parking	Total Car Parking
	Regular	BF	Total	Regular	BF	Total	Regular	BF	Total		
P1	0	0	0	29	1	30	10	1	11	1	**42**
P2	66	2	68	0	0	0	0	0	0	0	**68**
TOTAL	**66**	**2**	**68**	**29**	**1**	**30**	**10**	**1**	**11**	**1**	**110**

5.2 BICYCLE PARKING

Level	Bicycle Parking		Total Bicycle Parking
	Long-Term	Short-Term	
P1	634	0	**634**
Level 1	0	70	**70**
TOTAL	**634**	**70**	**704**

6.0 STORAGE

6.1 LOCKERS

LEVEL 2	28
LEVEL 3	28
LEVEL 4	28
LEVEL 5	80
LEVEL 6	80
P2	29
	273

7.0 LOADING

7.1 LOADING

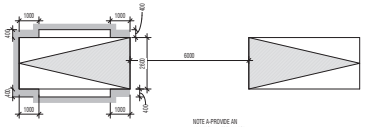
Level	Count	Type
Level 1	1	TYPE G LOADING
Level 1	1	TYPE B LOADING

8.0 WASTE

8.1 WASTE STORAGE AREA

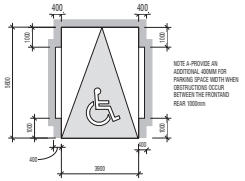
Level	Area Type	Area
Level 1	WASTE	96.63 m²
		96.63 m²

TYPICAL PARKING SPOT



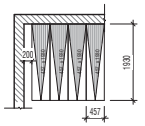
NOTE A-PROVIDE AN ADDITIONAL 400MM FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONTAND REAR 1000mm

TYPICAL ACCESSIBLE PARKING SPOT

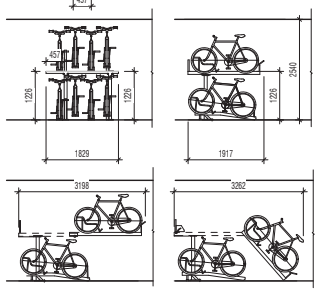


NOTE A-PROVIDE AN ADDITIONAL 400MM FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONTAND REAR 1000mm

LONG-TERM BICYCLE PARKING: TYPICAL BICYCLE LOCKER

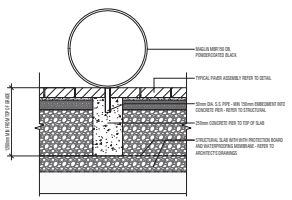


ALL BICYCLE PARKING SPOTS INSIDE THE BUILDINGS ARE STACKABLE. BICYCLE LOCKER LAYOUTS ARE DESIGNED TO COMPLY WITH CITY OF TORONTO GUIDELINES FOR THE DESIGN AND MANAGEMENT OF BICYCLE PARKING FACILITIES



SHORT-TERM BICYCLE PARKING: TYPICAL BICYCLE RING AT GRADE

BICYCLE PARKING LAYOUTS ARE DESIGNED TO COMPLY WITH CITY OF TORONTO GUIDELINES FOR THE DESIGN AND MANAGEMENT OF BICYCLE PARKING FACILITIES



Item	**Ontario Building Code Date Matrix Parts 3 or 9**						**Building Code Reference** References are to Division B unless noted [A] for Division A or [C] for Division C.	
1	Project Description:	☒ New	☐ Addition	☐ Alteration	☐ Change of Use	☐ Part 11 11.1 to 11.4	☒ Part 3 1.1.2.[A]	☒ Part 9 1.1.2.[A] & 9.10.1.3
2	Major Occupancy(s) Residential & Mechantile						3.1.2.1.(1)	9.10.2.
3	Building Area(m²)	Existing _____	New 33,540 m²	Total 33,540 m²			1.4.1.2.[A]	1.4.1.2.[A]
4	Gross Area(m²)	Existing _____	New 44,825 m²	Total 44,825 m²			1.4.1.2.[A]	1.4.1.2.[A]
5	Number of Storeys	Above grade 43	Below grade 2				1.4.1.2.[A]&3.2.1.1	1.4.1.2.[A]& 9.10.4.
6	Number of Streets/Fire Fighter Access 2						3.2.2.10.& 3.2.5.	9.10.20.
7	Building Classification Group C & E						3.2.2.20.-.83	9.10.2.
8	Sprinkler System Proposed	☒ entire building ☐ selected compartments ☐ selected floor areas ☐ basement ☐ in lieu of roof rating ☐ not required					3.2.2.20.-.83 3.2.1.5. 3.2.2.17. INDEX	9.10.8.2. INDEX
9	Standpipe required	☒ Yes ☐ No					3.2.9.	N/A
10	Fire Alarm required	☒ Yes ☐ No					3.2.4.	9.10.18.
11	Water Service/Supply is Adequate	☒ Yes ☐ No					3.2.5.7.	N/A
12	Hight Building	☒ Yes ☐ No					3.2.6.	N/A
13	Construction Restrictions Actual Construction	☐ Combustible permitted ☐ Combustible	☒ Non-Combustible required ☒ Non-Combustible	☐ Both ☐ Both			3.2.2.20.-.83	9.10.6.
14	Mezzanine(s) Area m² N/A						3.2.1.1.(3)-(8)	9.10.4.1.
15	Occupant load based on Basement: Occupancy PARKING GARAGE Load _____ persons 1st Floor: Occupancy RESIDENTIAL/MERCANTILE Load _____ persons 2nd Floor: Occupancy RESIDENTIAL Load _____ persons 2nd Floor: Occupancy RESIDENTIAL Load _____ persons (Additional floor areas continued on last page)	☐ m²/person	☒ design of building				3.1.17.	9.9.1.3.
16	Barrier-free Design	☒ Yes ☐ No (Explain)					3.8.	9.5.2.
17	Hazardous Substances	☐ Yes ☒ No					3.3.1.2 & 3.3.1.19.	9.10.1.3.(4)
18	Required Fire Resistance Rating (FRR)	Horizontal Assemblies FRR(Hours)	Listed Design No. or Description (SG-2)				3.2.2.20.-.83 & 3.2.1.4.	9.10.8. 9.10.9.
		Floors 2 Hours						
		Roof -- Hours						
		Mezzanine 1 Hours						
		FRR of Supporting Membertn	Listed Design No. or Description (SG-2)					
		Floors 2 Hours						
		Roof 2 Hours						
		Mezzanine 2 Hours						
19	Spatial Separation -- Construction of Exterior Walls						3.2.3.	9.10.14.

Wall	Area of EBF (m²)	L.D. (m)	L/H or H/L	Permitted Max. % of Openings	Proposed % of Openings	FRR. (Hours)	Listed Design or Description	Comb Const	Comb. Constr. None: Cladding	Non-comb Constr
North										
South										
East										
West										

20	Plumbing Fixture Requirements						**Building Code Reference** ☐ Part 3	☐ Part 9
	Male/Femail Count @ ___% / ____%, except as noted otherwise	Occupant Load	BC Table Number	Fixtures Required	Fixtures Provided			
	Basement: Occupancy _____							
	Occupancy _____							
	1st Floor: Occupancy _____							
	Occupancy _____							
	2nd Floor: Occupancy _____							
	Occupancy _____							
	3rd Floor: Occupancy _____							
	Occupancy _____							
	(Adjust as Required for Additional Floors or Occupancies)							
21	Other (describe) _____							

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1	2023 05 10	Issued For Concept Approval
No.	Date	Issue

Name of Practice:
gh3* Architects
55 Ossington Ave. Toronto, ON
M6J 2Y9

Name of Project:
86 LYNN WILLIAMS

Location:
86 LYNN WILLIAMS ST, Toronto, ON
M6K 3N6

gh3
gh3*
55 OSSINGTON AVE, SUITE 100
Toronto, ON, Canada M6J 2Y9
416 915 1791

86 LYNN WILLIAMS STREET

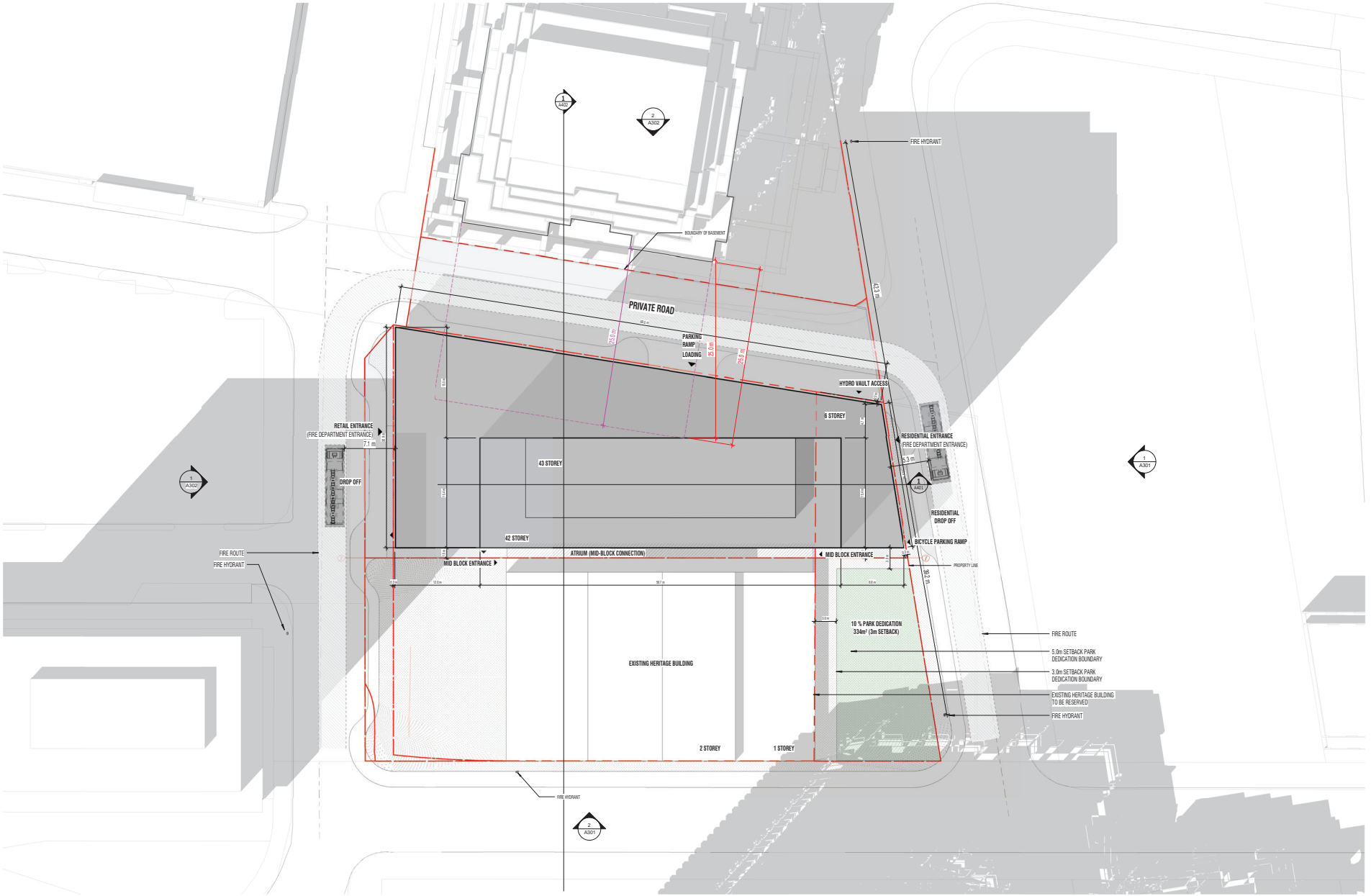
TORONTO

Project North True North

SCALE As indicated
PROJECT NO. 201803
ISSUE DATE May 10, 2023

PROJECT STATISTICS

A001



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SHIPLAKE
COLLECDEV

gh3
gh3*
55 OSSINGTON AVE, SUITE 100
Toronto, ON, Canada M6J 2Y9
416 915 1791

86 LYNN WILLIAMS STREET

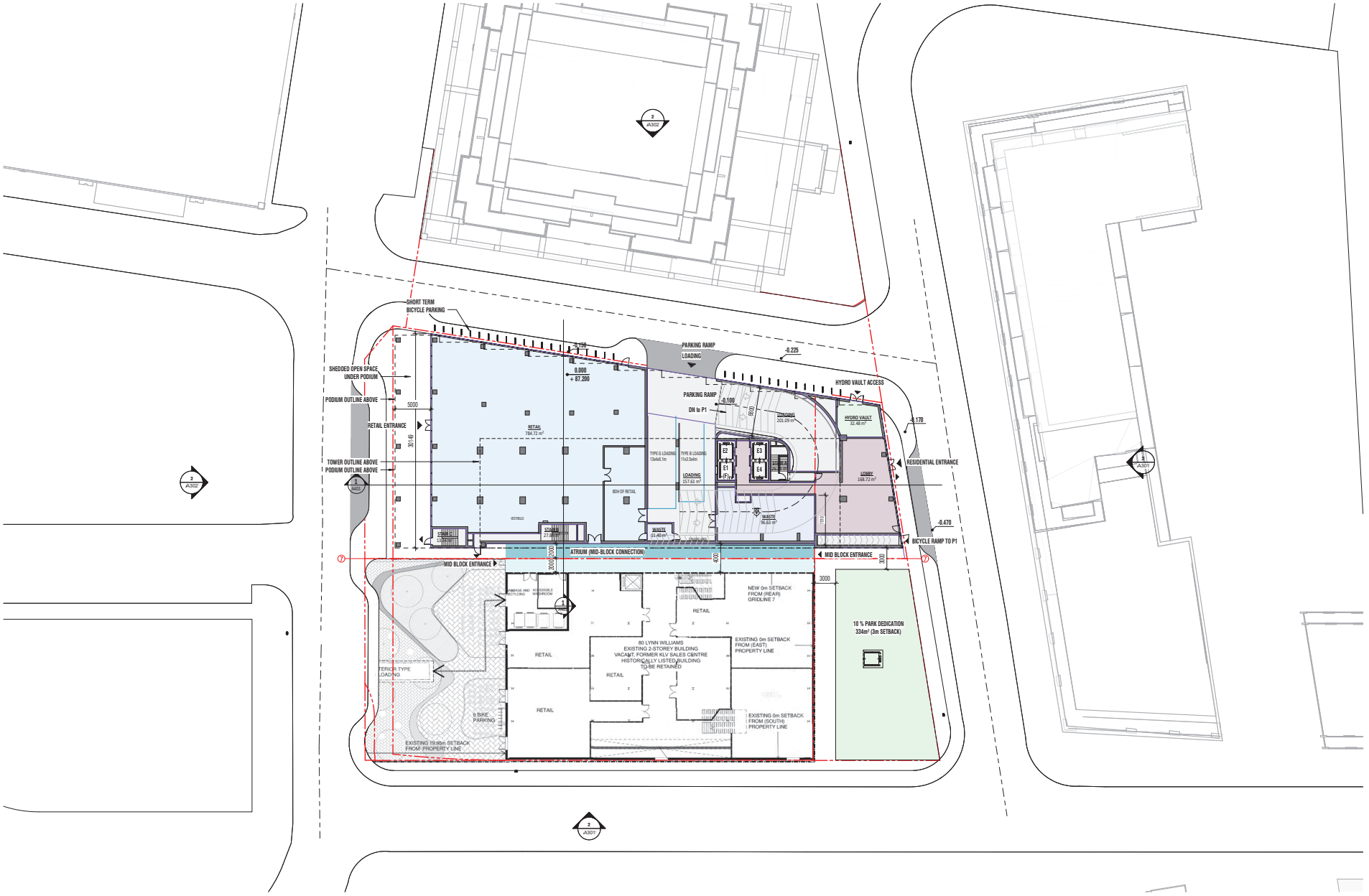
TORONTO

Project North True North

SCALE 1 : 200
PROJECT NO. 201803
ISSUE DATE May 10, 2023

ROOF SITE PLAN

A103



5.2 BICYCLE PARKING			
Level	Bicycle Parking		Total Bicycle Parking
	Long-Term	Short-Term	
P1	634	0	**634**
Level 1	0	70	**70**
TOTAL	**634**	**70**	**704**

GENERAL NOTES:

1. Drawings are not to be scaled. Contractor will verify all existing conditions and dimensions required to perform the Work and will report any discrepancies with the Contract Documents to the Architect before commencing work.
2. The Architectural Drawings are to be read in conjunction with all other Contract Documents including the Project Manuals and the Structural, Mechanical and Electrical Drawings. In cases of difference between the 'Consultants' documents with respect to the quantity, sizes or scope of work, the greater shall apply.
3. Positions of exposed or finished Mechanical or Electrical devices, fittings and fixtures are indicated on the Architectural Drawings. Locations shown on the Architectural Drawings shall govern over Mechanical and Electrical Drawings. Mechanical and Electrical items not clearly located will be located as directed by the Architect.
4. Dimensions indicated are taken between the faces of finished surfaces unless otherwise noted.
5. The architect has not been retained for supervision of construction and assumes no responsibility for means, methods and techniques of construction.
6. These documents are not to be used for construction unless specifically noted for such purpose.

No.	Date	Issue
1	2023 05 10	Issued For Concept Approval

SHIPLAKE
COLLECDEV

gh3
gh3®
55 OSSINGTON AVE, SUITE 100
Toronto, ON, Canada M6J 2Y9
416 915 1791

86 LYNN WILLIAMS STREET

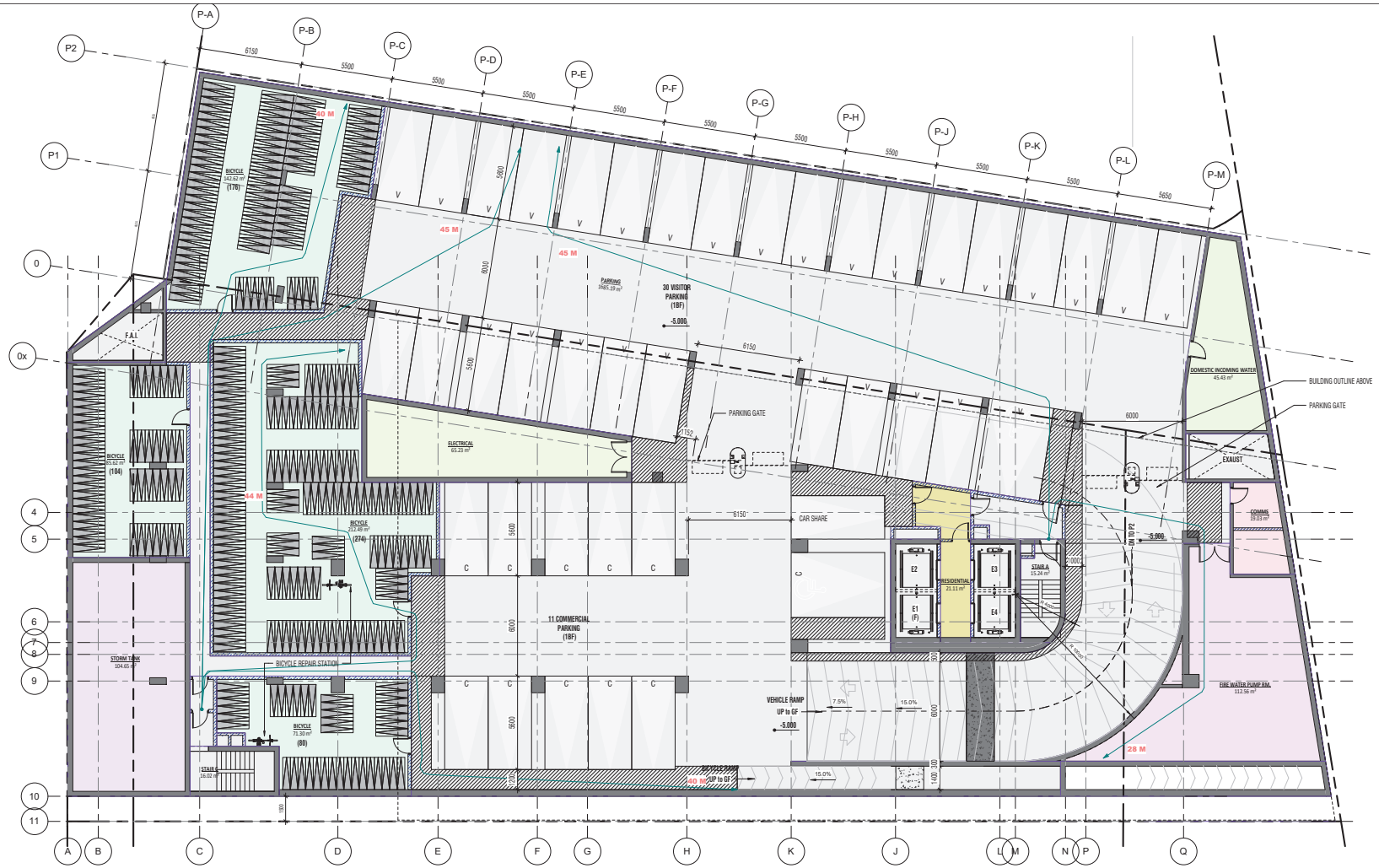
TORONTO

Project North
True North

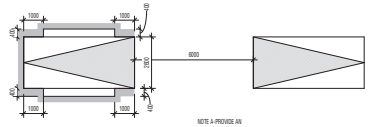
SCALE 1 : 200
PROJECT NO. 201803
ISSUE DATE May 10, 2023

GROUND FLOOR SITE PLAN

A104

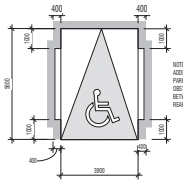


TYPICAL PARKING SPOT



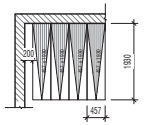
NOTE A-PROVIDE AN ADDITIONAL 400MM FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT/AND REAR 1000mm

TYPICAL ACCESSIBLE PARKING SPOT

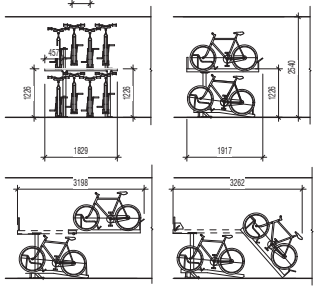


NOTE A-PROVIDE AN ADDITIONAL 400MM FOR PARKING SPACE WIDTH WHEN OBSTRUCTIONS OCCUR BETWEEN THE FRONT/AND REAR 1000mm

LONG-TERM BICYCLE PARKING: TYPICAL BICYCLE LOCKER

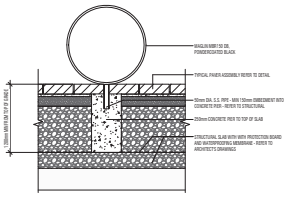


ALL BICYCLE PARKING SPOTS INSIDE THE BUILDINGS ARE STACKABLE. BICYCLE LOCKER LAYOUTS ARE DESIGNED TO COMPLY WITH CITY OF TORONTO GUIDELINES FOR THE DESIGN AND MANAGEMENT OF BICYCLE PARKING FACILITIES



SHORT-TERM BICYCLE PARKING: TYPICAL BICYCLE RING AT GRADE

BICYCLE PARKING LAYOUTS ARE DESIGNED TO COMPLY WITH CITY OF TORONTO GUIDELINES FOR THE DESIGN AND MANAGEMENT OF BICYCLE PARKING FACILITIES



5.1 CAR PARKING

Level	Residential Car Parking			Visitor Car Parking			Retail Car Parking			Car Share Parking	Total Car Parking
	Regular	BF	Total	Regular	BF	Total	Regular	BF	Total		
P1	0	0	0	29	1	30	10	1	11	1	42
P2	66	2	68	0	0	0	0	0	0	0	68
TOTAL	66	2	68	29	1	30	10	1	11	1	110

5.2 BICYCLE PARKING

Level	Bicycle Parking		Total Bicycle Parking
	Long-Term	Short-Term	
P1	634	0	634
Level 1	0	70	70
TOTAL	634	70	704

GENERAL NOTES:

1. Drawings are not to be scaled. Contractor will verify all existing conditions and dimensions required to perform the Work and will report any discrepancies with the Contract Documents to the Architect before commencing work.
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6. These documents are not to be used for construction unless specifically noted for such purpose.

No.	Date	Issue
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55 DISSINGTON AVE, SUITE 100
Toronto, ON, Canada M6J 2Y9
416 915 1791

86 LYNN WILLIAMS STREET

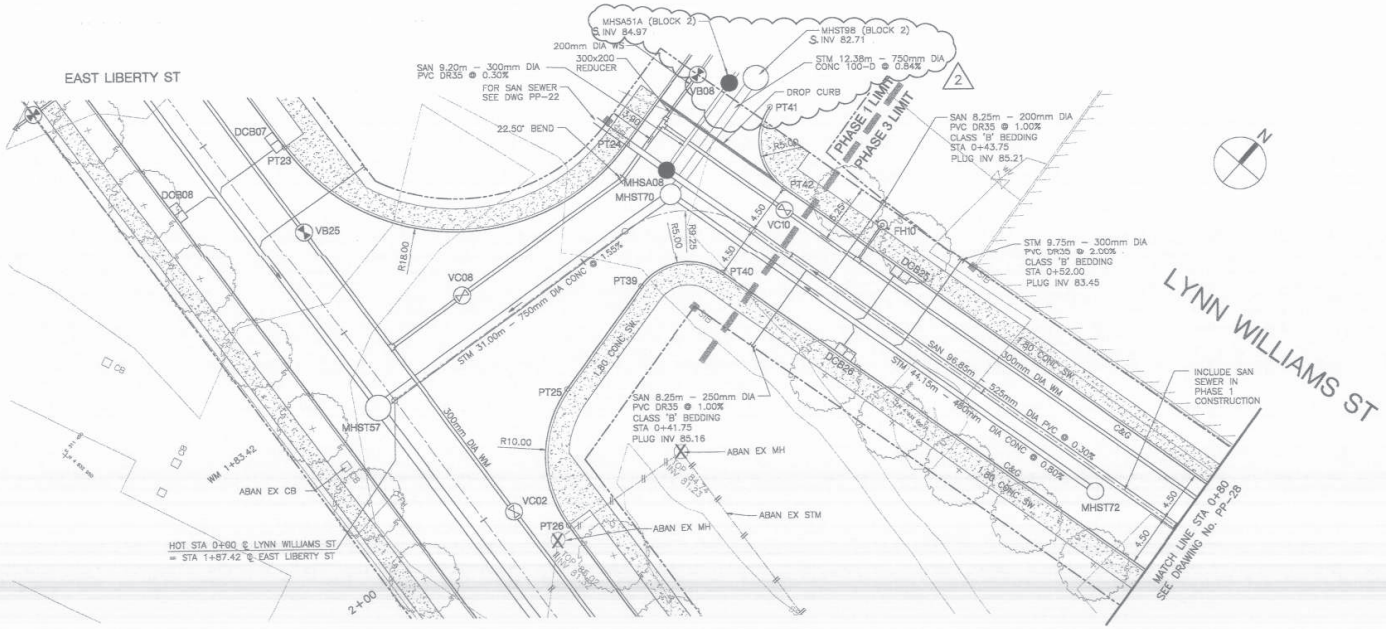
TORONTO

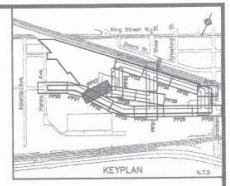
Project North | True North

SCALE As indicated
PROJECT NO. 201803
ISSUE DATE May 10, 2023

LEVEL P1 FLOOR PLAN

A105





CURB LAYOUT POINTS

PT No.	LOCATION				NOTES
	STATION	OFFSET	NORTHING	EASTING	
23-26	–	–	–	–	DWG PP-22
39	0+22.72	4.58R	4 832 993.36	311 477.10	
40	0+38.09	4.50R	4 832 998.86	311 481.53	
41	0+33.70	10.16L	4 833 012.25	311 475.08	
42	0+36.13	4.50L	4 833 007.81	311 480.59	

STRUCTURE DATA

CATCH BASINS

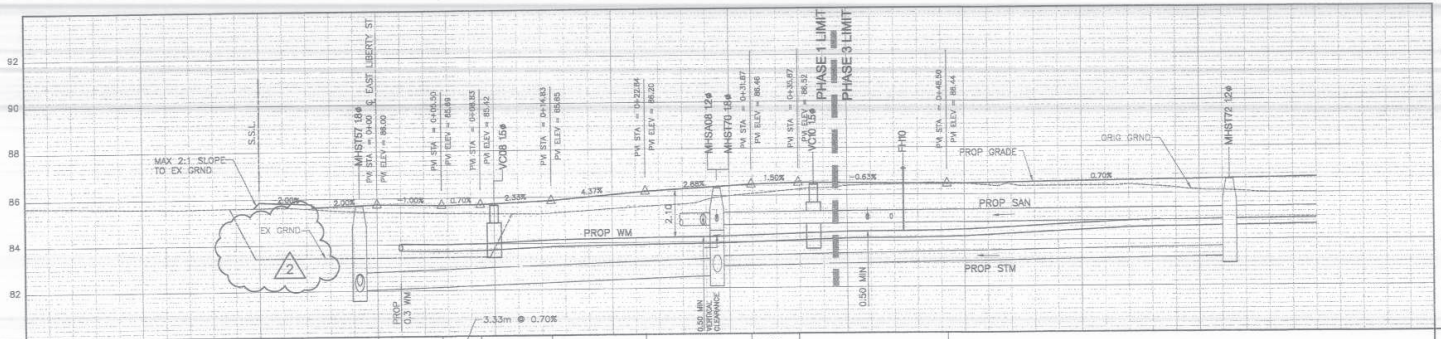
No.	LOCATION		FRAME ELEV	INVERTS	STRUCTURE OPSD	FRAME & GRATE OPSD	NOTES
	STATION	OFFSET					
DCB25	0+48.50	4.50L	86.35	85.15	705.020	2x400.02	
DCB26	0+48.50	4.50R	86.35	85.15	705.020	2x400.02	

MAINTENANCE HOLES

No.	LOCATION		RIM ELEV	STRUCTURE OPSD	FRAME & COVER OPSD	NOTES
	STATION	OFFSET				
MHSA08	–	–	–	–	–	DWG PP-22
MHST70	0+28.93	1.52L	86.34	701.012	401.01'A'	
MHST72	0+72.61	1.50R	86.58	701.010	401.01'A'	

VALVE CHAMBERS/BOXES

No.	LOCATION		RIM ELEV	STRUCTURE OPSD	FRAME & COVER OPSD	NOTES
	STATION	OFFSET				
VB07	0+30.68	11.74L	86.35	1101.02-2	–	SLIDE TYPE
VB25	–	–	–	–	–	SEE PP-22
VC08	0+10.00	3.88L	85.70	1101.010	402.01	
VC10	0+37.17	3.00L	86.47	1101.010	402.01	



ROAD GRADE	5.50m @ −0.91%		6.00m @ 2.33%	8.01m @ 4.37%	9.03m @ 2.88%	4.00m @ 1.50%	12.63m @ −0.63%	69.64m @ 0.70%	
SAN SEWER INVERT	REFER TO DWG PP-22						SAN 96.85m – 525mm DIA PVC DR35 @ 0.30% (IN PHASE 1) CLASS 'B' BEDDING		
STM SEWER INVERT	82.29W 81.98E 82.03N	STM 31.00m – 750mm DIA CONC 65-D @ 1.55% CLASS 'B' BEDDING			82.51E 84.72W 82.33E 84.75E 82.63N 84.95N	STM 44.15m – 450mm DIA CONC 100-D @ 0.80% CLASS 'B' BEDDING		83.29W	
STATION	0-20	-01.50	0+00	+02.00	+10.00	0+20	+28.93	+37.17	0+40	+44.80	0+60	+72.61	0+80

ROAD GRADE						
SAN SEWER INVERT						
STM SEWER INVERT						
STATION						

TORONTO WORKS & EMERGENCY SERVICES TECHNICAL SERVICES DIVISION

ACCEPTED TO BE IN ACCORDANCE WITH THE CITY OF TORONTO STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING
CITY OF TORONTO

DATE AUG 29 2002

No.	DATE	REVISIONS	BY	SIGNED
10				
9				
8				
7				
6				
5				
4	JUL. 17/02	ADDENDUM 2	MG	
3	JUL. 05/02	ISSUED FOR TENDER	MG	
2	JUN. 17/02	RE-ISSUED FOR CITY & MOE APPROVAL	MG	
1	DEC. 07/01	ISSUED FOR CITY APPROVAL	MG	

DIGITAL INFORMATION

LICENSED PROFESSIONAL ENGINEER J.P. STRUK PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER M. GIULIANO PROVINCE OF ONTARIO

IBI GROUP
Beinhaker/Irwin Associates
Architects, Engineers, Planners
230 Richmond Street West, 5th Floor
Toronto, Canada M5V 1V6
(416)596-1930 (416)596-0473

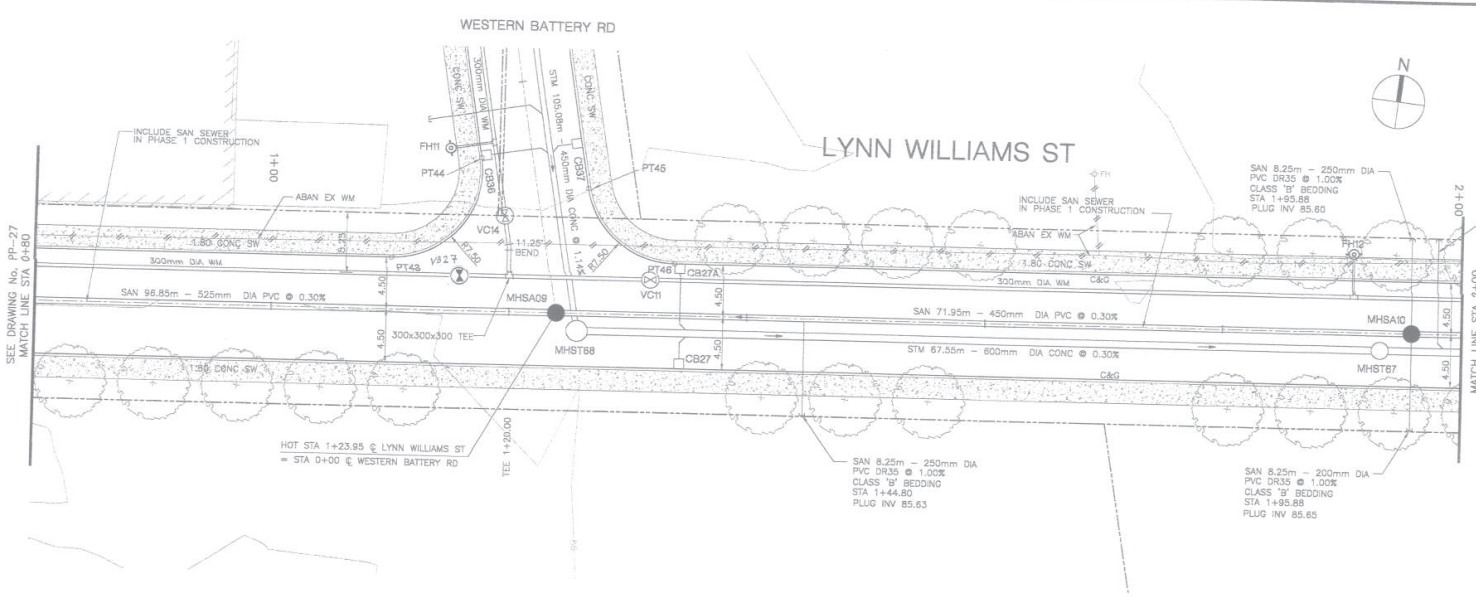
CanAlfa Liberty Village Homes Inc.

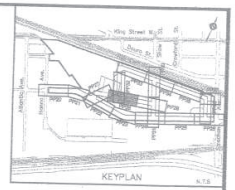
LYNN WILLIAMS STREET

STA 0-20 TO 0+80

PLAN AND PROFILE

DESIGN:	MG	DRAWN:	FS	CHECKED:	JS	PROJECT No. 3242
SCALES:	HOR 1:200 0 2 4 6 8 m			DATE:	AUG., 2001	DRAWING NUMBER PP-27
	VER 1:100 0 1 2 3 4 m					





CURB LAYOUT POINTS

PT No.	LOCATION				NOTES
	STATION	OFFSET	NORTHING	EASTING	
43	1+10.08	4.50L	4 833 015.81	311 554.11	
44	1+17.48	13.21L	4 833 025.27	311 560.53	
45	1+28.49	10.79L	4 833 023.84	311 569.75	
46	1+33.89	4.50L	4 833 018.39	311 577.79	

STRUCTURE DATA

CATCH BASINS

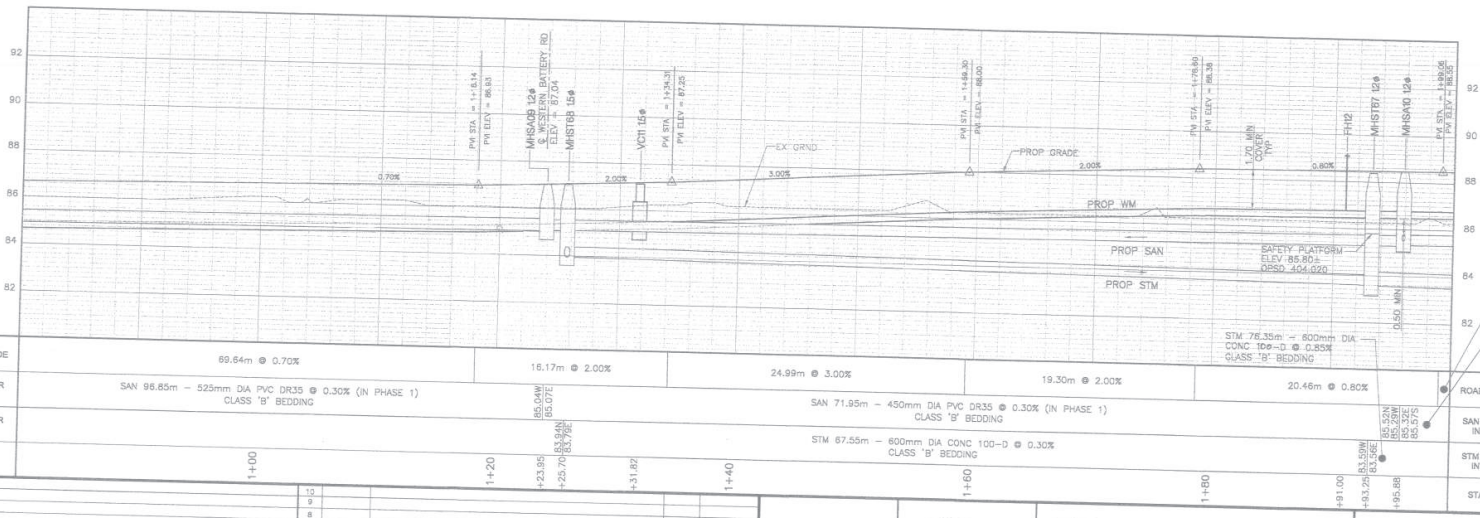
No.	LOCATION		FRAME ELEV	INVERTS	STRUCTURE OPSD	FRAME & GRATE OPSD	NOTES
	STATION	OFFSET					
CB27	1+34.35	4.50R	87.16	85.98	705.010	400.02	
CB27A	1+34.35	4.50L	87.16	84.98	705.010	400.02	
CB36-37	–	–	–	–	–	–	DWG PP-32

MAINTENANCE HOLES

No.	LOCATION		RIM ELEV	STRUCTURE OPSD	FRAME & COVER OPSD	NOTES
	STATION	OFFSET				
MHSA09	1+23.95	0.00	87.05	701.010	401.01'A'	
MHSA10	1+95.88	0.00	88.52	701.010	401.01'A'	
MHST87	1+93.25	1.50R	88.47	701.010	401.01'A'	
MHST88	1+25.70	1.50R	87.05	701.011	401.01'A'	

VALVE CHAMBERS

No.	LOCATION		RIM ELEV	STRUCTURE OPSD	FRAME & COVER OPSD	NOTES
	STATION	OFFSET				
VC11	1+31.82	3.00L	87.14	1101.010	402.01	
VC16	–	–	–	–	–	DWG PP-32



ROAD GRADE	69.64m @ 0.70%	16.17m @ 2.00%	24.99m @ 3.00%	19.30m @ 2.00%	20.46m @ 0.80%	ROAD GRADE
SAN SEWER INVERT	SAN 98.85m – 525mm DIA PVC DR35 @ 0.30% (IN PHASE 1) CLASS 'B' BEDDING	85.04W 85.07E	SAN 71.95m – 450mm DIA PVC DR35 @ 0.30% (IN PHASE 1) CLASS 'B' BEDDING			SAN SEWER INVERT
STM SEWER INVERT		85.34W 85.29E	STM 67.55m – 600mm DIA CONC 100-D @ 0.30% CLASS 'B' BEDDING		85.53W 85.49E	STM SEWER INVERT
STATION	1+00	1+20 / +23.95 / +25.70 / +31.82	1+40	1+60	1+80 / +91.00 / +93.25 / +95.88	STATION

No.	DATE	REVISIONS	BY	SIGNED
10				
9				
8				
7				
6				
5				
4				
3	JUL. 05/02	ISSUED FOR TENDER		
2	JUL. 17/02	RE-ISSUED FOR CITY & MOE APPROVAL	MG	
1	DEC. 07/01	ISSUED FOR CITY APPROVAL	MG	

DIGITAL INFORMATION

LICENSED PROFESSIONAL ENGINEER J.P. STRUK JUN 17/02 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER M. GIULIANO JUN 17/02 PROVINCE OF ONTARIO

IBI GROUP
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CanAlfa Liberty Village Homes Inc.

TORONTO WORKS & EMERGENCY SERVICES TECHNICAL SERVICES DIVISION

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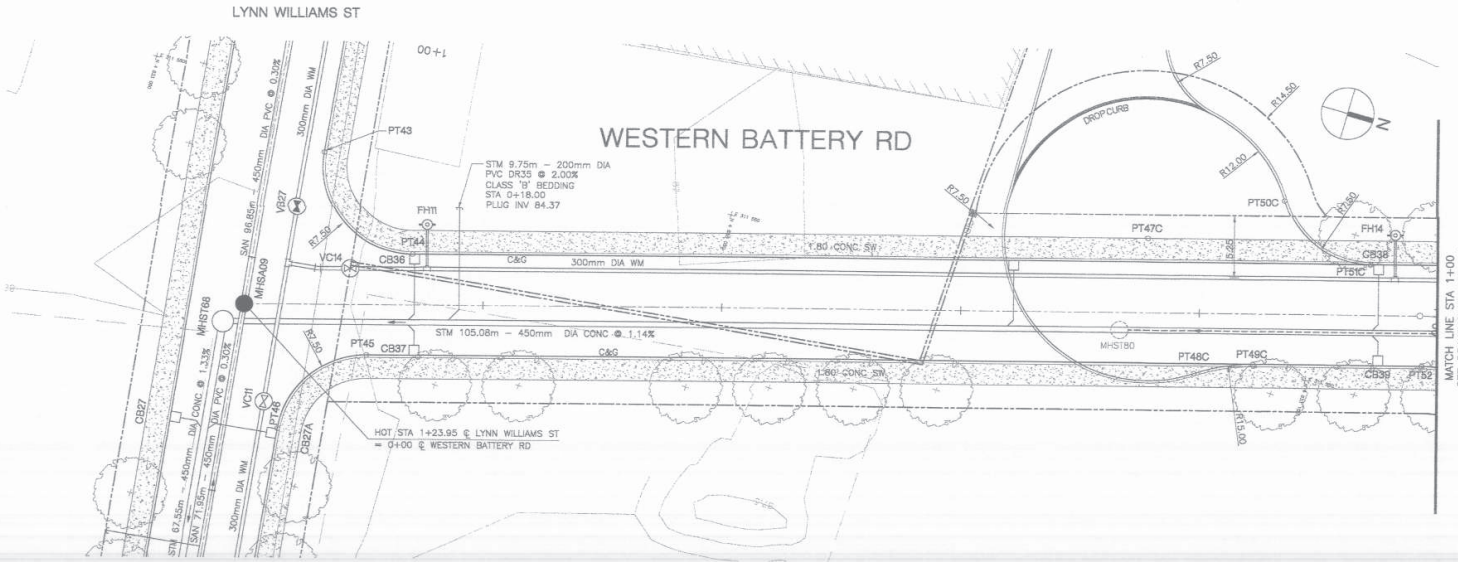
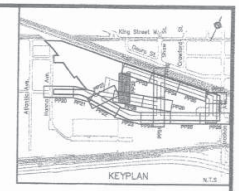
MANAGER, DEVELOPMENT ENGINEERING CITY OF TORONTO

DATE AUG 2 9 2002

LYNN WILLIAMS STREET
STA 0+80 TO 2+00
PLAN AND PROFILE

DESIGN:	MG	DRAWN:	FS	CHECKED:	JS	PROJECT No. 3242
SCALES:	HOR 1:200 0 2 4 6 8 m			DATE:		DRAWING NUMBER
	VER 1:100 0 1 2 3 4 m			AUG., 2001		PP-28





CURB LAYOUT POINTS

PT No.	LOCATION				NOTES
	STATION	OFFSET	NORTHING	EASTING	
43	–	–	–	–	DWG PP-28
44	–	–	–	–	DWG PP-28
45	–	–	–	–	DWG PP-28
46	–	–	–	–	DWG PP-28
47C	0+75.63	8.25L	4 833 084.05	311 542.16	
48C	0+79.58	5.08R	4 833 090.88	311 552.03	
49C	0+84.50	4.25R	4 833 095.41	311 549.91	
50C	0+87.15	9.63L	4 833 094.25	311 535.83	
51C	0+94.34	4.25L	4 833 102.62	311 539.09	
52	0+98.69	4.25R	4 833 109.08	311 546.12	

STRUCTURE DATA

CATCH BASINS

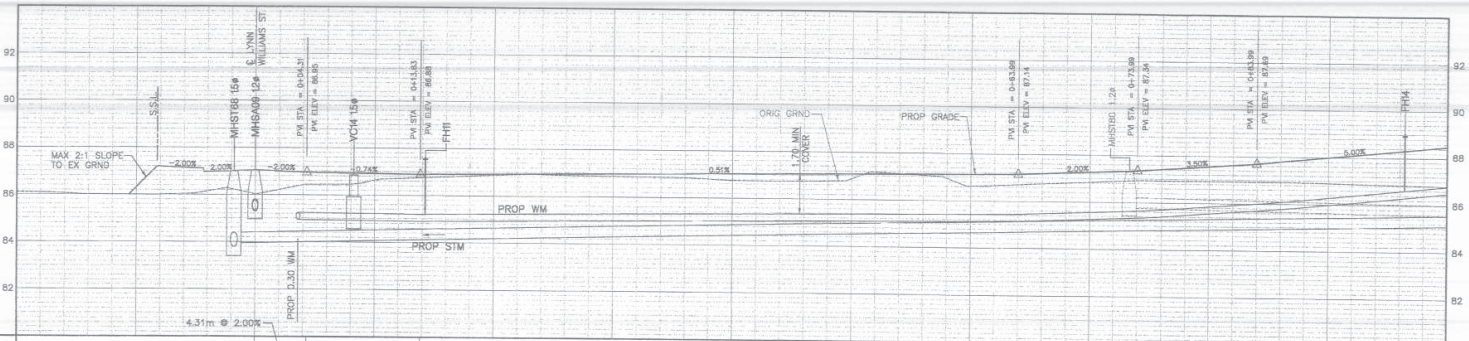
No.	LOCATION		FRAME ELEV	INVERTS	STRUCTURE OPSD	FRAME & GRATE OPSD	NOTES
	STATION	OFFSET					
CB36	0+14.25	4.25L	86.80	85.60	705.010	400.02	
CB37	0+14.25	4.25R	86.80	85.60	705.010	400.02	
CB38	0+95.00	4.25L	88.16	86.95	705.010	400.02	
CB39	0+95.00	4.25R	88.16	86.95	705.010	400.02	
CB27/27A	–	–	–	–	–	–	DWG PP-28

MAINTENANCE HOLES

No.	LOCATION		RIM ELEV	STRUCTURE OPSD	FRAME & COVER OPSD	NOTES
	STATION	OFFSET				
MHSA09	0+00	0.00	87.04	701.010	401.01'A'	
MHST88	0+01.76	1.50R	87.03	701.011	401.01'A'	
MHST80	0+73.32	1.50R	87.30	701.010	401.01'A'	ALTERNATIVE

VALVE CHAMBERS

No.	LOCATION		RIM ELEV	STRUCTURE OPSD	FRAME & COVER OPSD	NOTES
	STATION	OFFSET				
VC11	–	–	–	–	–	SEE DWG PP-28
VC14	0+08.25	3.00L	86.86	1101.010	402.01	
VB27	–	–	–	–	–	SEE DWG PP-28



ROAD GRADE		9.52m @ –0.74%	50.16m @ 0.50%	10.00m @ 2.00%	10.00m @ 3.50%	16.41m @ 5.00%	ROAD GRADE
SAN SEWER INVERT	85.08W 85.31E						SAN SEWER INVERT
STM SEWER INVERT	83.79E 83.94W	STM 105.08m – 450mm DIA CONC 100-D @ 1.14% CLASS "B" BEDDING				ALTERNATIVE STM 30m – 450mm DIA CONC 100-D @ 0.80% CLASS "B" BEDDING	STM SEWER INVERT
STATION	–01.75	0+00	0+03.04	0+08.25	0+14.25	0+20	0+40	0+60	0+80	+96.40	STATION

DIGITAL INFORMATION

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LICENSED PROFESSIONAL ENGINEER V. GIULIANO PROVINCE OF ONTARIO

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MANAGER, DEVELOPMENT ENGINEERING
CITY OF TORONTO

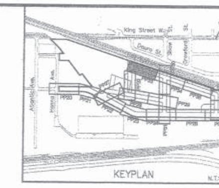
DATE AUG 2 9 2002

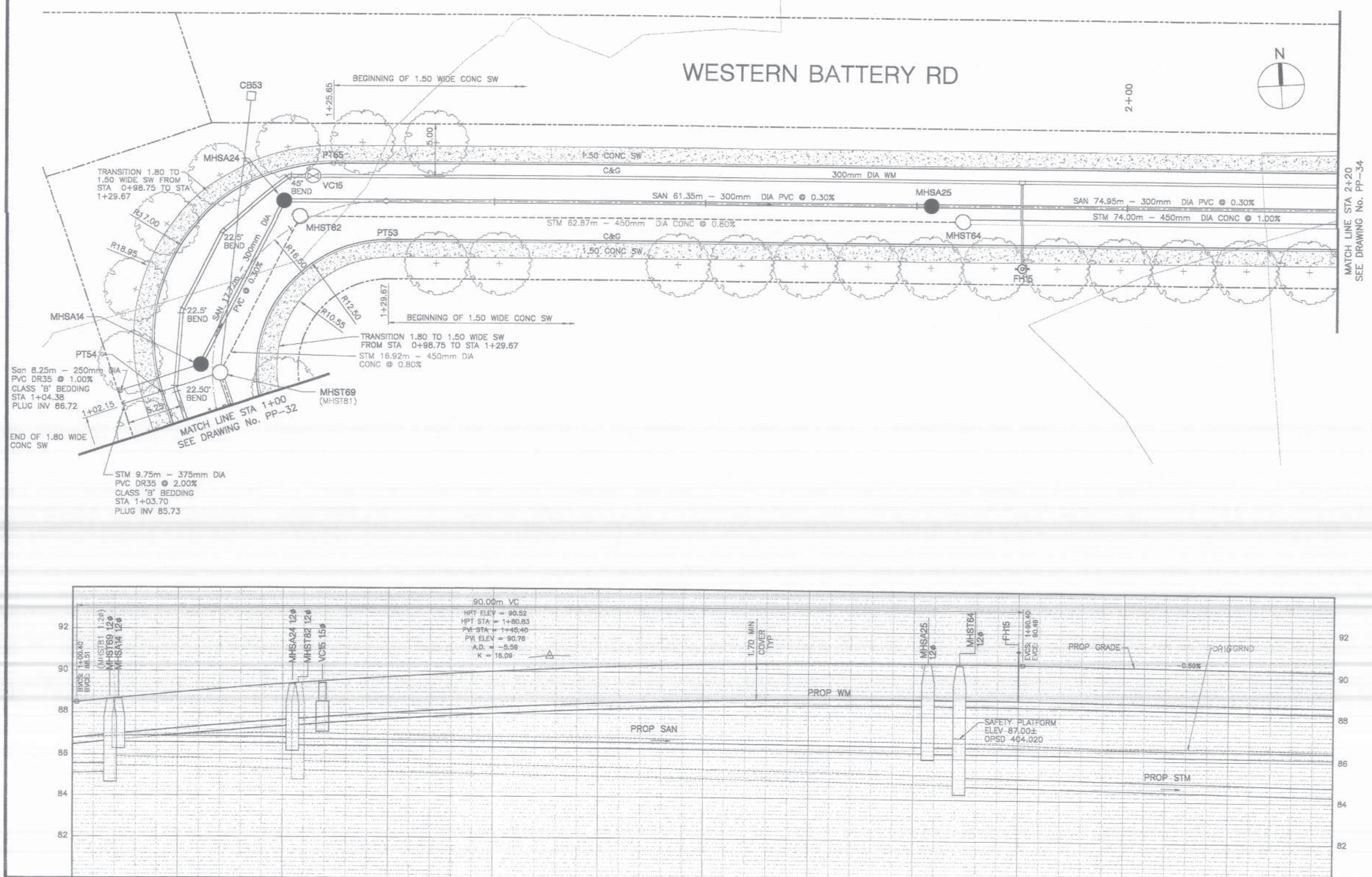
WESTERN BATTERY ROAD

STA 0-20 TO 1+00

PLAN AND PROFILE

DESIGN:	MG	DRAWN:	FS	CHECKED:	JS	PROJECT No. 3242
SCALES:	HOR 1:200 0 2 4 6 8 m			DATE:	AUG., 2001	DRAWING NUMBER PP-32
	VER 1:100 0 1 2 3 4 m					





ROAD GRADE	BVC	VERTICAL CURVE	EVC	65.95m @ –0.59%	ROAD GRADE
SAN SEWER INVERT	86.64W 86.59N — SAN 17.72m – 300mm DIA PVC DR35 @ 0.30% CLASS 'B' BEDDING — 86.53S 86.45E	SAN 61.35m – 300mm DIA PVC DR35 @ 0.30% CLASS 'B' BEDDING	86.27W 86.24E	SAN 74.95m – 300mm DIA PVC DR35 @ 0.30% CLASS 'B' BEDDING	SAN SEWER INVERT
STM SEWER INVERT	85.53W 85.52S 85.12S 85.45N — ALTERNATIVE STM 16.92m – 450mm DIA CONC 100–D @ 0.80% CLASS 'B' BEDDING — 85.30S 85.23E	ALTERNATIVE STM 62.87m – 450mm DIA CONC 140–D @ 0.80% CLASS 'B' BEDDING	84.71W 84.68E	STM 74.00m – 450mm DIA CONC 140–D @ 1.00% CLASS 'B' BEDDING	STM SEWER INVERT
STATION	+03.60 +04.38 — 1+20 +20.95 +21.46 +23.80	1+40 — 1+60	1+80 +81.39 +84.39	2+00	STATION

CURB LAYOUT POINTS

PT No.	LOCATION				NOTES
	STATION	OFFSET	NORTHING	EASTING	
53	1+29.65	3.75R	4 833 124.90	311 558.77	
54	1+02.15	4.77L	4 833 111.12	311 536.74	
55	1+25.66	4.38L	4 833 132.64	311 553.93	

STRUCTURE DATA

CATCH BASINS

No.	LOCATION		FRAME ELEV	INVERTS	STRUCTURE OPSD	FRAME & GRATE OPSD	NOTES
	STATION	OFFSET					
CB53	1+22.25	12.95L	89.28	88.08	705.010	400.02	

MAINTENANCE HOLES

No.	LOCATION		RIM ELEV	STRUCTURE OPSD	FRAME & COVER OPSD	NOTES
	STATION	OFFSET				
MHSA14	1+04.38	1.11L	88.68	701.010	401.01'A'	
MHSA24	1+20.95	2.61L	89.35	701.010	401.01'A'	
MHSA25	1+81.39	0.00	90.52	701.010	401.01'A'	
MHST64	1+84.39	1.50R	90.48	701.010	401.01'A'	
MHST69	1+03.63	0.75R	88.65	701.010	401.01'A'	
MHST82	1+21.36	0.57L	89.39	701.010	401.01'A'	

VALVE CHAMBERS

No.	LOCATION		RIM ELEV	STRUCTURE OPSD	FRAME & COVER OPSD	NOTES
	STATION	OFFSET				
VC15	1+23.90	3.73L	89.40	1101.010	402.01	DWG PP-28

TORONTO WORKS & EMERGENCY SERVICES TECHNICAL SERVICES DIVISION

ACCEPTED TO BE IN ACCORDANCE WITH THE CITY OF TORONTO STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING
CITY OF TORONTO

DATE AUG 2 9 2002

No.	DATE	REVISIONS	BY	SIGNED
10				
9				
8				
7				
6				
5				
4				
3	JUL. 05/02	ISSUED FOR TENDER		
2	JUN. 17/02	RE-ISSUED FOR CITY & MOE APPROVAL	MG	
1	DEC. 07/01	ISSUED FOR CITY APPROVAL	MG	

DIGITAL INFORMATION

LICENSED PROFESSIONAL ENGINEER J.P. STRUK PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER M. GIULIANO PROVINCE OF ONTARIO

IBI GROUP
Beinhaker/Irwin Associates
Architects, Engineers, Planners
230 Richmond Street West, 5th Floor
Toronto, Canada M5V 1V6
(416)596-1930 (416)596-0473

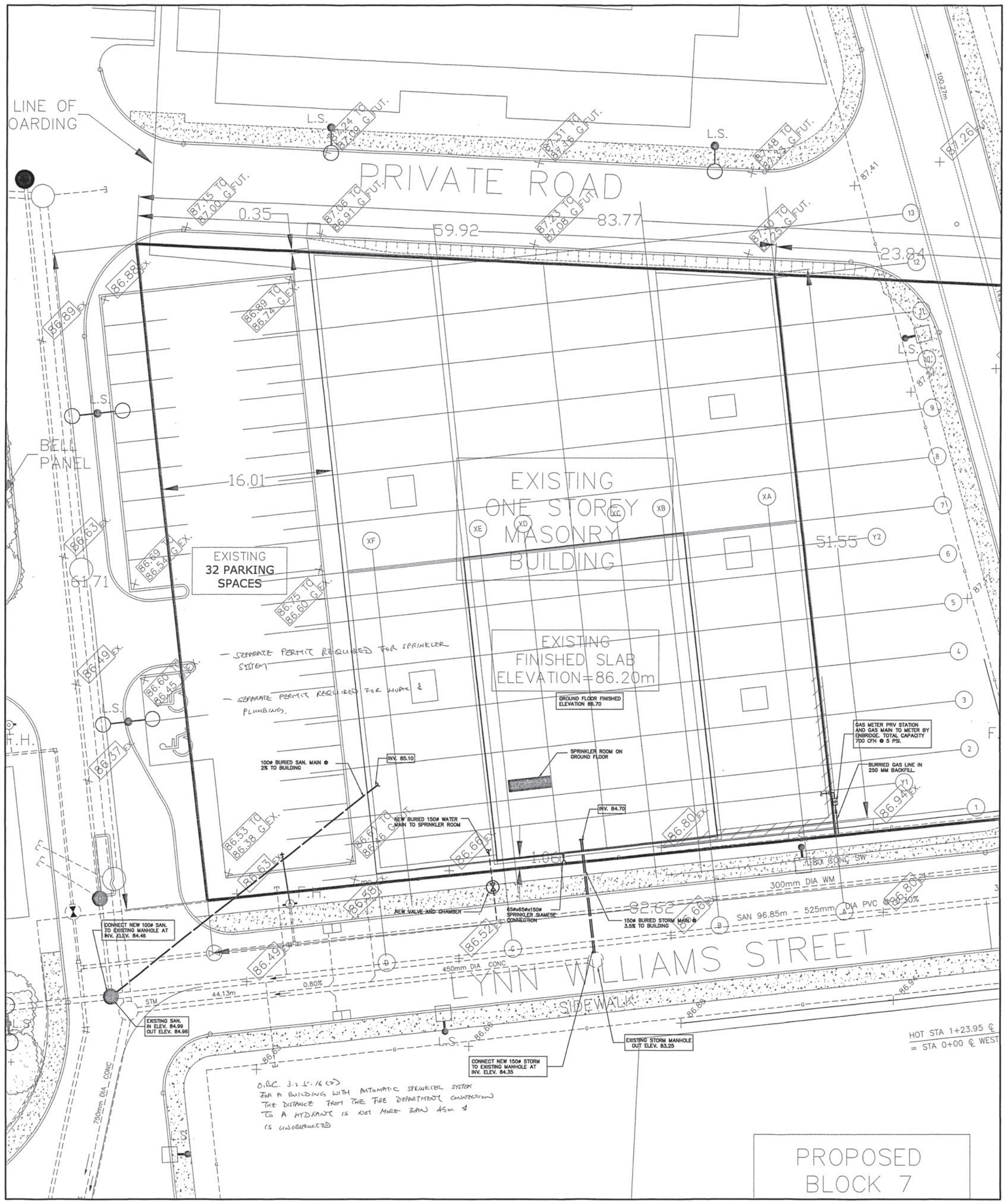
CanAlfa Liberty Village Homes Inc.

WESTERN BATTERY ROAD

STA 1+00 TO 2+20

PLAN AND PROFILE

DESIGN:	MG	DRAWN:	FS	CHECKED:	JS	PROJECT No. 3242
SCALES:	HOR 1:200 (0 2 4 6 8 m)			DATE:	DRAWING NUMBER	
	VER 1:100 (0 1 2 3 4 m)			AUG., 2001		PP-33



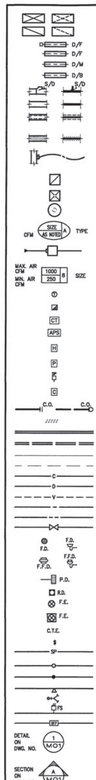
LINE OF HOARDING
PRIVATE ROAD
L.S.
BELL PANEL
EXISTING 32 PARKING SPACES
EXISTING ONE STOREY MASONRY BUILDING
EXISTING FINISHED SLAB ELEVATION=86.20m
GROUND FLOOR FINISHED ELEVATION 86.70
SPRINKLER ROOM ON GROUND FLOOR
GAS METER PRV STATION AND GAS MAIN TO METER BY ENBRIDGE. TOTAL CAPACITY 700 CFH @ 5 PSI.
BURRIED GAS LINE IN 250 MM BACKFILL.
100ø BURIED SAN. MAIN @ 2% TO BUILDING
INV. 85.10
INV. 84.70
NEW BURIED 150ø WATER MAIN TO SPRINKLER ROOM
150ø BURIED STORM MAIN @ 3.5% TO BUILDING
65øx65øx150ø SPRINKLER SIAMESE CONNECTION
NEW VALVE AND CHAMBER
CONNECT NEW 100ø SAN. TO EXISTING MANHOLE AT INV. ELEV. 84.46
EXISTING SAN. IN ELEV. 84.99 OUT ELEV. 84.66
CONNECT NEW 150ø STORM TO EXISTING MANHOLE AT INV. ELEV. 84.35
EXISTING STORM MANHOLE OUT ELEV. 83.25
300mm DIA WM
SAN 96.85m – 525mm DIA PVC @ 0.30%
450mm DIA CONC
LYNN WILLIAMS STREET
SIDEWALK
HOT STA 1+23.95 ℄ = STA 0+00 ℄ WEST
750mm DIA CONC
PROPOSED BLOCK 7
– SEPARATE PERMIT REQUIRED FOR SPRINKLER SYSTEM
– SEPARATE PERMIT REQUIRED FOR SITE PLUMBING.
O.B.C. 3.2.5.16 (3)
FOR A BUILDING WITH AUTOMATIC SPRINKLER SYSTEM THE DISTANCE FROM THE FIRE DEPARTMENT CONNECTION TO A HYDRANT IS NOT MORE THAN 45m & IS UNOBSTRUCTED

1 / M-01 SITE PLAN – MECHANICAL
SCALE: 1:150

DRAWING LIST

DWG. NO.	DRAWING NAME
M-01	SITE PLAN, LEGEND & SPECIFICATION
M-02	GROUND FLOOR PLAN – H.V.A.C.
M-03	GROUND FLOOR PLAN – PLUMBING & DRAINAGE
M-04	SECOND FLOOR PLAN – H.V.A.C.
M-05	GROUND FLOOR PLAN – PLUMBING & DRAINAGE
M-06	MECHANICAL DETAILS

LEGEND



SUPPLY AIR DUCT (TURNING UP / TURNING DN.)
RETURN OR EXH. AIR DUCT (TURNING UP / DN.)
D/F AUTOMATIC DAMPER
D/F FIRE DAMPER
D/M MANUAL BALANCING DAMPER
D/B BACKDRAFT DAMPER
S/D SPLITTER DAMPER
STANDARD DUCTWORK
DUCTWORK WITH 1" ACOUSTIC LINING (SIZE SHOWN IS CLEAR INSIDE DIMENSION)
DUCTWORK WITH THERMAL INSULATION
FLEXIBLE DUCT WITH CONICAL TAKE-OFF C/W MANUAL BALANCING DAMPER
NEW RETURN AIR GRILLE
NEW SQUARE DIFFUSER
NEW ROUND DIFFUSER
CFM SIZE AS NOTED A TYPE DIFFUSER, REGISTER OR GRILLE
NEW VAV BOX
MAX. AIR CFM 1000 MIN. AIR CFM 250 8 SIZE NEW TERMINAL BOX DESIGNATION
NEW THERMOSTAT
STARTER
CT CONTROL TRANSFORMER
APS AIR PROVING SWITCH
H HUMIDISTAT
P PRESSURE SENSOR
STATIC PRESSURE SENSOR
C CO₂ SENSOR
C.O. CLEANOUT (SUSPENDED / BURRIED LINE)
ELECTRIC HEAT TRACING
SUSPENDED STORM DRAIN
BURRIED STORM DRAIN
SANITARY DRAIN IN CEILING SPACE
SANITARY DRAIN BELOW FLOOR
C CONDENSATE DRAIN
D EQUIPMENT DRAIN
V SANITARY VENT
DOMESTIC COLD WATER
DOMESTIC HOT WATER
GATE VALVE
F.D. FLOOR DRAIN (SQUARE / ROUND / SECTION)
F.F.D. FUNNEL FLOOR DRAIN (SECTION)
P.D. PIT DRAIN
R.D. ROOF DRAIN
F.E. FIRE EXTINGUISHER
F.E. FIRE EXTINGUISHER C/W RECESSED CABINET
C.T.E. CONNECT TO EXISTING
$ FAN SWITCH
SP SPRINKLER LINE
SPRINKLER HEAD – UPRIGHT
SPRINKLER HEAD – PENDANT
SPRINKLER HEAD – SIDEWALL
SIAMESE CONNECTION
FS FLOW SWITCH
BFP BACKFLOW PREVENTOR
DETAIL ON DWG. NO. 1 MO1 DETAIL NUMBER
SECTION ON DWG. NO. A MO1 SECTION ARROW

1. GENERAL
1.1 SYSTEM DESCRIPTION
OUTDOOR ROOFTOP MOUNTED, ELECTRICALLY CONTROLLED, HEATING AND COOLING UNIT UTILIZING A HERMETIC COMPRESSOR(S) FOR COOLING DUTY AND GAS COMBUSTION FOR HEATING DUTY. UNIT SHALL DISCHARGE SUPPLY AIR VERTICALLY DOWNWARD AS SHOWN ON DRAWINGS.
1.2 QUALITY ASSURANCE
1.2.1. UNIT SHALL COMPLY WITH MINIMUM REQUIREMENTS OF ASHRAE 90.1–2001 ENERGY EFFICIENCY STANDARDS.
1.2.2 UNIT SHALL BE RATED IN ACCORDANCE WITH ARI STANDARDS 210/240 OR 360 AND 270. DESIGNED IN ACCORDANCE WITH UL STANDARD 1995.
1.2.3. UNIT SHALL BE DESIGNED TO CONFORM TO ASHRAE 15, LATEST REVISION.
1.2.4. UNIT SHALL BE UL–TESTED AND CERTIFIED IN ACCORDANCE WITH ANSI Z21.47 STANDARDS AND UL–LISTED AND CERTIFIED UNDER CANADIAN STANDARDS AS A TOTAL PACKAGE FOR SAFETY REQUIREMENTS.
1.2.5. ROOF CURB SHALL BE DESIGNED TO CONFORM TO NRCA STANDARDS.
1.2.6. INSULATION AND ADHESIVE SHALL MEET NFPA 90A REQUIREMENTS FOR FLAME SPREAD AND SMOKE GENERATION.
2. PRODUCTS
2.1. GENERAL:
FACTORY ASSEMBLED, SINGLE–PIECE HEATING AND COOLING UNIT. CONTAINED WITHIN THE UNIT ENCLOSURE SHALL BE ALL FACTORY WIRING, PIPING, CONTROLS, REFRIGERANT CHARGE (R–22), AND SPECIAL FEATURES REQUIRED PRIOR TO FIELD START–UP.
2.2. UNIT CABINET:
2.2.1. UNIT CABINET SHALL BE CONSTRUCTED OF GALVANIZED STEEL, AND SHALL BE BONDERIZED AND COATED WITH A PREPAINTED BAKED ENAMEL FINISH ON ALL EXTERNALLY EXPOSED SURFACES.
2.2.2. UNIT SHALL HAVE A FACTORY–INSTALLED FILTER ACCESS PANEL TO PROVIDE FILTER ACCESS WITH TOOL–LESS REMOVAL.
2.3. FANS:
EVAPORATOR FAN SHALL BE BELT DRIVEN AND SHALL INCLUDE AN ADJUSTABLE–PITCH MOTOR PULLEY.
2.4. COMPRESSOR(S):
2.4.1. FULLY HERMETIC TYPE.
2.4.2. EACH UNIT SHALL INCLUDE DUAL INDEPENDENT REFRIGERANT CIRCUITS.
2.5. COILS:
STANDARD EVAPORATOR AND CONDENSER COILS SHALL HAVE ALUMINUM LANCED PLATE FINS MECHANICALLY BONDED TO SEAMLESS INTERNALLY GROOVED COPPER TUBES WITH ALL JOINTS BRAZED.
2.6. HEATING SECTION:
INDUCED–DRAFT COMBUSTION TYPE WITH ENERGY SAVING DIRECT–SPARK IGNITION SYSTEM AND REDUNDANT MAIN GAS VALVE.
2.7. REFRIGERANT COMPONENTS:
REFRIGERANT CIRCUIT COMPONENTS SHALL INCLUDE FIXED ORIFICE METERING SYSTEM, SERVICE GAGE CONNECTIONS ON SUCTION, DISCHARGE, AND LIQUID LINES.
2.8. FILTER SECTION:
STANDARD FILTER SECTION SHALL CONSIST OF FACTORY–INSTALLED, LOW VELOCITY, THROWAWAY 2–IN. THICK FIBERGLASS FILTERS OF COMMERCIALLY AVAILABLE SIZES.
2.9. CONTROLS AND SAFETIES:
2.9.1. UNIT CONTROLS:
UNIT SHALL BE COMPLETE WITH SELF–CONTAINED LOW–VOLTAGE CONTROL CIRCUIT PROTECTED BY A RESETTABLE CIRCUIT BREAKER ON THE 24–V TRANSFORMER SIDE.
2.9.2. SAFETIES:
A. UNIT SHALL INCORPORATE A SOLID–STATE COMPRESSOR PROTECTOR WHICH PROVIDES ANTI–CYCLE RESET CAPABILITY AT THE SPACE THERMOSTAT, SHOULD ANY OF THE FOLLOWING STANDARD SAFETY DEVICES TRIP AND SHUT OFF COMPRESSOR.
– COMPRESSOR OVERTEMPERATURE, OVERCURRENT.
– LOSS–OF–CHARGE/LOW–PRESSURE SWITCH.
– FREEZE–PROTECTION THERMOSTAT, EVAPORATOR COIL.
– HIGH–PRESSURE SWITCH.
– AUTOMATIC RESET MOTOR THERMAL OVERLOAD PROTECTOR.
B. HEATING SECTION SHALL BE PROVIDED WITH THE FOLLOWING MINIMUM PROTECTIONS:
– HIGH–TEMPERATURE LIMIT SWITCHES.
– INDUCED DRAFT MOTOR SPEED SENSOR.
– FLAME ROLLOUT SWITCH.
– FLAME PROVING CONTROLS.
2.10. SPECIAL FEATURES AND ACCESSORIES:
UNIT SHALL INCLUDE THE FOLLOWING ACCESSORIES AND FEATURES:
2.10.1. ASHRAE 90.1 ENERGY EFFICIENCY COMPLIANT.
2.10.2. INCLUDE FULLY MODULATING, INTEGRATED, GEAR DRIVEN ECONOMIZER WITH DRY BULB SENSING, CAPABLE OF SIMULTANEOUS ECONOMIZER AND COMPRESSOR OPERATION.
2.10.3. 14 INCH ROOF CURB FOR DOWN DISCHARGE CONFIGURATION.
2.10.4. EACH UNIT SHALL INCLUDE DUAL INDEPENDENT REFRIGERATION CIRCUITS AND TWO STAGE GAS HEAT.
2.10.5. UNITS MUST INCLUDE OPTIONAL FLUE DEFLECTOR TO DIRECT FURNACE FLUE DISCHARGE GASES VERTICALLY UPWARDS.
2.10.6. INCLUDE OPTIONAL POWER EXHAUST FAN AND RELATED CONTROLS, CONFIGURED FOR DOWN DISCHARGE APPLICATIONS.

ROOFTOP UNITS OUTLINE SPECIFICATION

1. DIFFUSERS AND GRILLES (E.H. PRICE OR EQUAL)
TYPE A:
STEEL LOUVERED SUPPLY 520D/F/L/A/, C/W STEEL DAMPER, STANDARD BORDER, DOUBLE DEFLECTION.
TYPE B:
2" LINER BAR GRILLE LBPH25C/1000/B/, C/W VCS3 OPPOSED BLADE DAMPER, PENCIL PROOF SPACING, STANDARD BORDER, SPRING CLIP, 0° DEFLECTION
TYPE C:
STEEL LOUVERED RETURN 530/F/L/A/, STANDARD BORDER, 45° DEFLECTION.

2. VT DAMPER (E.H. CARRIER OR EQUAL)
SHALL BE MODEL SEV SINGLE DUCT VAV BOX C/W ELECTRONIC MODULATING CONTROLS WITH PROPORTIONAL PLUS INTEGRAL (PI) CONTROL OF ROOM TEMPERATURE & AUTOMATIC CHANGEOVER FOR COOLING AND HEATING MODE.

3. PLUMBING FIXTURES

WC–1: TOILET – FLOOR MOUNTED FLUSH VALVE (BARRIER FREE DESIGN)
KOHLER 'K–4302' MODEL, ELONGATED BOWL WITH 1–1/2" TOP SPUD, 10" OR 12" ROUGH–IN, 1.6 GPF (6 LTR/FLUSH), 16–1/2" HIGH BOWL IS ADA COMPLIANT. VITREOUS CHINA, 2–1/4" PASSAGEWAY, 11–3/8"x10–3/8" WATER AREA. FLOOR MOUNTED WITH DELTA '81T201' FLUSH VALVE, 1" FIP/COPPER SWEAR INLET ADAPTOR ANGLE CHECK STOP WITH PROTECTING CAP, ADJUSTABLE 121MM (4–3/4") PLUS OR MINUS 11MM (7/16") INLET/VALVE OUTLET CENTERS.

U–1: URINAL – WALL HUNG FLUSH VALVE
KOHLER 'K–4915' MODEL, WALL HUNG WITH TOUCHLESS ELECTRONIC FLUSH VALVE (BATTERY OPERATED), REAR STUD, 0.5 GALLON PER FLUSH, WASHOUT URINAL, VITREOUS CHINA, 1/2" N.P.T. INLET SIZE, 2" N.P.S. OUTLET, STOP VALVE ASSEMBLY, INCLUDES TANK COVER AND TANK COVER LOCKS AND 85061 BEEHIVE STRAINER, ADA COMPLIANT WHEN RIM IS MOUNTED NO HIGHER THAN 17" FROM FINISHED FLOOR.

L–1: BASIN – SEMI–COUNTER MOUNTED (BARRIER FREE DESIGN & GENERAL USE)
AMERICAN STANDARD 'MEZZO' #9960.403 BASIN SEMI–COUNTER MOUNTED, 4" (102MM) CENTRES, 22" X 21–1/2" X 6" (559MM X 546MMX 152MM) DEEP AT FRONT EDGE, VITREOUS CHINA, REAR OVERFLOW, MOUNTING KIT, SELF–RIMMING WITH SEALANT. DELTA '591T0250' ELECTRONIC FAUCET, 4" (102MM) CENTER, 0.5 GPM (1.9 L/MIN) VANDAL RESISTANT SPRAY OUTLET. TOTAL FLOW PER ACTUATION MUST NOT EXCEED 0.25 GALS/CYCLE (0.95 L/CYCLE), 1.5 GPM (5.94 L/MIN) VANDAL RESISTANT SPRAY OUTLET AVAILABLE (RP31705), POWERED BY 'AA' BATTERY (SUPPLIED), OPERATES WITH A 45 SECOND MAXIMUM RUN TIME, WILL RESET ONCE OBSRUCTION IS REMOVED. CAST METAL LEVER HANDLE AND 3/8" (10MM) SUPPLY TUBES. MCGUIRE #155WC DRAIN, C.P. OFFSET OPEN GRID. MCGUIRE #H170BVRB SUPPLIES, C.P., POLISHED, SHORT HORIZONTAL INTEGRAL SWEAT TUBES WITH V.P. COMBINATION WHEEL HANDLE/LOOSE KEY BALL VALVE ANGLE STOPS, ESCUTCHEONS, LESS BRAIDED FLEXIBLE RISERS. MCGUIRE #8872C–17T 'P' TRAP, C.P. 17 GAUGE (1.5MM), 1–1/4" (32MM) AND ESCUTCHEON. ATS SPEC #BF–1 'SANITARY SAFTI–COVERS' TO EXPOSED PIPING AS PER LOCAL CODES.

FD–1: FLOOR DRAINS – FINISHED AREAS
SMITH SERIES 2005A FLOOR DRAIN, ALL DUCO COATED CAST IRON BODY, REVERSIBLE FLASHING CLAMP WITH SEEPAGE OPENINGS AND ADJUSTABLE 5" (127MM) DIAMETER NICKEL BRONZE 1/4" (6.35MM) THICK STRAINER, SECURED WITH S.S. SCREWS, 4" (100MM) THROAT ON STRAINER. IN QUARRY OR MOSAIC TILED AREAS, PROVIDE 'B' – 5" X 5" (127MM X 127MM) SQUARE NICKEL BRONZE STRAINER. (WHERE REQUIRED BY LOCAL CODE PROVIDE TRAP PRIMER CONNECTION 'P'.)

FD–2: FLOOR DRAINS – MECHANICAL ROOMS & UNFINISHED AREAS
SMITH SERIES 2320 FLOOR DRAIN, ALL DUCO COATED CAST IRON BODY, FLASHING CLAMP WITH SEEPAGE OPENINGS AND ADJUSTABLE 8–1/2" (216MM) DIAMETER C.I. GRATE. FLOATING FLOORS PROVIDE 9340–WSH, WITH MOVEMENT COMPENSATOR AND VIBRATION ISOLATOR. (IF SEEPAGE HOLES NOT REQUIRED, REMOVE SUFFIX 'WSH' FROM MODEL NUMBER.) (WHERE REQUIRED BY LOCAL CODE PROVIDE TRAP PRIMER CONNECTION 'P'.)

FFD: FLOOR DRAINS WITH COMBINATION FUNNEL– MECHANICAL ROOMS & UNFINISHED AREAS
SMITH SERIES 2320–3591 FUNNEL FLOOR DRAIN, ALL DUCO COATED CAST IRON BODY, FLASHING CLAMP WITH SEEPAGE OPENINGS AND ADJUSTABLE 8–1/2" (216MM) DIAMETER C.I. GRATE WITH 4" X 9" (101.6MM X 228.6MM) OVAL FUNNEL. FLOATING FLOORS PROVIDE 9340–WSH–3591, WITH MOVEMENT COMPENSATOR AND VIBRATION ISOLATOR. (IF SEEPAGE HOLES NOT REQUIRED, REMOVE SUFFIX 'WSH' FROM MODEL NUMBER.) (WHERE REQUIRED BY LOCAL CODE PROVIDE TRAP PRIMER CONNECTION 'P'.)

PD: PIT DRAINS – WITH BACKWATER VALVE– ANGLE
CAST IRON BODY ANGLE SCUPPER DRAIN, FLASHING CLAMP, 90° THREADED OUTLET AND SECURED, GALVANIZED CAST IRON ANGEL GRATE IN COMBINATION WITH CAST IRON BACKWATER VALVE WITH PVC EXTENSION AND FLOOR CLEANOUT. J.R.SMITH 1510T–SG–G WITH 7012–MEXT; ZURN Z187–G Z1090–EXT; MIFAB R1300T–13–50 WITH BV1200–R–1, WATTS RD–270–13 WITH BV–200–EXT.

RD: ROOF DRAINS – STANDARD FLOW
SMITH SERIES 1010ERCCID ROOF DRAIN, ALL DUCO COATED 15–1/4" (387MM) DIAMETER CAST IRON BODY, WITH UNDER DECK CLAMP, SOLID EXTENSION AND SUMP RECEIVER, FLASHING CLAMP WITH SEEPAGE OPENINGS AND 11" (280MM) DIAMETER SECURED CAST IRON DOME. (SOLID EXTENSION HEIGHT TO SUIT ROOF CONSTRUCTION). ON SMALL AREA ROOFS PROVIDE SERIES 1330ERCCID DRAIN, WITH 6–1/2" (165MM) DIAMETER SECURED CAST IRON DOME. INVERTED ROOF INSTALLATION USE SERIES 1017RCCID DRAINS, WITH PERFORATED S.S. EXTENSION – HEIGHT TO SUIT ROOF CONSTRUCTION.

4. HOT WATER TANK
HWT–1:
SHALL BE RHEEM MODEL # EGSP10, 10 GAL. TANK CAPACITY, 2.5kW HEATING ELEMENT ELECTRIC HOT WATER TANK, SUITABLE FOR 208/1/60 POWER SUPPLY.

EQUIPMENT LIST

PACKAGED ROOFTOP AIR CONDITIONING UNITS

SYMBOL	UNIT		COOLING				HEATING			FAN PERFORMANCE					WEIGHT	
	MFGR.	CAT. NO.	TOTAL MBH	SENS MBH	EAT (EVAP) °F DB/WB	EAT (COND) °F DB	INPUT MBH	OUTPUT MBH	ELECT.	CFM	ESP IN. W.G.	RPM	BHP	MOTOR HP	LBS	REMARKS
RTU–1	CARRIER	48AJD025–D–111HH	311.94	229.86	80/67	92	265/350	287	575/3/60	11,000	1.50	923	10.6	15	4750	FIELD–SUPPLIED DRIVE
RTU–2	CARRIER	48AJD025–D–111HH	311.94	229.86	80/67	92	265/350	287	575/3/60	11,000	1.50	923	10.6	15	4750	FIELD–SUPPLIED DRIVE

NOTE:
1. ALL UNITS SHALL C/W ECONOMIZER, POWER EXHAUST & ROOF CURB
2. ALL UNITS SHALL COMPLY WITH MINIMUM REQUIREMENTS OF ASHRAE 90.1–2001 ENERGY EFFIEICNEY STARNDARDS
2. ALL UNITS SHALL COMPLY WITH DISCONNECTION SWITCH FROM SUPPLIER

FANS

SYMBOL	SERVICE	FAN		FAN PERFORMANCE									
		MFGR.	CAT. NO.	L/S	SP IN	RPM	BHP	HP	ELECT.	SONES	ROOF CURB	WEIGHT KGS	REMARKS
EF–1 EF–2	ELEC. ROOM EXHAUST	COOK	100 ACE–B	300	0.25	1346	0.07	1/6	112/1/60	7.5	RCG,RCA 16	6.8	CONTROLLER TO BE CONNECTED TO ON/OFF SWITCH.
EF–3	WASHROOM EXHAUST	COOK	100 ACE–B	212	0.35	1276	0.061	1/6	112/1/60	6.7	RCG,RCA 16	6.8	CONTROLLER TO BE CONNECTED TO ON/OFF SWITCH.

NOTE:

HUMIDIFIER

SYMBOL	UNIT		PERFORMANCE	ELECT.			ENVIRONTMENTAL CONDITIONS		
	MFGR.	CAT. NO.	HUMIDIFIER LOAD KG/HR	MAX. INPUT (KW)	VOLTAGE	PHASE	NO. OF CYLINDERS	STEAM HOSE I.D.	REMARKS
H–1	NORTEC	NH 010	1.46	3.8	208–600	1	1	7/8"	C/W REMOTEMOUNTED BLOWER PACKS,

TORONTO Urban Development Services Building
PERMIT REVIEWED FOR COMPLIANCE WITH THE ONTARIO BUILDING CODE
05 107737
ZONING
O.B.C.
FIRE SERVICES
MAY - 5 2005

Revision / Submission

#	Date	By	Comment
02	28/04/2005	B F	RE-ISSUED FOR BUILDING PERMIT
01	09/02/2005	B F	ISSUED FOR BUILDING PERMIT

Consultants

KEY PLAN

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PROJECT N

Seal
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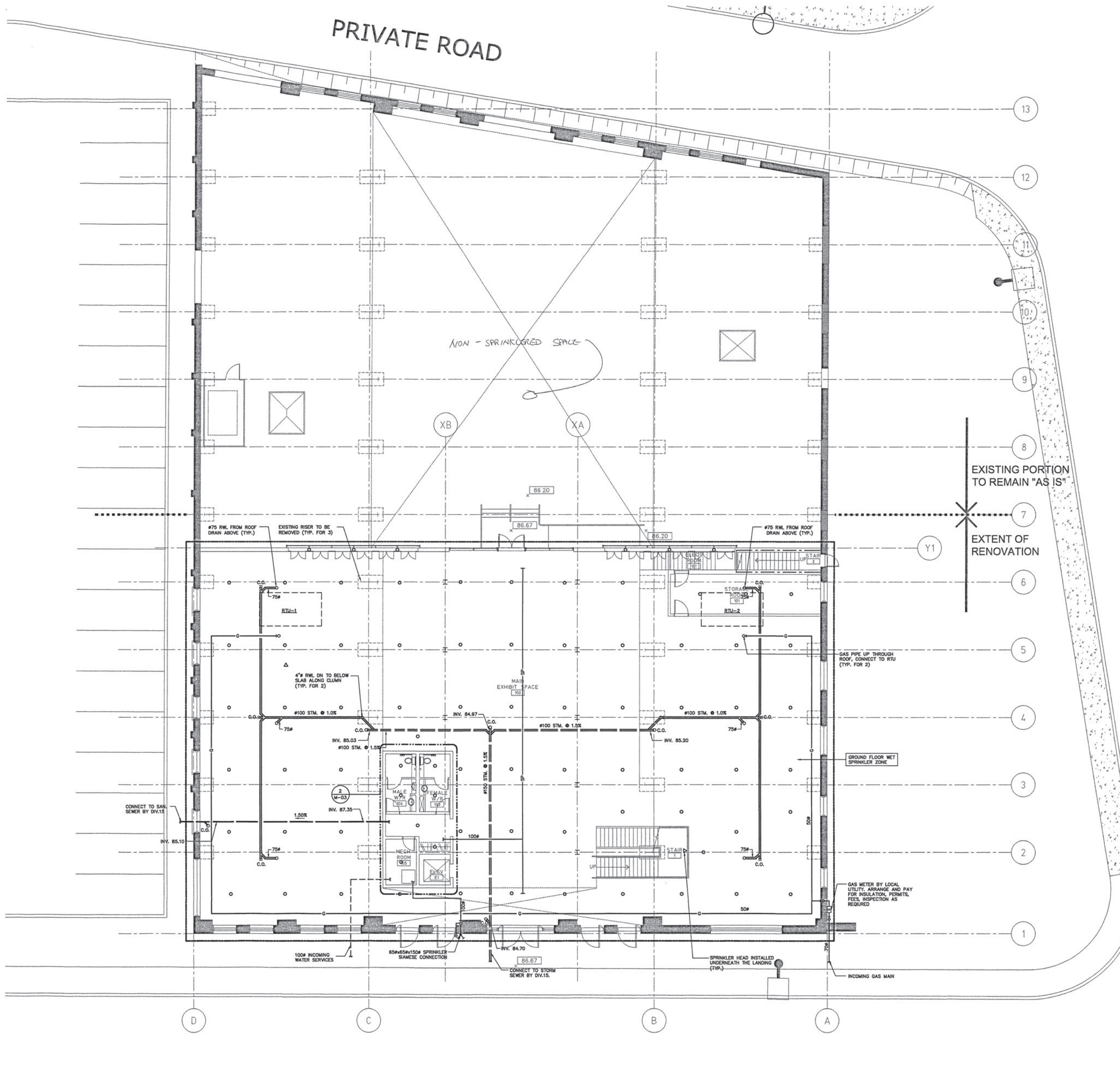
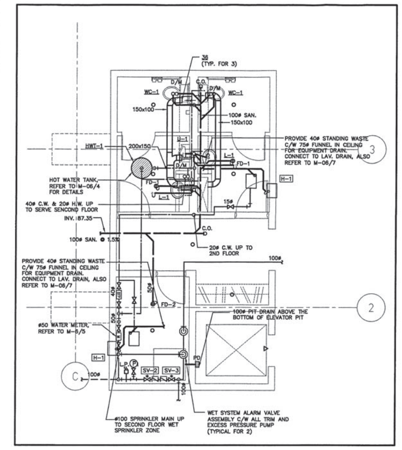
Project Title
LIBERTY VILLAGE SALES CENTRE LATNER BUILDING

Sheet Title
MECHANICAL SPECIFICATIONS AND LEGEND

CAD File	
Scale: AS NOTED	Date: APR, 2005
Drawn: T.Z	Checked: B.F.
Project No.: 2004-0478	Drawing No.: M-01



1 / M-03 GROUND FLOOR PLAN – PLUMBING & DRAINAGE
SCALE: 1:100



2 / M-03 GROUND FLOOR WASHROOM PLAN
SCALE: 1:50

Revision / Submission

#	Date	By	Comment
02	28/04/2005	B.F.	RE-ISSUED FOR BUILDING PERMIT
01	09/02/2005	B.F.	ISSUED FOR BUILDING PERMIT

Consultants


KEY PLAN

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CONSULTANTS
READ JONES CHRISTOFFERSEN LTD

PROJECT N

Seal: REGISTERED PROFESSIONAL ENGINEER, B.P. FARKAS, APR. 28/05, PROVINCE OF ONTARIO

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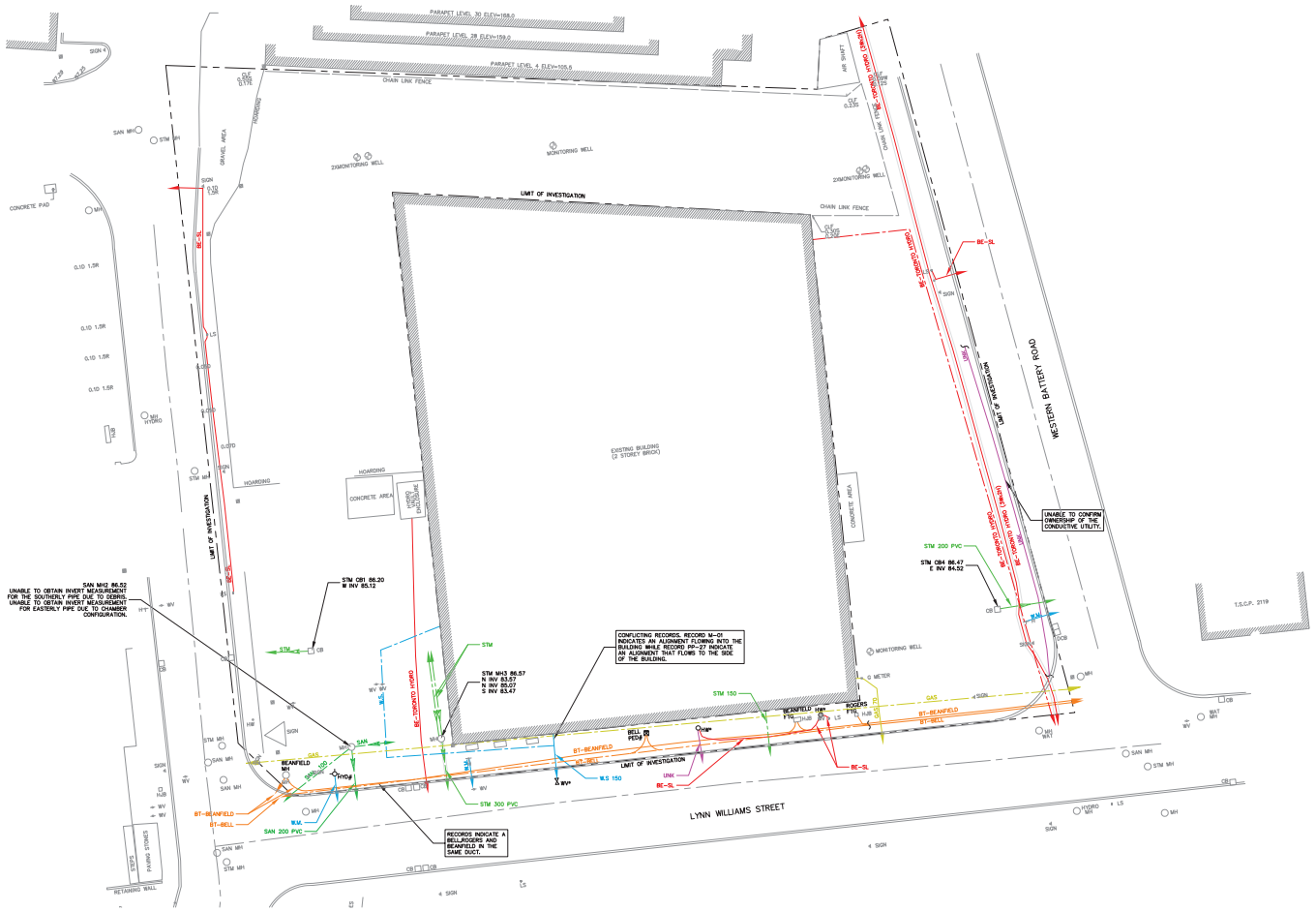
Project Title
LIBERTY VILLAGE SALES CENTRE LATNER BUILDING

Sheet Title
GROUND FLOOR PLAN PLUMBING & DRAINAGE

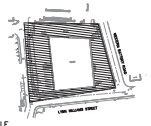
CAD File

Scale	Date
1:100	APR., 2005
Drawn	**Checked**
T.Z	B.F.
Project No.	**Drawing No**
2004-0478	M-03

TORONTO Urban Development Services Building
PERMIT REVIEWED FOR COMPLIANCE WITH THE ONTARIO BUILDING CODE
05 107737
MAY - 6 2005



KEY PLAN



NOT TO SCALE

GENERAL NOTES

1. T2UE'S SUE FIELD INVESTIGATION WAS PERFORMED IN MARCH 2022. 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:

- AREA OF 80-86 LYNN WILLIAMS STREET.

3. FIELD VERIFICATION OF UTILITIES WAS COMPLETED USING A COMBINATION OF ELECTROMAGNETIC PIPE AND CABLE LOCATE EQUIPMENT.

4. EMPTY CONDUITS, SERVICES, LATERALS TO BUILDINGS, ABANDONED FACILITIES SUCH AS STREET LIGHT CABLES, WITHIN THE INVESTIGATION AREA MAY NOT BE SHOWN ON THE DRAWING.

5. T2UE USED AVAILABLE MEANS IN AN ATTEMPT TO DETERMINE THE LOCATION OF UNDOCUMENTED UTILITIES HOWEVER CANNOT BE RESPONSIBLE FOR FINDING ALL UNDOCUMENTED UTILITIES.

6. THE BASEPLAN WAS PROVIDED BY IBI, THEREFORE T2UE IS NOT RESPONSIBLE FOR ITS ACCURACY.

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

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

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 CONDUCTIVE
FOC	FIBRE OPTIC CABLE
TV	BURIED TELEVISION CABLE
BT	BURIED TELECOMMUNICATIONS
OH	OVERHEAD WIRE
	QUALITY LEVEL "B"
	QUALITY LEVEL "C"
	QUALITY LEVEL "D"
	LIMIT OF INVESTIGATION
	TEST HOLE QUALITY LEVEL "A"
	CONTINUATION ARROW
	FLOW ARROW
	END CAP
*	NOT SURVEYED, LOCATION BASED ON FIELD OBSERVATION
#	NOT SURVEYED, LOCATION BASED ON RECORD INFORMATION
O/S	OFFSET
	LOSS OF SIGNAL

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.

T2utility 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	N.K. 04/05/22
CHECKED	H.Y. 04/21/22
APPROVED	

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

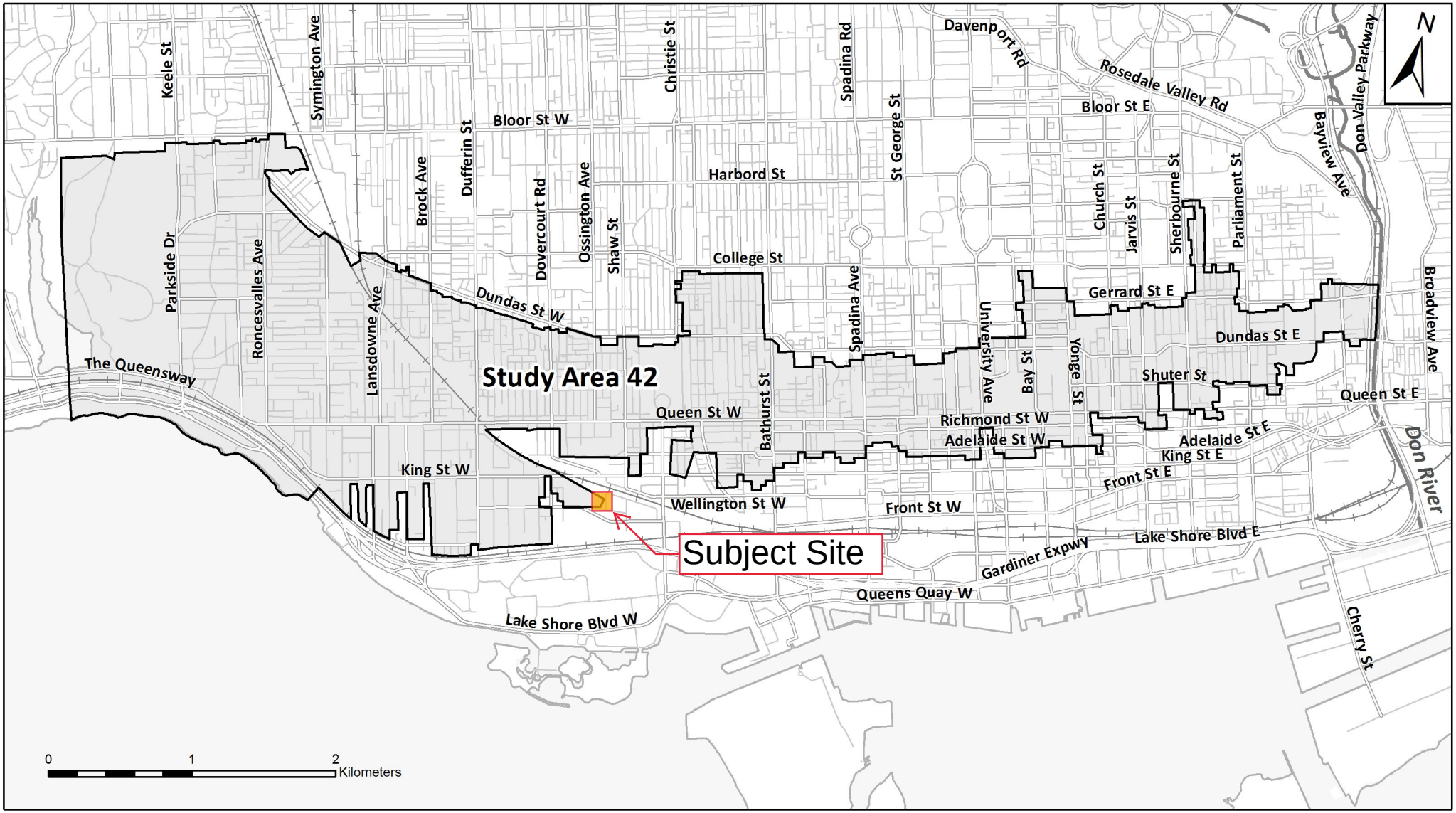
PROJECT.
80-86 LYNN WILLIAMS STREET
TORONTO, ONTARIO

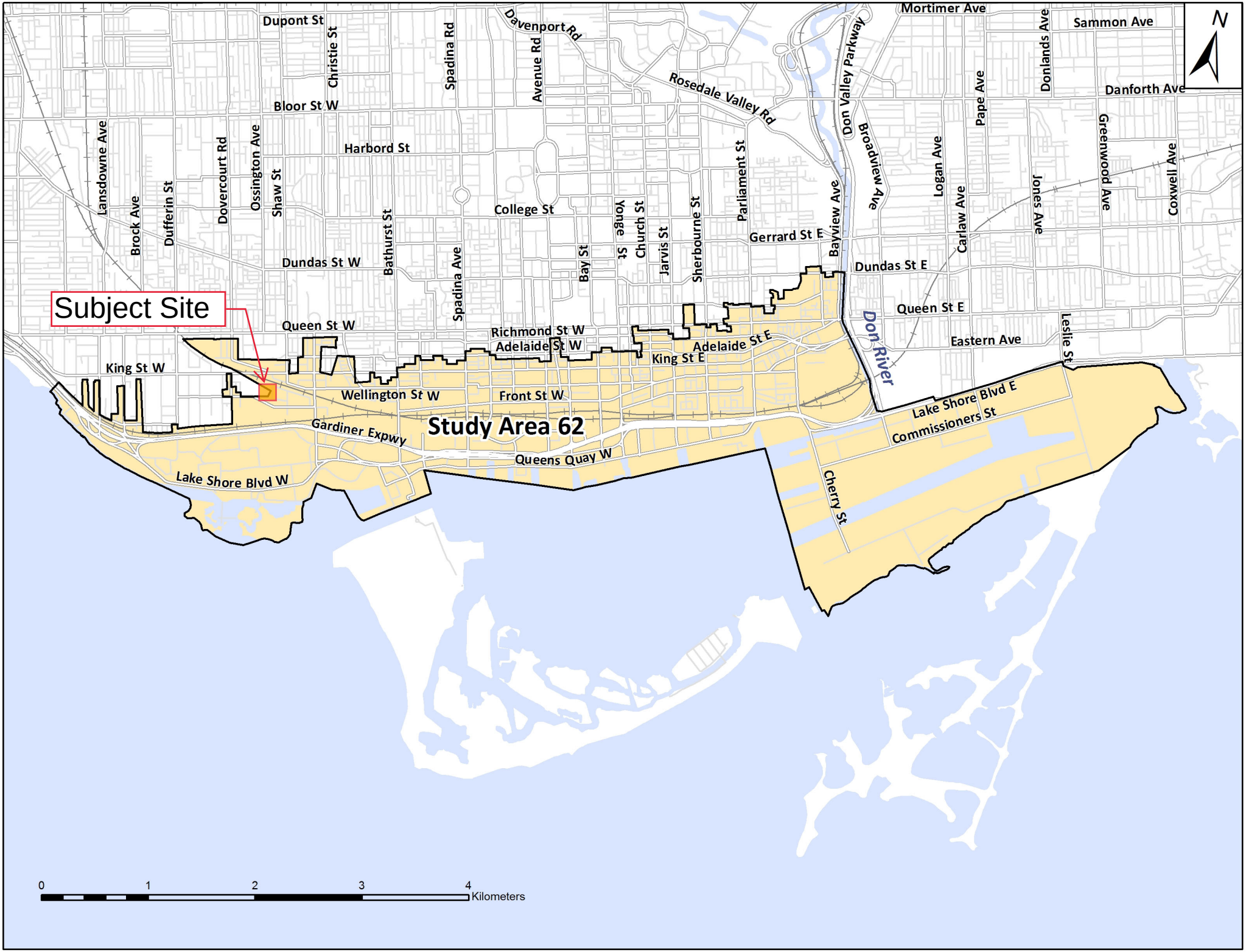
DRAWING.
SUBSURFACE UTILITY ENGINEERING
MAPPING SERVICES

CLIENT.
IBI

PROJECT NO. 61002281

SHEET NO. 01 OF 01


Study Area 42
Subject Site
N
Keele St
Symington Ave
Brock Ave
Dufferin St
Bloor St W
Christie St
Spadina Rd
Davenport Rd
Rosedale Valley Rd
Bloor St E
Don Valley Parkway
Bayview Ave
Broadview Ave
Harbord St
St George St
Church St
Jarvis St
Sherbourne St
Parliament St
Dovercourt Rd
Ossington Ave
Shaw St
College St
Parkside Dr
Roncesvalles Ave
Lansdowne Ave
Dundas St W
Spadina Ave
University Ave
Bay St
Yonge St
Gerrard St E
Dundas St E
Shuter St
Queen St E
The Queensway
Bathurst St
Queen St W
Richmond St W
Adelaide St W
Adelaide St E
King St E
King St W
Front St E
Wellington St W
Front St W
Don River
Gardiner Expwy
Lake Shore Blvd E
Queens Quay W
Lake Shore Blvd W
Cherry St
0
1
2
Kilometers


Subject Site
Study Area 62
N
Dupont St
Christie St
Spadina Rd
Davenport Rd
Avenue Rd
Rosedale Valley Rd
Mortimer Ave
Don Valley Parkway
Donlands Ave
Sammon Ave
Danforth Ave
Pape Ave
Greenwood Ave
Coxwell Ave
Jones Ave
Broadview Ave
Logan Ave
Carlaw Ave
Parliament St
Bayview Ave
Sherbourne St
Jarvis St
Church St
Yonge St
Bay St
Bloor St W
Harbord St
College St
Dundas St W
Dundas St E
Gerrard St E
Queen St W
Queen St E
Richmond St W
Adelaide St W
Adelaide St E
King St W
King St E
Eastern Ave
Leslie St
Lansdowne Ave
Brock Ave
Dufferin St
Dovercourt Rd
Ossington Ave
Shaw St
Bathurst St
Spadina Ave
Wellington St W
Front St W
Gardiner Expwy
Queens Quay W
Lake Shore Blvd W
Lake Shore Blvd E
Commissioners St
Cherry St
Don River
0
1
2
3
4
Kilometers

Appendix B

Groundwater

Hydrogeological Investigation Excerpt (Terrapex)

Groundwater Servicing Summary Form

Watertight Confirmation Letters

Shiplake Properties Limited

HYDROLOGICAL REVIEW

PROPOSED MIXED-USE DEVELOPMENT
70 & 86 LYNN WILLIAMS STREET
TORONTO, ONTARIO

28 July 2023
(updated from 28 April 2022 version)

CT2867.00

Digital distribution
Shiplake Properties Limited
Terrapex Environmental Ltd.

Terrapex Environmental Ltd.
90 Scarsdale Road
Toronto, Ontario, M3B 2R7
Telephone: (416) 245-0011
Facsimile: (416) 245-0012
Email: toronto@terrapex.com
Website: www.terrapex.com

EXECUTIVE SUMMARY

Terrapex Environmental Ltd. (Terrapex) has prepared this hydrogeological review for the planned development of 70 & 86 Lynn Williams Street in the City of Toronto. The development will include a high-rise tower built over the northern portion of the property, underlain by an underground parking garage constructed to two levels across the tower footprint. The heritage building to the south will be retained.

Previous work on site consisted of installing a network of groundwater monitoring wells at six locations to assess two and a partial three levels of underground parking. Measurement of groundwater levels for six events at two-week intervals, performing single well hydraulic tests, and analyzing one groundwater sample for suitability for discharge to the City of Toronto's sewers was undertaken. Additional field investigations, testing, sampling, monitoring and office analysis are being undertaken to evaluate a continuous two levels of underground parking. Any changes identified through these additional tasks will be presented in an updated report, if required.

The previously observed shallowest water table was at a depth of 1.5 metres below ground with an average of 2.9 mbg. The highest previously observed groundwater elevation was 85.1 metres above sea level (masl). These values indicate the construction excavation will extend down into saturated soils and bedrock.

Based on the construction excavation for the garage to construct the raft slab, the excavation will experience seepage that will need to be managed. The anticipated combined maximum rate of groundwater seepage (21,202 litres/day) and stormwater from a larger event (81,324 litres) to manage will be 102,526 litres per day, which will require an Environmental Activity and Sector Registry (EASR). The calculated dewatering rate should be re-assessed once in-situ hydraulic conductivity testing of the new groundwater monitoring wells and associated drilling information becomes available. Previous hydraulic conductivity tests were conducted in less fractured rock so are biased to lower hydraulic conductivity than might be experienced. It is anticipated that the building will be constructed as water-tight, so no foundation drainage rate has been calculated.

Previous groundwater quality was acceptable for discharge - with respect to the City of Toronto bylaw - to either a sanitary/combined sewer or to a storm sewer. Elevated total suspended solids should be anticipated due to disturbance of soils during construction, with treatment by settlement and/or filtration being potential methods.

Pre-construction land use consists of mostly impervious cover of the two buildings and limited paving, with minor pervious cover of exposed soil. The post-construction land use will consist entirely of impervious surfaces of the new tower, heritage building, surface parking, and the subsurface parking garage, which would reduce infiltration that recharges groundwater. There is no space available for low impact development (LID) measures to promote infiltration. Regardless, the relatively low permeability of clayey soils would otherwise limit the amount of water that an LID system could be recharged.

TABLE OF CONTENTS (CONT'D)

6.0 DEWATERING

6.1 RATE PREDICTION

The Ministry of the Environment, Conservation and Parks (MECP) requires a Permit to Take Water (PTTW) or an Environmental Activity and Sector Registry (EASR) for groundwater takings exceeding 50,000 litres per day (L/day). For the purpose of construction, a PTTW is required for groundwater extraction rates that exceed 400,000 L/day. An EASR is required for a rate between 50,000 and 400,000 L/day.

Estimation of the rate of dewatering to counteract groundwater inflows is based on mathematical analogy to a simplified elongated rectangular trench (Powers et al, 2007). The tower footprint has been simplified into a rectangular trench with dimensions of 75.3 m length and 43.2 m width. The calculations anticipated that the subsurface will respond with hydrogeological behaviour similar to an unconfined aquifer. The formula, anticipated geometric conditions, and input values are specified on Table 4. A hydraulic conductivity value of 1.4×10^{-8} m/s was input. The calculations predict groundwater seepage at a maximum rate of 21,202 L/day to be managed, with a safety factor of 2.0.

The open excavation will capture incident precipitation. The trench dimension excavation area of 3,253 m^2 and a relatively large precipitation event of 25 mm will capture approximately 81,324 litres. Such precipitation events are anticipated to recur four to five times per year. Obviously, larger precipitation events would produce larger amounts to manage, although occurring less frequently. The precipitation amount must be added to the groundwater seepage amount in the application.

The combined amount of 21,202 L/day of groundwater seepage plus 81,324 L/day for stormwater results in 102,526 L/day. This combined amount indicates that construction dewatering will require an application for an EASR.

The calculated dewatering rate is considered possible and should be re-assessed once in-situ hydraulic conductivity testing of the new groundwater monitoring wells with screens within 2 m of the planned foundations for 2 subsurface levels and associated drilling information becomes available. As previously stated, previous hydraulic conductivity tests were conducted in less fractured rock so are biased to lower hydraulic conductivity than might be experienced.

The cumulative amount pumped from excavations should be monitored daily to confirm that the requested pumping rate limit stated in the EASR is not exceeded. Approval will have to be obtained from the City of Toronto to allow dewatering discharge to the storm sewer or sanitary sewer, whichever type of outlet is proposed as a receiver.

As noted, it is anticipated that foundation drains will not be constructed because of the municipal requirement for a waterproof structure, so management will not be required in the long term.

6.2 RADIUS OF INFLUENCE AND SENSITIVE RECEIVERS

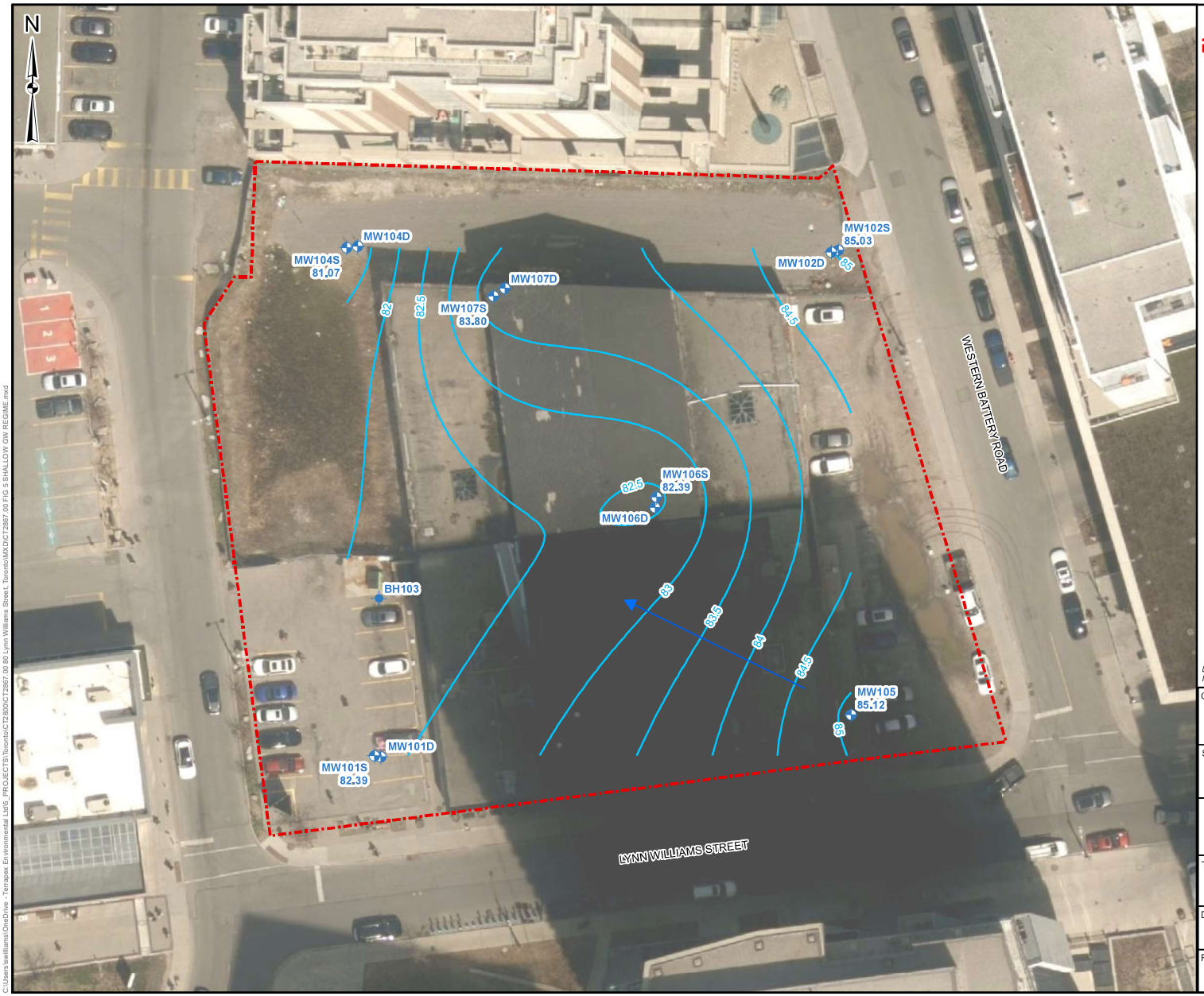
The radius of influence is the distance range beyond which the drawdown on groundwater caused by dewatering is not expected to be detectable. The radius of influence is commonly estimated using the formula of Sichardt and Kryieleis (Powers et al, 2007), which is noted in Table 4. The

trench dimensions with previously calculated hydraulic conductivities predict a radius of influence of approximately 3.5 m beyond the excavation boundary.

No off-site ecologically sensitive receivers or private water supply wells exist within the radius of influence that could be negatively affected by dewatering. No adjacent buildings are located within the radius of influence to be affected by settlement.

6.3 WATER QUALITY OF DISCHARGE

As noted in Section 5.3, the previous groundwater quality analysis was satisfactory for discharge to sanitary/combined and storm sewers. Groundwater could be discharged to either the sanitary/combined sewer or to the storm sewer without treatment. The City requires a sample that was obtained no older than 9 months prior for the purpose of supporting a private water discharge application. A new sample will be obtained for this purpose.



LEGEND

- SITE BOUNDARY
- BOREHOLE
- MONITORING WELL
- EQUIPOTENTIAL CONTOUR
- GROUNDWATER FLOW DIRECTION
- 87.50 STATIC WATER LEVEL (4 Feb. 2023) (m ASL)

0 5 10 15 20
Metres

DATA SOURCE: CITY OF TORONTO
MAP PROJECTION: NAD 1983 UTM ZONE 17N

CLIENT:
SHIPLAKE PROPERTIES LIMITED

SITE LOCATION:
70 & 86 LYNN WILLIAMS STREET TORONTO, ON

TERRAPEX

TITLE:
SHALLOW GROUNDWATER REGIME

DRAWN BY:	PROJECT NO.:	CHECKED BY:
JS/SW	CT2867.00	AD
REVISION:	DATE:	FIGURE:
00	JULY 2023	**5**

C:\Users\swilliams\OneDrive - Terrapex Environmental Ltd\5_PROJECTS\Toronto\CT2800\CT2867.00 80 Lynn Williams Street, Toronto\MXD\CT2867.00 FIG 5 SHALLOW GW REGIME.mxd

October 2017

SERVICING REPORT GROUNDWATER SUMMARY

The form is to be completed by the Professional that prepared the Servicing Report.
Use of the form by the City of Toronto is not to be construed as verification of engineering/hydrological content.

For City Staff Use Only:	
Name of ECS Case Manager (please print)	
Date Review Summary provided to to TW	

A. SITE INFORMAITON		**Included in SR (reference page number)**	**Report Includes this information City staff (Check)**
Date Servicing Report was prepared:	October 2023	Cover Page	
Title of Servicing Report:	Functional Servicing Report	Cover Page	
Name of Consulting Firm that prepared Servicing Report:	Arcadis IBI Group	Cover Page	
Site Address	70 & 86 Lynn Williams Street Toronto, Ontario	1	
Postal Code	M6K 3N6	1	
Property Owner (identified on planning request for comments memo)	Shiplake LTD.	1	
Proposed description of the project (ex. number of point towers, number of podiums, etc.)	43-Storey residential tower with ground floor retail	2	
Land Use (ex. commercial, residential, mixed, industrial, institutional) as defined by the Planning Act	Mixed	2	
Number of below grade levels	2 levels	2	

SERVICING REPORT GROUNDWATER SUMMARY

Does the SR include a private water drainage system (PWDS)? **PWDS: Private Water Drainage System:** A subsurface drainage system which may consist of but is not limited to weeping tile(s), foundation drain(s), private water collection sump(s), private water pump or any combination thereof for the disposal of private water on the surface of the ground or to a private sewer connection or drainage system for disposal in a municipal sewer.	If **Yes** continue completing Section B (Information Relating to Groundwater) **ONLY** **If Yes, Number of PWDS?** 0 *(Each of these PWDS may require a separate Toronto Water agreement)* If **No** skip to Sections C (On-site Groundwater Containment) and/or D (Water Tight Requirements) as applicable	☐ YES ☉ NO	
B. INFORMATION RELATING TO GROUNDWATER		**Included in SR (reference page number)**	**Report Includes this information City Staff (Check)**
A copy of the pump schedule(s) for **ALL** groundwater sump pump(s) for the development site has been included in the FSR **or** A letter written by a Mechanical Consultant (signed and stamped by a Professional Engineer of Ontario) shall be attached to the SR stating the peak flow rate of the groundwater discharge for the development site for all groundwater sump pump(s). This peak flow rate must be based on the pump schedule(s) that have been designed by the Mechanical Consultant. A template of this letter is attached in Schedule A.	Short-term discharge to combined sewer. No long-term discharge (bathtub), therefore no pump schedule provided.	5	

TORONTO

October 2017

SERVICING REPORT GROUNDWATER SUMMARY

****If there is more than one sump they must ALL be included in the letters along with a combined flow****			
Is it proposed that the groundwater from the development site will be discharged to the sanitary, combined or storm sewer?	☉ Sanitary Sewer ☐ Combined Sewer ☐ Storm Sewer	Only under short-term conditions. See Page 5.	
Will the proposed PWDS discharge from the site go to the Western Beaches Tunnel (WBT)? *Reference attached WBT drainage map*	☐ YES ☉ NO **If Yes, private water discharge fees will apply and site requires a sanitary discharge agreement.**		
What is the street name where the receiving sewer is located?	Lynn Williams Street	5	
What is the diameter of the receiving sewer?	525mm sanitary (Short-term only)	5	
Is there capacity in the proposed local sewer system? ☐ YES ☐ NO To be confirmed at release of Infoworks model for BFA 62	Are there any improvements required to the sewer system? If yes, identify them below and refer to the section and page number of the FSR where this information can be found. If a sewer upgrade is required, the owner is required to enter into an Agreement with the City to improve the infrastructure? ☐ YES	12	
Total allowable peak flow rate during a 100 year storm event (L/sec) to storm sewer When groundwater is to be discharged to the storm sewer the total groundwater and stormwater discharge shall not exceed the permissible peak flow rate during a 2 year pre development storm event, as per the City's	36.6 L/sec N/A	7	

SERVICING REPORT GROUNDWATER SUMMARY

Wet Weather Flow Management Guidelines, dated 2006			
Short-Term Groundwater Discharge Provide proposed total flow rate to the sanitary/combined sewer in post-development scenario Total Flow (L/sec) = sanitary flow + peak short-term groundwater flow rate	Average flow =1.19 L/s; Pumped flow =3.57 L/s (8 hrs pumping) 3.57 L/sec	5	
Long-Tem Groundwater Discharge Provide proposed total flow rate to the sanitary/combined sewer in post-development scenario Total Flow (L/sec) = sanitary flow + peak long-term groundwater flow rate	10.6 L/sec	12	
Does the water quality meet the receiving sewer Bylaw limits? ☉ YES ☐ NO	If the water quality does not meet the applicable receiving sewer Bylaw limits and the applicant is proposing a treatment system the applicant will need to include a letter stating that a treatment system will be installed and the details of the treatment system will be included in the private water discharge application that will be submitted to TW EM&P.	5	
C. ON-SITE GROUNDWATER CONTAINMENT		**Included in SR (reference page number)**	**Report Includes this information City Staff (Check)**
How is the site proposing to manage the groundwater discharge on site?	Watertight Foundation	5	

October 2017

SERVICING REPORT GROUNDWATER SUMMARY

Has the above proposal been approved by:	◯ TW-WIM And ◯ TW-EM&P And ◯ ECS		
If the site is proposing a groundwater infiltration gallery, has it been stated that the groundwater infiltration gallery will not be connected to the municipal sewer? A connection between the infiltration gallery/dry well and the municipal sewer is not permitted Please be advised if an infiltration gallery/dry well on site is not connected to the municipal sewer, the site **must** submit two letters using the templates in Schedule B and Schedule C.	☐ YES ☑ NO	N/A	
Confirm that the infiltration gallery can infiltrate 100% of the expected peak groundwater flow year round, ensure that the top of the infiltration trench is below the frost line (1.8m depth), not less than 5 m from the building foundation, bottom of the trench 1m above the seasonally high water table, and located so that the drainage is away from the building.	N/A	N/A	
D. WATER TIGHT REQUIREMENTS		**Included in SR (reference page number)**	**Report Includes this information City Staff**

SERVICING REPORT GROUNDWATER SUMMARY

		(Check)
If the site is proposing a water tight structure: 1. The owner must submit a letter using the template in Schedule D. 2. A Professional Engineer (Structural), licensed to practice in Ontario and qualified in the subject must submit a letter using the template in Schedule E.	Appendix B	

Provide a copy of the approved SR to Toronto Water Environmental Monitoring & Protection Unit at pwapplication@toronto.ca.

Consulting Firm that prepared Servicing Report: Arcadis IBI Group

Professional Engineer who completed the report summary: Jason Jenkins, P.Eng., P.E.
Print Name

Professional Engineer who completed the report summary:   October 2023
Signature Date & Stamp

Schedule A: Template Letter from Mechanical Consultant confirming peak groundwater flow rate

[Mechanical Consultant Company Letterhead]
[Company Name]
[Company Address and Contact Information]

[Date]
Attention: Executive Director, Engineering and Construction Services
c/o Manager, Development Engineering
[ADDRESS]

cc: General Manager, Toronto Water
c/o Manager, Environmental Monitoring and Protection Unit
30 Dee Ave, Toronto ON M9N 1S9

Shiplake Properties Ltd.

695238 Ontario Limited.

June 27th , 2023

Attention: Chief Engineer and Executive Director, Engineering and Construction Services

c/o Manager, Development Engineering

Toronto City Hall, 24th fl E. 100 Queen St. W Toronto On M5H 2N2

cc: General Manager, Toronto Water

c/o Manager, Environmental Monitoring and Protection Unit

30 Dee Ave, Toronto ON M9N 1S9

Dear Sir or Madam,

I **Stephen Bloom,** confirm and undertake that I will construct and maintain all building(s) on the subject lands (86 Lynn Williams) in a manner which shall be completely water-tight below grade and resistant to hydrostatic pressure without any necessity for Private Water Drainage System (subsurface drainage system) consisting of but not limited to weeping tile(s), foundation drain(s), private water collection sump(s), private water pump or any combination thereof for the disposal of private water on the surface of the ground or to a private sewer connection directly or indirectly or drainage system for disposal directly or indirectly in a municipal sewer.

Stephen Bloom – Chief Executive Officer

Name (printed) and Title

Sbloom@shiplake.com

Email

Stephen Bloom

Stephen Bloom (Jun 27, 2023 13:06 EDT)

Signature

I, Stephen Bloom, have the authority to bind the corporation. I have attached the following documents, confirming that I have ownership to bind the corporation:

Corporation Profile Report obtained within 30 days

AND

Parcel Register obtained within 30 days

JABLONSKY, AST AND PARTNERS
Consulting Engineers

400 - 3 Concorde Gate
Toronto, ON M3C 3N7
Telephone (416) 447-7405
www.astint.on.ca
Email jap@astint.on.ca

June 27, 2023

Attention: Executive Director, Engineering and Construction Services
c/o Manager, Development Engineering
Metro Hall, 55 John Street, 16th Floor, Toronto, ON M5V 3C6

cc: General Manager, Toronto Water
c/o Manager, Environmental Monitoring and Protection Unit
30 Dee Avenue, Toronto, ON M9N 1S9

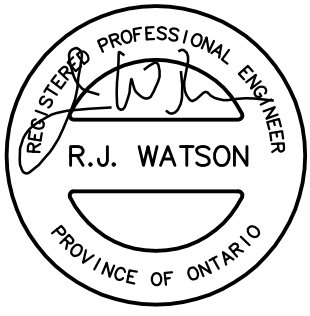
Re: 70 and 86 Lynn Williams
Raft Foundation – Water-tight Design
Our Project No. 21099

Dear Sir or Madam,

I, Jeff Watson, P. Eng., confirm that all buildings on the subject lands of 70 and 86 Lynn Williams will be structurally designed to be completely water-tight below grade in a manner that will resist hydrostatic pressure. However, as per good engineering practice, the Mechanical Engineering Firm has designed a drainage system for only the sub-floor in the event of any minor leaks or damage to the waterproofing system, which cannot be repaired after installation. The drainage system will not have any connections to the foundation wall and the water infiltration is expected to be null. The sub-floor drainage system designed by the Mechanical Engineer will comply with the current City requirements for groundwater, so any water collected will be monitored and discharged under a Sanitary Discharge Agreement with the City of Toronto.

Yours very truly,

JABLONSKY, AST AND PARTNERS
CONSULTING ENGINEERS



Jeff Watson, P. Eng.
Partner
jwatson@astint.on.ca

MCW Consultants Ltd.

Queen's Quay Terminal
207 Queen's Quay West,
Suite 615
Toronto, Ontario M5J 1A7

Phone (416) 598-2920
Fax (416) 598-5394
Internet: www.mcw.com

June 29th, 2023

Attention: Executive Director, Engineering and Construction Services

c/o Manager, Development Engineering

cc: General Manager, Toronto Water
c/o Manager, Environmental Monitoring & Protection Unit
70 – 86 Lynn Williams
Collecdev
MCW Project Number: 23107

Dear Sir or Madam,

I Agustin Olt, confirm that all buildings on the subject lands at 70 – 86 Lynn Williams, in Toronto will be designed and constructed by others to be completely water-tight below grade in a manner that will resist hydrostatic pressure. However, as per good engineering practice, I will design a discharge drainage system for only the sub-floor in the event of any minor leaks or damage to the waterproofing system, which cannot be repaired after installation. The drainage system will not have any connections to the foundation wall and since the foundation is water-tight the water infiltration is expected to be null.

The sub-floor drainage system will comply with the current City requirements for groundwater, so any water collected will be monitored and discharged under a Sanitary Discharge Agreement with the City of Toronto.

Agustin Olt
P.Eng (Mechanical)
aolt@mcw.com

Appendix C

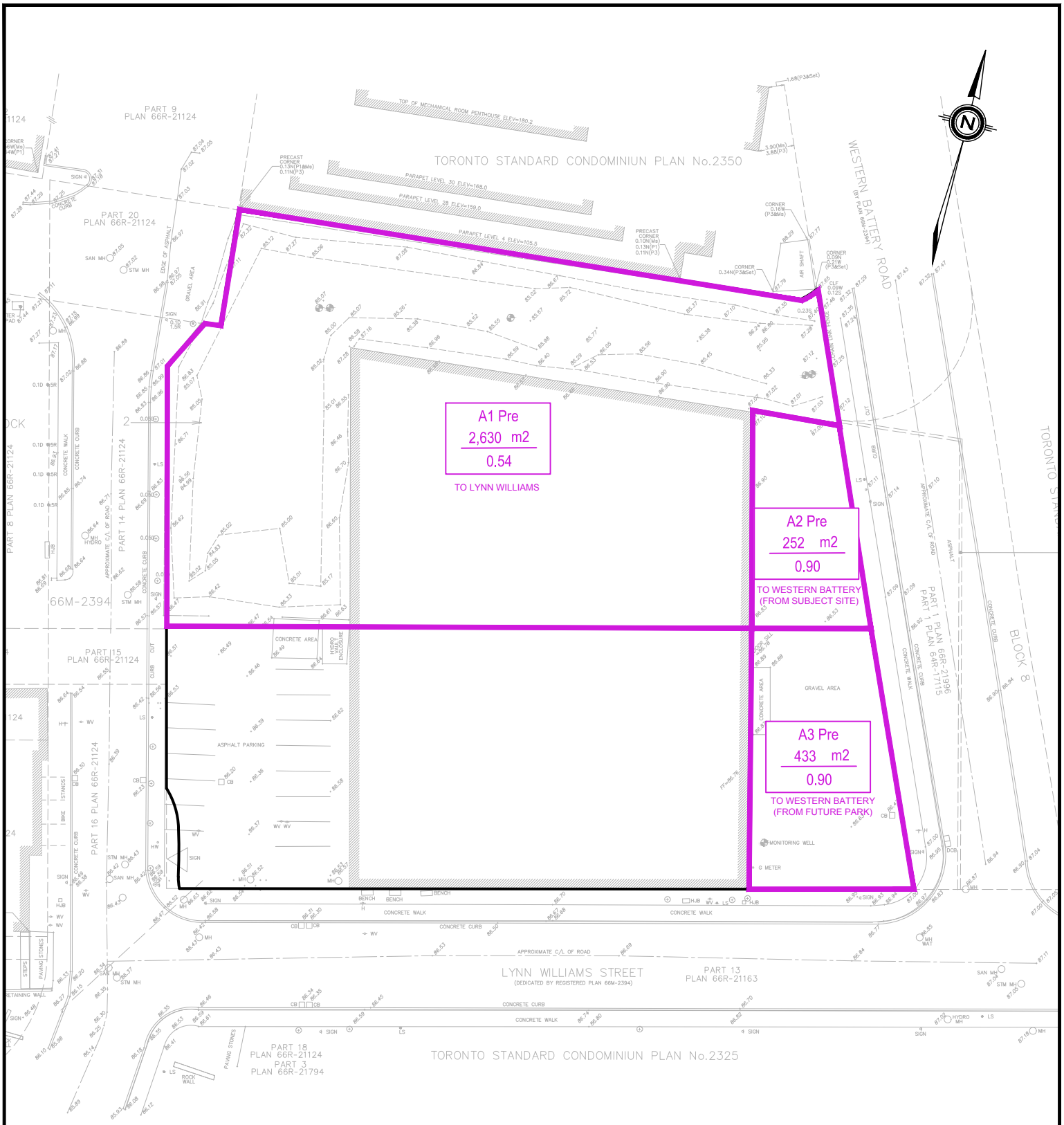
Stormwater Analysis

Drainage Area Plans

Stormwater Design Calculations

Stormfilter Design (Contech)

Irrigation Calculations (Creative Irrigation)



LEGEND

- PROPERTY LINE
- DRAINAGE BOUNDARY
- OVERLAND FLOW DIRECTION

CLIENT: COLLECDEV INC. 20 EGLINTON AVENUE WEST, SUITE 1700 TORONTO, ON M4R 1K8	PROJECT NAME: 70 & 86 LYNN WILLIAMS STREET		ARCADIS		
	SCALE: NTS	DATE: 2023-07-26	FIGURE NAME: PRE-DEVELOPMENT STORM DRAINAGE PLAN	FIGURE NO.: DAP-1	REVISION: 1
	PROJECT ENG: JMJ	DRAWN BY: SB			
	CHECKED BY: JMJ	APPROVED BY: JMJ			
	PROJECT NO: 143025				

SCALE CHECK 1 in 10mm

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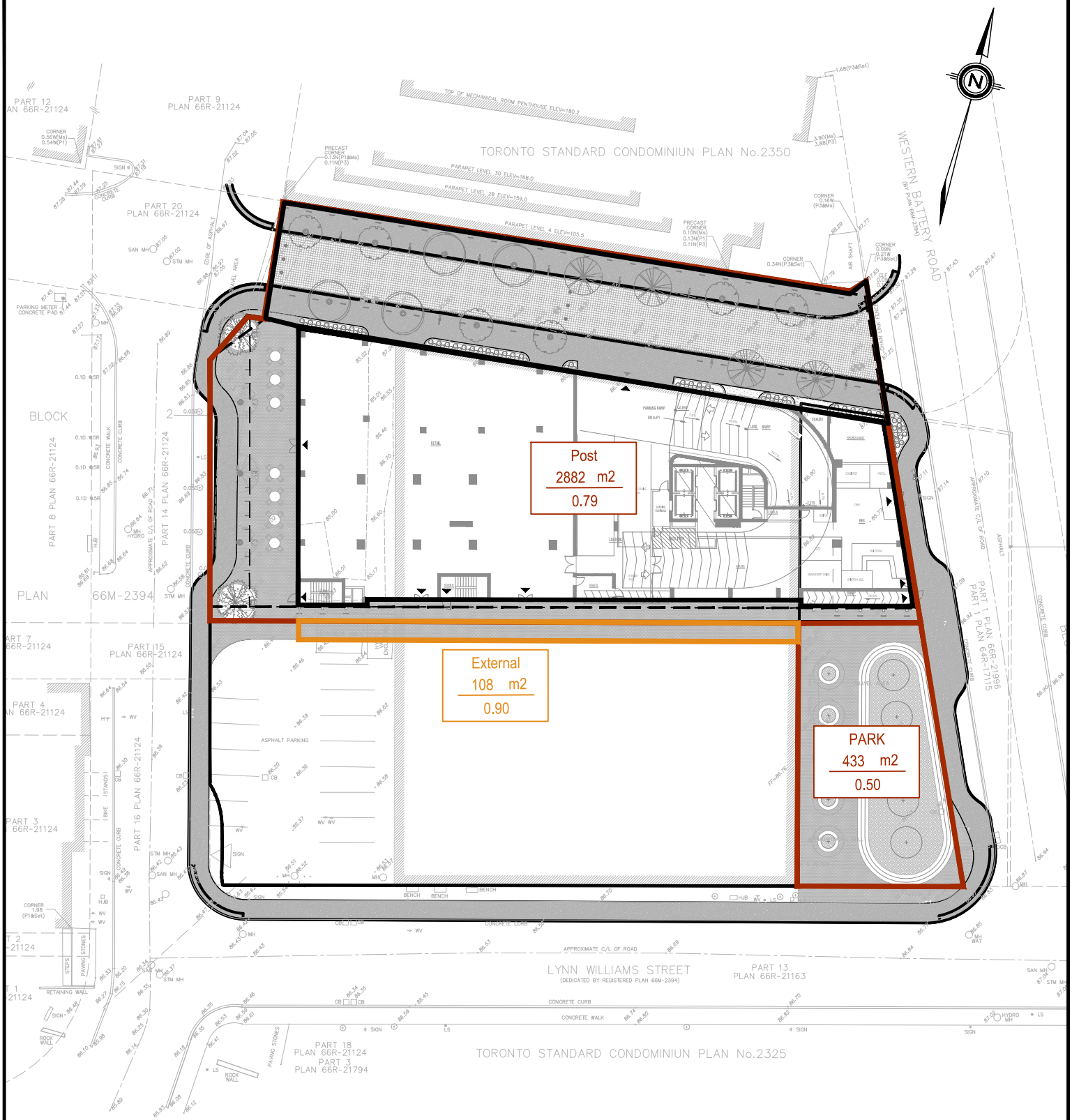

LEGEND

- PROPERTY LINE
- DRAINAGE BOUNDARY
- OVERLAND FLOW DIRECTION

CLIENT	COLLECDEV INC.
	20 EGLINTON AVENUE WEST, SUITE 1700 TORONTO, ON M4R 1K8
PROJECT NAME	70 & 86 LYNN WILLIAMS STREET
SCALE:	NTS
DATE:	2023-07-26
PROJECT ENG:	JMJ
DRAWN BY:	SB
CHECKED BY:	JMJ
APPROVED BY:	JMJ
PROJECT NO:	2020-0016
FIGURE NAME	POST-DEVELOPMENT STORM DRAINAGE PLAN
FIGURE NO.	DAP-2
REVISION	1

ARCADIS

SCALE CHECK 1 in 10mm

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86 & 70 Lynn Williams Street

Mixed use Development

ARCADIS

Runoff Coefficients

Project Name: 86 & 70 Lynn Williams Street
Project Number: 143025
Date: September 29, 2023
Designed By: SB

Pre-Development: A1 Pre (TO LYNN WILLIAMS)				
Conventional Roof	1,170	44.5%	0.90	0.40
Green Roof:	0	0.0%	0.50	0.00
Landscaping:	1,460	55.5%	0.25	0.14
Permeable Pavers:	0	0.0%	0.55	0.00
Impervious:	0	0.0%	0.90	0.00
Total Area:	**2,630**	100%		**0.54**

Pre-Development: A2 Pre (TO WESTERN BATTERY)				
Conventional Roof	0	0.0%	0.90	0.00
Green Roof:	0	0.0%	0.50	0.00
Landscaping:	0	0.0%	0.25	0.00
Permeable Pavers:	0	0.0%	0.55	0.00
Impervious:	252	100.0%	0.90	0.90
Total Area:	**252**	100%		**0.90**

Pre-Development: Total				
Conventional Roof	1,170	40.6%	0.90	0.37
Green Roof:	0	0.0%	0.50	0.00
Landscaping:	1,460	50.7%	0.25	0.13
Permeable Pavers:	0	0.0%	0.55	0.00
Impervious:	252	8.7%	0.90	0.08
Total Area:	**2,882**	100%		**0.57**

Post-Development (TO LYNN WILLIAMS)				
Conventional Roof	1,070	37.1%	0.90	0.33
Ext. Green Roof:	474	16.5%	0.50	0.08
Int. Green Roof:	218	7.6%	0.50	0.04
Landscaping:	52	1.8%	0.25	0.00
Permeable Pavers:	0	0.0%	0.55	0.00
Impervious:	1,068	37.1%	0.90	0.33
Total Area:	**2,882**	100%		**0.79**

86 & 70 Lynn Williams Street
Mixed use Development

ALLOWABLE RELEASE RATE AND STORM SERVICE DESIGN
2 / 100 -YEAR STORM SEWER DESIGN SHEET

ARCADIS

$I_{2\text{-year}} = \frac{21.8}{(T)^{0.78}} = 88.19$ mm/hr

$I_{100\text{-year}} = \frac{59.7}{(T)^{0.80}} = 250.32$ mm/hr

Project Name: 86 & 70 Lynn Williams Street
Project Number: 143025
Date: September 29, 2023
Designed By: SB

	From MH	To MH	DESIGN FLOW CALCULATIONS A (ha)	R	A x R	Accum. A x R	T_c (min)	I (mm/hr)	Q_{act} (l/s)	SEWER DESIGN & ANALYSIS Size of Pipe (mm)	Slope (%)	Nominal Capacity Q_{cap} (L/s)	Full Flow Velocity (m/s)	Actual Velocity (m/s)	Length (m)	Time in Sect. (min)	Total Time (min)	Percent of Full Flow (%)	Notes
WWFMG ALLOWABLE RELEASE RATE (ENTIRE SITE)																			
Allowable Release Rate			0.2882	0.50	0.144	0.144	10.0	88.2	**35.3**										
External Area			0.0108	0.50	0.005	0.005	10.0	88.2	**1.3**										
Total Allowable Release Rate			0.2990	0.50	0.150	0.150	10.0	88.2	**36.6**										
PRE-DEVELOPMENT STORM FLOWS: 2-YR STORM																			
Subject Site (To Lynn Williams)			0.2630	0.54	0.142	0.142	10.0	88.2	**34.7**										
External Area (To Lynn Williams)			0.0108	0.90	0.010	0.010	10.0	88.2	**2.4**										
Total 2-Yr Flow To Lynn Williams			0.2738	0.55	0.152	0.152	10.0	88.2	**37.1**										
Subject Site (To Western Battery)			0.0252	0.90	0.023	0.023	10.0	88.2	**5.6**										
PRE-DEVELOPMENT STORM FLOWS: 100-YR STORM																			
Subject Site (To Lynn Williams)			0.2630	0.54	0.142	0.142	10.0	250.3	**98.6**										
External Area (To Lynn Williams)			0.0108	0.90	0.010	0.010	10.0	250.3	**6.8**										
Total 100-Yr Flow To Lynn Williams			0.2738	0.55	0.152	0.152	10.0	250.3	**105.4**										
Subject Site (To Western Battery)			0.0252	0.90	0.023	0.023	10.0	250.3	**15.8**										
ORIFICE AND SERVICE DESIGN					Orif.(mm)	Area (m2)	depth (m)	head (m)	Q (L/s)										
Subject Site (To Lynn Williams)	Site	MH1 (CTRL MH)		k=0.8	100	0.00785	0.93	0.88	**26.8**	250	1.00%	59.5	1.2	1.2	41.8	0.6	10.6	45%	
Subject Site (To Lynn Williams)	MH1 (CTRL MH)	Ex. Stm.							**26.8**	250	2.00%	84.1	1.7	1.5	35.4	0.3	10.3	32%	Storm Service
STORMFILTER SIZING																			
AD1, AD2, AD3 (Laneway): 2-Year Storm			0.0850	0.90	0.077	0.077	10.0	88.2	**18.7**										
AD1, AD2, AD3 (Laneway): 100-Year Storm			0.0850	0.90	0.077	0.077	10.0	250.3	**53.2**										

86 & 70 Lynn Williams Street

Mixed use Development

ARCADIS

Rational Method - 100 Year Storm

Site Flow and Storage Summary

$$I_{100\text{-}year} = \frac{59.7}{(10)^{0.80}} = 250.32 \text{ mm/hr}$$

Project Name:	& 70 Lynn Williams Street	Area of Site =	0.2882
Project Number:	143025	Weighed Runoff Coefficient =	0.79
Date:	September 29, 2023	Orifice Discharge (L/s) =	26.8

Time (min)	Intensity (mm/hr)	Q-100 (L/s)	Q-stored (L/s)	Storage Vol. (m^3)
0	0.0	0.000	0.000	0.000
10	250.3	158.753	131.969	79.181
20	143.8	91.180	64.396	77.275
30	103.9	65.921	39.137	70.447
40	82.6	52.369	25.585	61.404
50	69.1	43.807	17.023	51.070
60	59.7	37.862	11.078	39.880
70	52.8	33.469	6.685	28.077
80	47.4	30.078	3.294	15.811
90	43.2	27.373	0.589	3.182
100	39.7	25.161	0.000	0.000
110	36.8	23.313	0.000	0.000
120	34.3	21.746	0.000	0.000
130	32.2	20.397	0.000	0.000
140	30.3	19.223	0.000	0.000
150	28.7	18.191	0.000	0.000
160	27.2	17.275	0.000	0.000
170	25.9	16.457	0.000	0.000
180	24.8	15.722	0.000	0.000
190	23.7	15.056	0.000	0.000
200	22.8	14.451	0.000	0.000
210	21.9	13.898	0.000	0.000
220	21.1	13.390	0.000	0.000
230	20.4	12.922	0.000	0.000
240	19.7	12.490	0.000	0.000
250	19.1	12.088	0.000	0.000
260	18.5	11.715	0.000	0.000
270	17.9	11.367	0.000	0.000
280	17.4	11.041	0.000	0.000
290	16.9	10.735	0.000	0.000
300	16.5	10.448	0.000	0.000
310	16.0	10.177	0.000	0.000
320	15.6	9.922	0.000	0.000
330	15.3	9.681	0.000	0.000
340	14.9	9.452	0.000	0.000
350	14.6	9.236	0.000	0.000
360	14.2	9.030	0.000	0.000

Storage Volume Required (cu.m) =	**79.2**
Storage Volume Provided (cu.m) =	**99.5**
HGL Depth (m) =	0.9
Orifice Diameter (mm) =	100

86 & 70 Lynn Williams Street

Mixed use Development

ARCADIS

Rational Method - 100 Year Storm

Site Flow and Storage Summary

$$I_{2\text{-year}} = \frac{21.8}{(T)^{0.78}} = 88.19 \text{ mm/hr}$$

Project Name:	& 70 Lynn Williams Street	Area of Site =	0.2664
Project Number:	143025	Weighed Runoff Coefficient =	0.82
Date:	September 29, 2023	Orifice Discharge (L/s) =	10.9

Time (min)	Intensity (mm/hr)	Q-2 (L/s)	Q-stored (L/s)	Storage Vol. (m^3)
0	0.0	0.000	0.000	0.000
10	88.2	53.262	42.330	25.398
20	51.4	31.018	20.086	24.103
30	37.4	22.608	11.676	21.016
40	29.9	18.064	7.132	17.116
50	25.1	15.178	4.246	12.738
60	21.8	13.166	2.234	8.042
70	19.3	11.675	0.742	3.118
80	17.4	10.520	0.000	0.000
90	15.9	9.596	0.000	0.000
100	14.6	8.839	0.000	0.000
110	13.6	8.206	0.000	0.000
120	12.7	7.668	0.000	0.000
130	11.9	7.203	0.000	0.000
140	11.3	6.799	0.000	0.000
150	10.7	6.443	0.000	0.000
160	10.1	6.126	0.000	0.000
170	9.7	5.843	0.000	0.000
180	9.3	5.589	0.000	0.000
190	8.9	5.358	0.000	0.000
200	8.5	5.148	0.000	0.000
210	8.2	4.955	0.000	0.000
220	7.9	4.779	0.000	0.000
230	7.6	4.616	0.000	0.000
240	7.4	4.465	0.000	0.000
250	7.2	4.325	0.000	0.000
260	6.9	4.195	0.000	0.000
270	6.7	4.073	0.000	0.000
280	6.6	3.959	0.000	0.000
290	6.4	3.853	0.000	0.000
300	6.2	3.752	0.000	0.000
310	6.1	3.657	0.000	0.000
320	5.9	3.568	0.000	0.000
330	5.8	3.483	0.000	0.000
340	5.6	3.403	0.000	0.000
350	5.5	3.327	0.000	0.000
360	5.4	3.255	0.000	0.000

Storage Volume Required (cu.m) =	**25.4**
Storage Volume Provided (cu.m) =	**99.5**
HGL Depth (m) =	0.3
Orifice Diameter (mm) =	100

86 & 70 Lynn Williams Street

Mixed use Development

ARCADIS

Water Quality Calculations

Project Name: 86 & 70 Lynn Williams Street
Project Number: 143025
Date: September 29, 2023
Designed By: SB

WATER QUALITY (WITHOUT TREATMENT)

Surface	Area (m^2)		TSS Removal	Overall TSS Removal
Conventional Roof	1,070	37.1%	80	29.7
Ext. Green Roof:	474	16.5%	80	13.2
Int. Green Roof	218	7.6%	80	6.0
Landscaping:	52	1.8%	80	1.4
Permeable Pavers:	0	0.0%	80	0.0
Impervious:	1,068	37.1%	0	0.0
Total Area:	**2,882**	100%		**50.4**

Treatment Required

WATER QUALITY (WITH TREATMENT)

Surface	Area (m^2)		TSS Removal	Overall TSS Removal
Conventional Roof	1,070	37.1%	80	29.7
Ext. Green Roof:	474	16.5%	80	13.2
Int. Green Roof	218	7.6%	80	6.0
Landscaping:	52	1.8%	80	1.4
Permeable Pavers:	0	0.0%	80	0.0
Impervious:	1,068	37.1%	80	29.6
Total Area:	**2,882**	100%		**80.0**

Site Meets 80% TSS Removal

86 & 70 Lynn Williams Street

Mixed use Development

ARCADIS

Water Balance Calculations

Project Name: 86 & 70 Lynn Williams Street
Project Number: 143025
Date: September 29, 2023
Designed By: SB

Total Volume to be Retained	
Required Water Balance (mm):	5.0
Recall Site Area (m^2):	2,882
Total Water Balance to be Retained (m^3):	**14.4**

Initial Abstraction				
Surface	**Area (m^2)**		**I.A.**	**Vol. (m^3)**
Conventional Roof	1,070		1	1.1
Ext. Green Roof:	474		5	2.4
Int. Green Roof	218		7	1.5
Landscaping:	52		5	0.3
Permeable Pavers:	0		5	0.0
Impervious:	1,068		1	1.1
Total Area:	**2,882**			**6.3**

Water Balance Summary	Vol. (m^3)
Initial Abstraction	6.3
Irrigation	19.6
Total Water Balance Achieved:	**25.9**

Site Meets City's Water Balance Criteria

Check Tank Capacity to Capture Re-Use Volume	
Area of SWM Tank (m^2):	85.0
Float Switch Operating Range (m):	0.30
Total Retention Volume:	**25.5**

SWM Tank has sufficient capacity for Re-Use Volumes

Determining Number of Cartridges for Flow Based Systems

Date	**08/04/2022**	**Black Cells =**	**Calculation**

Site Information

Project Name	**86 Lynn Williams Street**		
Project Location	**Toronto, ON**		
OGS ID	**OGS 1**		
Drainage Area, Ad	**0.20**	ac	(0.0801 ha)
Impervious Area, Ai	**0.20**	ac	
Pervious Area, Ap	**0.00**		
% Impervious	**100%**		
Runoff Coefficient, Rc	**0.90**		
Treatment storm flow rate, Q_{treat}	**0.14**	cfs	(4 L/s)
Peak storm flow rate, Q_{peak}	**1.77**	cfs	(50.1 L/s)

Filter System

Filtration brand	**StormFilter**	
Cartridge height	**18**	in
Specific Flow Rate	**2.00**	gpm/ft²
Flow rate per cartridge	**15.00**	gpm

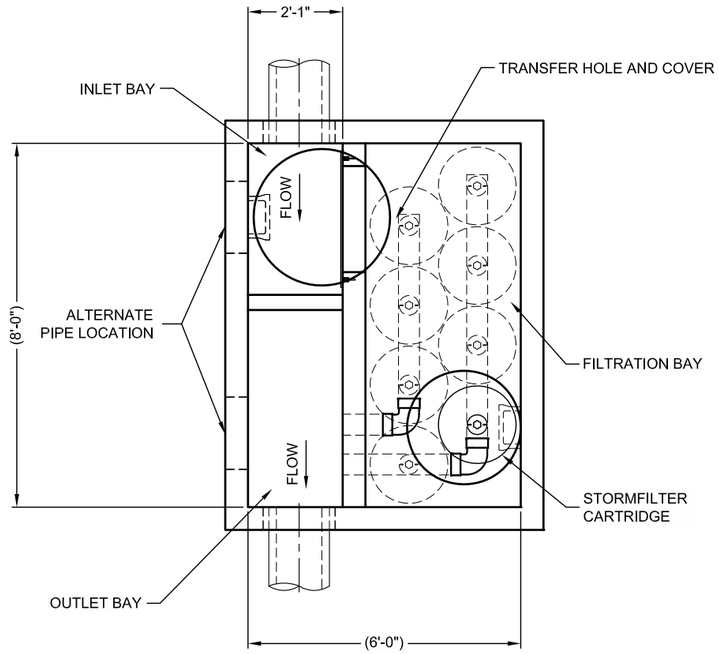
SUMMARY

Number of Cartridges	5
Media Type	Perlite

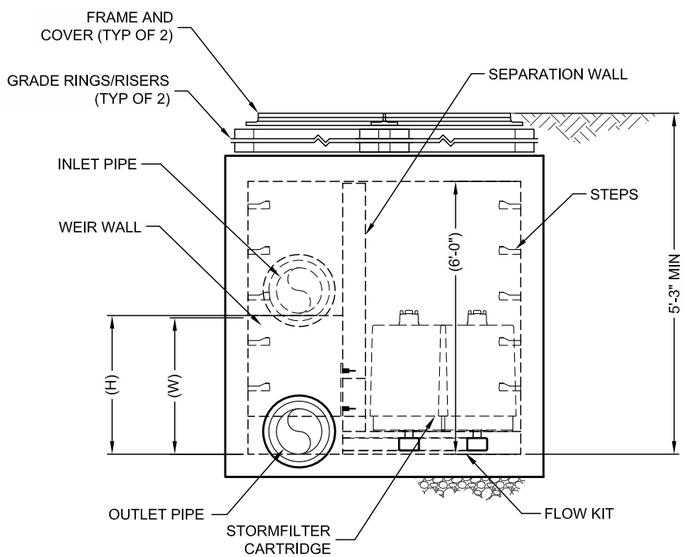
Event Mean Concentration (EMC)	**150**	mg/L
Annual TSS Removal	**80%**	
Percent Runoff Capture	**90%**	

Recommend SFPD0806 vault or CIP

200 Enterprise Drive
Scarborough, ME 04074
Phone 877-907-8676
Fax 207-885-9825



PLAN



ELEVATION

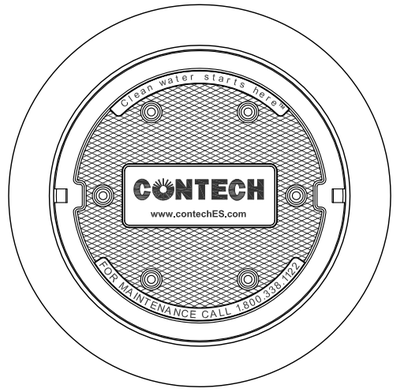
The Stormwater Management StormFilter®

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,322,629; 5,324,579; 5,707,527; 5,985,157; 6,027,639; 6,946,065; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

STORMFILTER DESIGN TABLE

- THE 8' x 6' PEAK DIVERSION STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.
- THE PEAK DIVERSION STORMFILTER IS AVAILABLE IN A LEFT INLET (AS SHOWN) OR RIGHT INLET CONFIGURATION.
- ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS OTHERWISE NOTED.

CARTRIDGE HEIGHT	27"		18"		LOW DROP	
SYSTEM HYDRAULIC DROP (H - REQ'D. MIN.)	3.05'		2.3'		1.8'	
HEIGHT OF WEIR (W)	3.00'		2.25'		1.75'	
TREATMENT BY MEDIA SURFACE AREA	2 gpm/ft²	1 gpm/ft²	2 gpm/ft²	1 gpm/ft²	2 gpm/ft²	1 gpm/ft²
CARTRIDGE FLOW RATE (gpm)	22.5	11.25	15	7.5	10	5



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED	*
CARTRIDGE FLOW RATE	*
MEDIA TYPE (CSF, PERLITE, ZPG)	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE	*	*	*
OUTLET PIPE	*	*	*

INLET BAY RIM ELEVATION	*
FILTER BAY RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

PERFORMANCE SPECIFICATION

FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7-INCHES**. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **37 SECONDS**. SPECIFIC FLOW RATE SHALL BE **2 GPM/SF (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF OF MEDIA (MAXIMUM).**

GENERAL NOTES

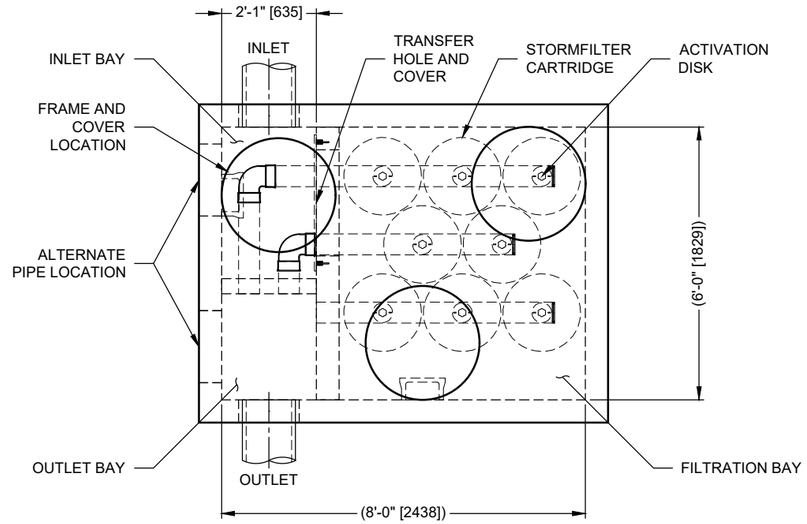
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES

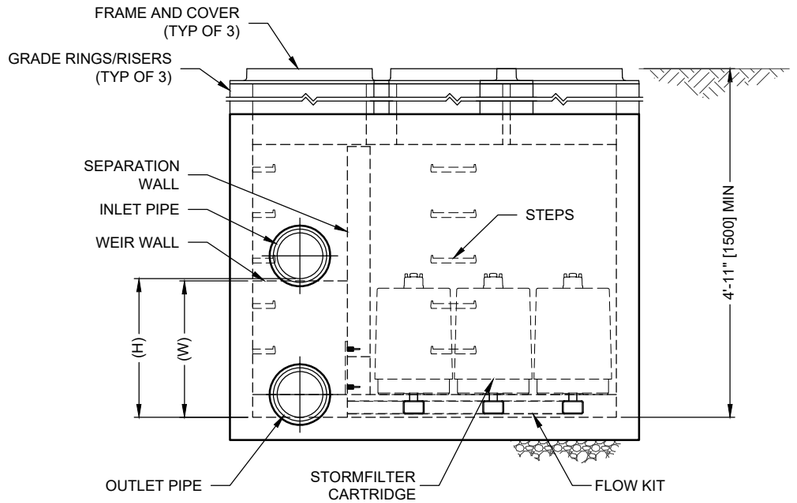
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
F. CONTRACTOR TO REMOVE THE TRANSFER HOLE COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

THE STORMWATER MANAGEMENT STORMFILTER 8' x 6' PEAK DIVERSION STORMFILTER STANDARD DETAIL



PLAN



ELEVATION

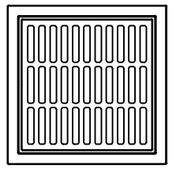
The Stormwater Management StormFilter®

STORMFILTER DESIGN NOTES

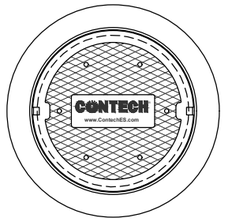
- STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD
- A 6' x 8' [1829 x 2438] PEAK DIVERSION STYLE STORMFILTER IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (8) AND IS AVAILABLE IN A LEFT INLET (AS SHOWN) OR A RIGHT INLET CONFIGURATION
- ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS NOTED OTHERWISE

CARTRIDGE SIZE (in. [mm])	27 [686]			18 [457]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H) (ft. [mm])	3.05 [930]			2.3 [701]			1.8 [549]		
HEIGHT OF WEIR (W) (ft. [mm])	3.00 [914]			2.25 [686]			1.75 [533]		
SPECIFIC FLOW RATE (gpm/sf [L/s/m^2])	2 [1.36]	1.67* [1.13]*	1 [0.68]	2 [1.36]	1.67* [1.13]*	1 [0.68]	2 [1.36]	1.67* [1.13]*	1 [0.68]
CARTRIDGE FLOW RATE (gpm [L/s])	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.47]	10 [0.63]	8.35 [0.53]	5 [0.32]

* 1.67 gpm/sf [1.13 L/s/m^2] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND GRATE
(24" SQUARE)
(NOT TO SCALE)



FRAME AND COVER
(30" ROUND)
(NOT TO SCALE)

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
WATER QUALITY FLOW RATE (cfs [L/s])	
PEAK FLOW RATE (cfs [L/s])	
RETURN PERIOD OF PEAK FLOW (yrs)	
CARTRIDGE FLOW RATE	
CARTRIDGE SIZE (27, 18, LOW DROP (LD))	
MEDIA TYPE (PERLITE, ZPG, PSORB)	
NUMBER OF CARTRIDGES REQUIRED	
INLET BAY RIM ELEVATION	
FILTER BAY RIM ELEVATION	

PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

NOTES/SPECIAL REQUIREMENTS:

PERFORMANCE SPECIFICATION

FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7" [178].** FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **37 SECONDS**. SPECIFIC FLOW RATE SHALL BE **2 GPM/SF [1.36 L/s/m^2] (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF [13.39 L/s/m^3] OF MEDIA (MAXIMUM).**

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. ALTERNATE DIMENSIONS ARE IN MILLIMETERS [mm] UNLESS NOTED OTHERWISE.
4. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
5. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
6. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 10' [3048] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
F. CONTRACTOR TO REMOVE THE TRANSFER OPENING COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SFPD0608 (6' x 8')
PEAK DIVERSION STORMFILTER
STANDARD DETAIL

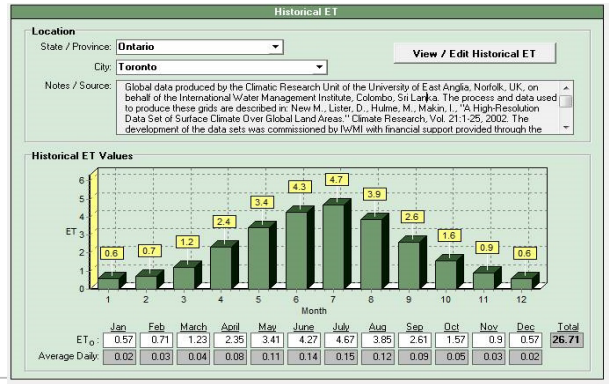
CIS
Creative Irrigation Solutions Inc.

The following is the water requirement calculation for **86 Lynn Williams St., Toronto Ont.**. An irrigations system will be design to distribute the water required to maintain plant life. The system, as well as the calculations, take into consideration the plant material and the different plant species water requirements.

As part of the irrigation design, a pumping system has been designed and specified with the capacity to deliver the required flow rates and pressure to the ground level as well as the green roof area.

This document will verify the irrigation system's portion in the water management process. The formula seen below is used world wide to determine landscape water requirements. The Landscape Coefficient is base on the plant material and in conjunction with the LEED standards and calculating system (Standard LEED Calculator). The Distribution Uniformity figures are base on the same criteria as the Landscape Coefficient and are in line with the manufactures data sheet claims . The Effective Rainfall is a constant % used in all Water Requirement calculations.

The Reference Evapotranspiration rate is based on the rates used by Rainbird for all their E.T. based Controllers in the City of Toronto and comes from Global data produced by the Climatic Research Unit of the University of East Anglia, Norfolk, UK, on behalf of the International Water Management Institute, Colombo, Sri Lanka. The process and data used to produce these grids are described in: New M., Lister, D., Hulme, M., Makin, I., "A High-Resolution Data Set of Surface Climate Over Global Land Areas." Climate Research, Vol. 21:1-25, 2002. The development of the data sets was commissioned by IWMI with financial support provided through the United States Assistance International Development (USAID) and the Official Development Assistance of the Government of Japan. The station data used in the data set have been collated over many years at the Climatic Research.



Water Requirement Calculations For 86 Lynn Williams St., Toronto Ont

$$WR = \frac{((ET0 \times KL) - Re) \times A}{DU \times EWM \times CU}$$

WR = Water Requirement
ET0 = Reference Evapotranspiration
KL = Landscape Coefficient
CU = Constant to Arrive at 1000's of Gallons
Re = Effective Rainfall
A = Area in Acres
DU = Distribution Uniformity

Total Combined WR in Cubic Metres

May	152.42
June	217.80
July	261.38
August	217.80
September	152.42
Total WR M^3:	1001.81
Average Daily Water Use (153 Days)	6.55
Average 72 Hour Water Use	19.64

ET◦ (reference in mm)	ET◦ (reference in inches)	K_L Landscape Coefficent	Re.(50% effctive rainfall in mm	July Base Re.(50% effctive rainfa in inches	Area M^2	Area (Acres)	DU (Distributio Uniformity)	EWM (water manger efficiency-gooc	CU (convertion factor 1000's	WR (water requiren in 1000's of Gallons)	WR (in M^3)
118.618	4.67	0.7	33.02	1.30	3055.80	0.755104	0.75	0.85	0.0368	63.38	239.90
118.618	4.67	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
118.618	4.67	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
118.618	4.67	0.65	33.02	1.30	310.40	0.076701	0.75	0.85	0.0368	5.67	21.48
118.618	4.67	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
118.618	4.67	0.77	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
118.618	4.67	0.65	33.02	1.30	0.00	0	0.9	0.85	0.0368	0.00	0.00

May

Irrigation Area	% (persentage 0f July Referance)	ET$_o$ (reference in mm)	ET$_o$ (reference in inches)	K_L Landscape Coefficent	Re.(50% effctive rainf in mm	Re.(50% effctive rainfal in inches	Area M^2	Area (Acres)	DU (Distribution Uniformity)	EWM (water manger efficiency-good	CU (convertion factor 1000's	WR (water requirement in 1000's of Gallons)	WR (in M^3)
Trees	75%	88.9635	3.5025	0.7	33.02	1.30	3055.80	0.755104	0.75	0.85	0.0368	37.07	140.33
Mixed P	75%	88.9635	3.5025	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Planting	75%	88.9635	3.5025	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Shrubs	75%	88.9635	3.5025	0.65	33.02	1.30	310.40	0.0767014	0.75	0.85	0.0368	3.19	12.09
Grn/Cov	75%	88.9635	3.5025	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Sod	75%	88.9635	3.5025	0.77	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
In.Gr Roof	75%	88.9635	3.5025	0.65	33.02	1.30	0.00	0	0.9	0.85	0.0368	0.00	0.00
												Total for Month	152.42
												Scheduled Irrigation Flow Per 72 Hours in M^3:	14.75

June

Irrigation Area	% (persentage 0f July Referance)	ET$_o$ (reference in mm)	ET$_o$ (reference in inches)	K_L Landscape Coefficent	Re.(50% effctive rainf in mm	Re.(50% effctive rainfal in inches	Area M^2	Area (Acres)	DU (Distribution Uniformity)	EWM (water manger efficiency-good	CU (convertion factor 1000's	WR (water requirement in 1000's of Gallons)	WR (in M^3)
Trees	90%	106.7562	4.203	0.7	33.02	1.30	3055.80	0.755104	0.75	0.85	0.0368	52.85	200.07
Mixed P	90%	106.7562	4.203	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Planting	90%	106.7562	4.203	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Shrubs	90%	106.7562	4.203	0.65	33.02	1.30	310.40	0.0767	0.75	0.85	0.0368	4.68	17.72
Grn/Cov	90%	106.7562	4.203	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Sod	90%	106.7562	4.203	0.77	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
In.Gr Roof	90%	106.7562	4.203	0.65	33.02	1.30	0.00	0	0.9	0.85	0.0368	0.00	0.00
												Total for Month	217.80
												Scheduled Irrigation Flow Per 72 Hours in M^3:	21.78

July

Irrigation Area	% (persentage 0f July Referance)	ET$_o$ (reference in mm)	ET$_o$ (reference in inches)	K_L Landscape Coefficent	Re.(50% effctive rainf in mm	Re.(50% effctive rainfal in inches	Area M^2	Area (Acres)	DU (Distribution Uniformity)	EWM (water manger efficiency-good	CU (convertion factor 1000's	WR (water requirement in 1000's of Gallons)	WR (in M^3)
Trees	100%	118.618	4.67	0.7	33.02	1.30	3055.80	0.755104	0.75	0.85	0.0368	63.38	239.90
Mixed P	100%	118.618	4.67	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Planting	100%	118.618	4.67	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Shrubs	100%	118.618	4.67	0.65	33.02	1.30	310.40	0.0767	0.75	0.85	0.0368	5.67	21.48
Grn/Cov	100%	118.618	4.67	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Sod	100%	118.618	4.67	0.77	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
In.Gr Roof	100%	118.618	4.67	0.65	33.02	1.30	0.00	0	0.9	0.85	0.0368	0.00	0.00

												Total for Month	261.38
												Scheduled Irrigation Flow Per 72 Hours in M^3:	25.30

Irrigation Area	% (persentage 0f July Referance)	ET。 (reference in mm)	ET。 (reference in inches)	K_L Landscape Coefficent	Re.(50% effctive rainf in mm	August Re.(50% effctive rainfal in inches	Area M^2	Area (Acres)	DU (Distribution Uniformity)	EWM (water manger efficiency-good	CU (convertion factor 1000's	WR (water requirement in 1000's of Gallons)	WR (in M^3)
Trees	90%	106.7562	4.203	0.7	33.02	1.30	3055.80	0.755104	0.75	0.85	0.0368	52.85	200.07
Mixed P	90%	106.7562	4.203	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Planting	90%	106.7562	4.203	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Shrubs	90%	106.7562	4.203	0.65	33.02	1.30	310.40	0.0767	0.75	0.85	0.0368	4.68	17.72
Grn/Cov	90%	106.7562	4.203	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Sod	90%	106.7562	4.203	0.77	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
In.Gr Roof	90%	106.7562	4.203	0.65	33.02	1.30	0.00	0	0.9	0.85	0.0368	0.00	0.00

												Total for Month	217.80
												Scheduled Irrigation Flow Per 72 Hours in M^3:	21.08

Irrigation Area	% (persentage 0f July Referance)	ET。 (reference in mm)	ET。 (reference in inches)	K_L Landscape Coefficent	Re.(50% effctive rainf in mm	September Re.(50% effctive rainfal in inches	Area M^2	Area (Acres)	DU (Distribution Uniformity)	EWM (water manger efficiency-good	CU (convertion factor 1000's	WR (water requirement in 1000's of Gallons)	WR (in M^3)
Trees	75%	88.9635	3.5025	0.7	33.02	1.30	3055.80	0.755104	0.75	0.85	0.0368	37.07	140.33
Mixed P	75%	88.9635	3.5025	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Planting	75%	88.9635	3.5025	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Shrubs	75%	88.9635	3.5025	0.65	33.02	1.30	310.40	0.07670	0.75	0.85	0.0368	3.19	12.09
Grn/Cov	75%	88.9635	3.5025	0.65	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
Sod	75%	88.9635	3.5025	0.77	33.02	1.30	0.00	0	0.75	0.85	0.0368	0.00	0.00
In.Gr Roof	75%	88.9635	3.5025	0.65	33.02	1.30	0.00	0	0.9	0.85	0.0368	0.00	0.00

												Total for Month	152.42
												Scheduled Irrigation Flow Per 72 Hours in M^3:	15.24

Submitted by: Joe Carter 31-Aug-23

Joseph Carter
Creative Irrigation Solutions Inc.

Conserving Water is our Business. Serving Clients is our Focus. ®

Mailing Address:
125 Union Ave, Komoka, Ontario CANADA, N0L1R0
Phone: (519) 654-521-5120

Appendix D

Sanitary Analysis

Sanitary Design Calculations

86 & 70 Lynn Williams Street

Mixed-use development

ARCADIS

Sanitary Sewer Design Sheet

NOTES: Post-development domestic sewage flow based upon a unit flow of 450.0 Lpcd.
Maximum flow velocity for pipe flowing full = 3.0 m/s.
Minimum flow velocity for pipe flowing partially full (actual flow) = 0.6 m/s.
Infiltration= 0.26 L/s/ha
Mannings= 0.013

Project Name: 86 & 70 Lynn Williams Street
Project Number: 143025
Date: June 23, 2023
Designed By: Cassidy Goetz, P.Eng.

	From	To	DESIGN FLOW CALCULATIONS										SEWER DESIGN & ANALYSIS							Notes
			Area (ha)	Density	Population	Cumulative Area (ha)	Cumulative Population	Peaking Factor	Sewage Flow (L/s) *(1)*	Infiltration Flow (L/s) *(2)*	Ground Water (L/s) *(3)*	Total Flow, Qd (L/s) *(1)+(2)+(3)*	Nominal Diameter (mm)	Pipe Slope (%)	Pipe Length (m)	Full Flow Capacity, Qf (L/s)	Full Flow Velocity (m/s)	Actual Velocity V (m/s)	Percent of Full Flow (%)	
Pre-Development																				
			0.2882		13	0.2882	13	4.40	0.16	0.07	0.0	**0.2**								
Post-Development	**Services**																			
	Building	MH3A	0.2882		993	0.2882	993	3.80	19.65	0.07	0.0	**19.7**	200	1.0%	3.1	34.2	1.06	1.09	58%	
	MH3A	MH2A (Cntrl MH)										**19.7**	200	1.0%	25.0	34.2	1.06	1.09	58%	
	MH2A (Cntrl MH)	525mm SAN										**19.7**	200	1.0%	9.3	34.2	1.06	1.09	58%	

Pre-Development

	Units / Area	Density	Population
Retail	1155 m2	1.1 pp/100m2	13
			0
		Pop. =	**13**

Post-Development

	Units / Area	Density	Population
1 Bedroom	443	1.4 pp/unit	620
2 Bedroom	86	2.1 pp/unit	181
3 Bedroom	59	3.1 pp/unit	183
Retail	800 m2	1.1 pp/100m2	9
		Pop. =	**993**

Appendix E

Water Analysis

Hydrant Flow Tests

Water Design Calculations

Sprinkler Confirmation Letter

HYDRANT FLOW TESTING

NOTE:Hydrants tested according to NFPA 291: Recommended Practice for Fire Flow Testing and Marking of Hydrants

GENERAL INFORMATION

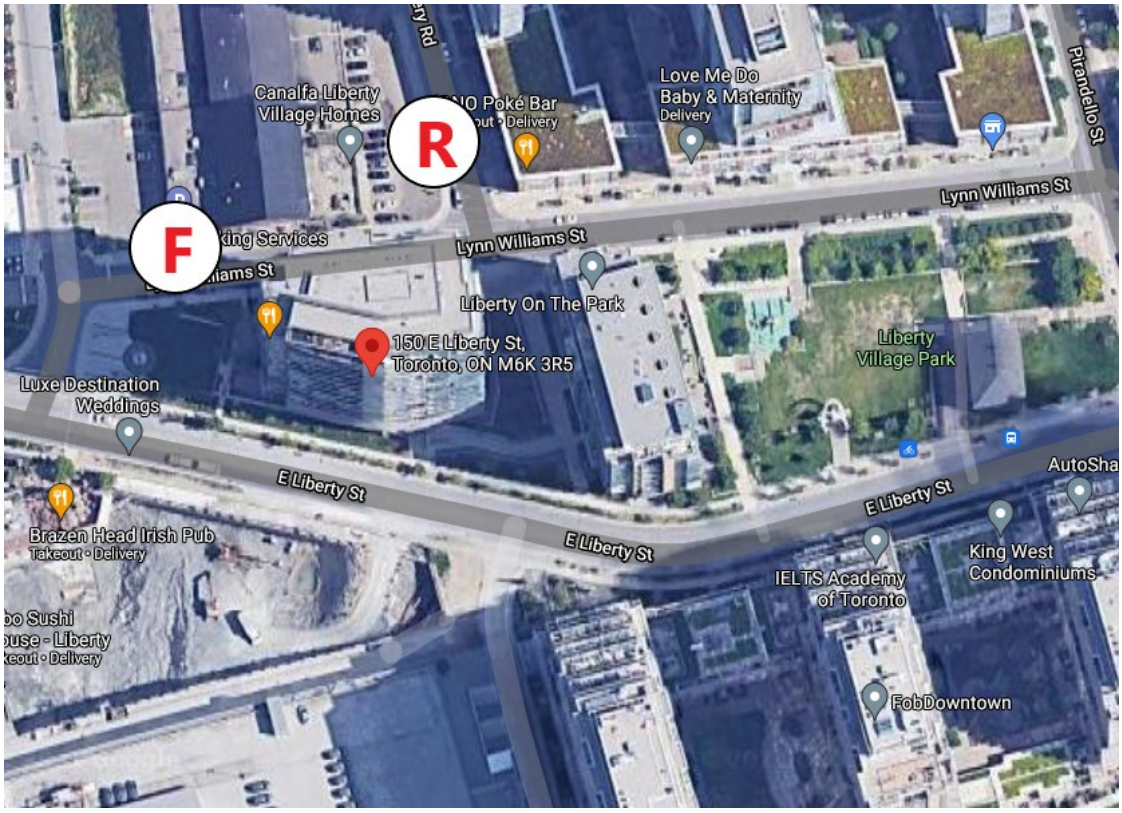
General Information

Date of Testing	16-Jun-21
Project Number:	134807
Site Location / Address:	80 Lynn Williams St, TORONTO
Region / Municipality	Toronto
Hydrants Opened By:	Toronto
Tested by:	Daniel S Val V

HYDRANT TEST INFORMATION

Hydrant Test Location - Residual Hydrant=R, Flow Hydrant=F (North at Top)

.



Test Data

Time of Test	9:25 AM
Pipe Size (mm)	-
Flow Hydrant Test Location (description)	Across from bike share on Lynn Williams st
Residual Hydrant Test Location (description)	Across from 150 Liberty street
Static Pressure(PSIG)	72

Q1 Test Data (1 Orifice)

# OUTLETS	ORIFICE SIZE(IN)	PITOT PRESSURE(PSIG)	FLOW(USGPM)	RESIDUAL PRESSURE(PSIG)
1	2.5	50	1186	66

QT Test Data (2 Orifices)

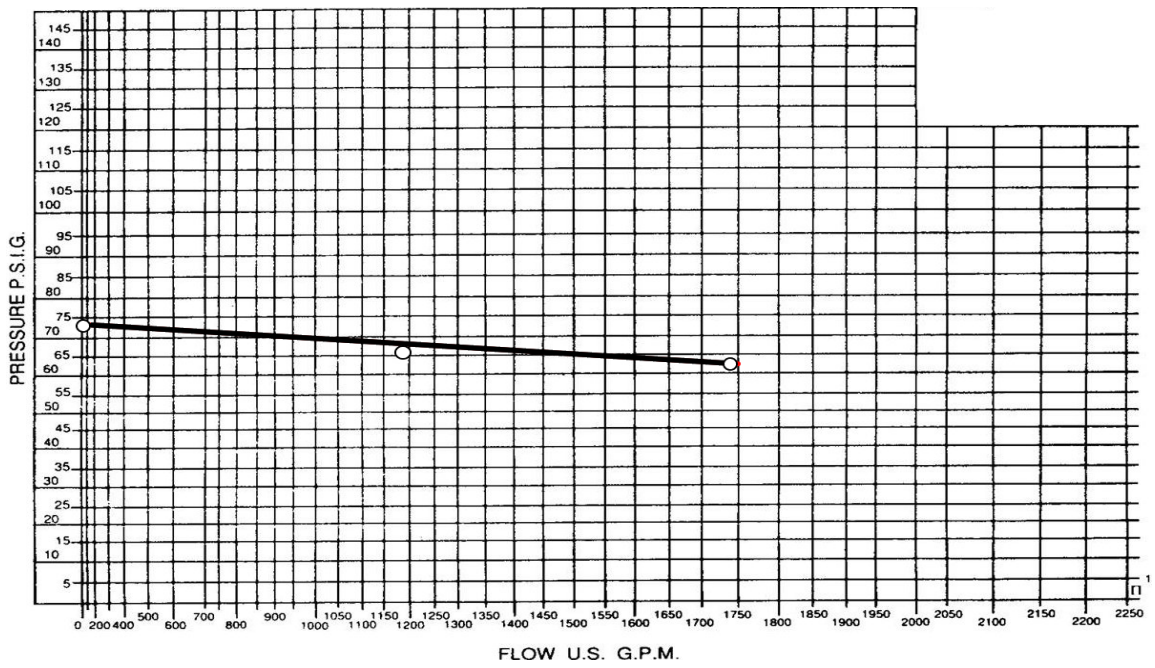
# OUTLETS	ORIFICE SIZE(IN)	PITOT PRESSURE(PSIG)	FLOW(USGPM)	RESIDUAL PRESSURE(PSIG)
2	2.5	27	1744	63

Calculations

FORMULA: Q= 29.83 cd^2√p.....Where: c- coefficient of discharge (1 in smooth pipe)
..... d- pipe diameter (inches)
.....p- pitot reading (psig)

Q1 - 1 Orifice(s)	Q1= (29.83)(0.9)(2.5)^2 √50=1186
QT - 2 Orifice(s)	QT= 2(29.83)(0.9)(2.5)^2 √27=1744
Static Pressure(PSIG)	72

Test Results - Plot



HYDRANT FLOW TESTING

NOTE:Hydrants tested according to NFPA 291: Recommended Practice for Fire Flow Testing and Marking of Hydrants

GENERAL INFORMATION

General Information

Date of Testing	16-Jun-21
Project Number:	134807
Site Location / Address:	80 Lynn Williams St, TORONTO
Region / Municipality	Toronto
Hydrants Opened By:	Toronto
Tested by:	Daniel S Val V

HYDRANT TEST INFORMATION

Hydrant Test Location - Residual Hydrant=R, Flow Hydrant=F (North at Top)

.

Test Data

Time of Test	9:39 AM
Pipe Size (mm)	-
Flow Hydrant Test Location (description)	in front of 125 west battery road
Residual Hydrant Test Location (description)	across from 150 east liberty street
Static Pressure(PSIG)	72

Q1 Test Data (1 Orifice)

# OUTLETS	ORIFICE SIZE(IN)	PITOT PRESSURE(PSIG)	FLOW(USGPM)	RESIDUAL PRESSURE(PSIG)
1	2.5	55	1244	66

QT Test Data (2 Orifices)

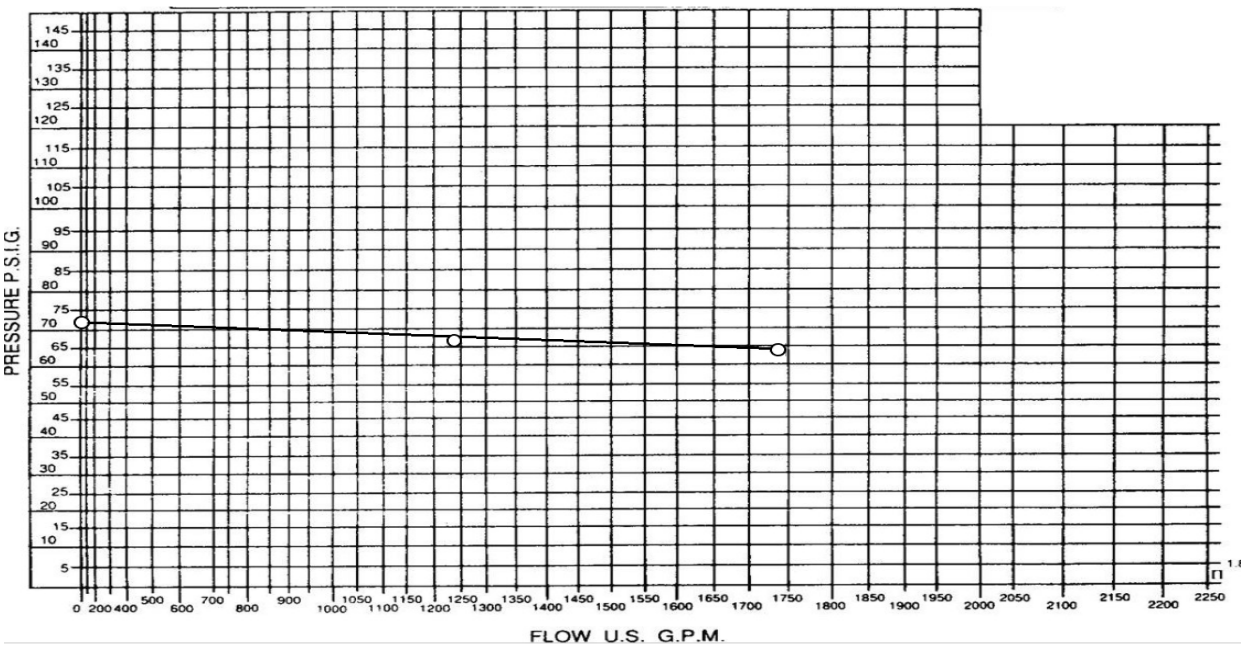
# OUTLETS	ORIFICE SIZE(IN)	PITOT PRESSURE(PSIG)	FLOW(USGPM)	RESIDUAL PRESSURE(PSIG)
2	2.5	27	1744	63

Calculations

FORMULA: Q= 29.83 cd^2√p.....Where: c- coefficient of discharge (1 in smooth pipe)
..... d- pipe diameter (inches)
.....p- pitot reading (psig)

Q1 - 1 Orifice(s)	Q1= (29.83)(0.9)(2.5)^2 √55=1244
QT - 2 Orifice(s)	QT= 2(29.83)(0.9)(2.5)^2 √27=1744
Static Pressure(PSIG)	72

Test Results - Plot



86 & 70 Lynn Williams Street

Mixed-use development

ARCADIS

DOMESTIC WATER DEMAND CALCULATIONS

Project Name: 86 & 70 Lynn Williams Street
Project Number: 143025
Date: June 21, 2023
Designed By: Cassidy Goetz, P.Eng.

1. Based on the City of Toronto Standards and
2. OBC, Part 8 "Sewage Systems", OBC Table 8.2.1.3.A and 8.2.1.3.B
3. ADD = 190 L/cap/day for residential uses

Peaking Factors		
Land Use	Peak Hour	Maximum Day
Residential	2.50	1.30
Commercial	1.20	1.10

					(ADDxP.F.)	*(ADDxP.F.)*
	Units / Area	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
1 Bedroom	443 units	1.4 pp/unit	620	1.4	3.4	1.8
2 Bedroom	86 units	2.1 pp/unit	181	0.4	1.0	0.5
3 Bedroom	59 units	3.1 pp/unit	183	0.4	1.0	0.5
Retail	800 m2	1.1 pp/100m2	9	0.0	0.0	0.0
		Totals	**993**	**2.2**	**5.4**	**2.8**

86 & 70 Lynn Williams Street

Mixed-use development

ARCADIS

FIRE FLOW DEMAND CALCULATIONS

Project Name: 86 & 70 Lynn Williams Street
Project Number: 143025
Date: June 21, 2023
Designed By: Cassidy Goetz, P.Eng.

Based on the Water Supply for Public Fire Protecetion Manual, 1999 by the Fire Underwriters Survey

Step 1: Calculate Fire Flow (based on area)

Construction Coefficient =	0.6	
Largest Floor Area =	1,774	m2
Floor Above =	1,774	m2
Floor Below =	1,774	m2
Area =	2,661	m2
Fire Flow (F) =	**7,000**	L/min

$$F = 220C\sqrt{A}$$

F = required fire flow (L/min)
C = coefficient related to type of construction
- 0.6 for fire resistive (fully protected, 3-hr ratings)
- 0.8 for non combustable (i.e. unprotected metal buildings)
- 1.0 for ordinary construction
- 1.5 for wood frame construction

A = total floor area excluding basements 50% below grade

** If vertical openings are inadequately protected, consider two largest two largest adjoining floors plus 50% of each of any floors above up to eight floors.*
** If vertical openings are adequately protected (one hour rating), consider largest floor area + 25% of two immediately floors.*

Step 2: Adjustment for Building Occupancy (shall not be less than 2000 L/s)

Occupancy Adjustment =	-0.15	
F_1 = Fire Flow x Adjustment =	**5,950**	L/min

Non-Combust.	-25%	Free Burning	15%
Limited Comb.	-15%	Rapid Burning	25%
Combustable	No change		

Step 3: Adjust F1 for Fire Supression System

Sprinkler Adjustment =	30%	
F_2 = F_1 x Adjustment =	**1,785**	L/min

Automatic Sprinklers (monitored)	-50%
Adequatly Designed System	-30%

Step 4: Adjust F1 for Exposure / Proximity (shall not exceed 75%)

Proximity Adjustment =	45%	(max 75%)
F_3 = F_1 x Factor =	**2,686**	L/min

Separation	Adjustment	Separation	Adjustment
0m to 3m	25%	20.1m to 30m	10%
3.1m to 10m	20%	30.1m to 45m	0%
10.1m to 20m	15%		

Step 5: Calculate Adjusted Fire Flow (shall not be less than 2000 L/min or greater than 45,000 L/min)

F_1 =	5,950	L/min
- F_2 =	1,785	L/min
+ F3 =	2,686	L/min
Fire Flow =	7,000	L/min
Fire Flow =	**116.7**	L/s
Total Demand (Fire Flow + MDD) =	**119.5**	L/s

$$\text{Fire Flow} = F_1 - F_2 + F_3$$

Checks:
Fire Flow greater than 2000 L/min
Fire Flow less than 45,000 L/min

86 & 70 Lynn Williams Street

Mixed-use development

ARCADIS

HEAD LOSS CALCULATIONS

Project Name: 86 & 70 Lynn Williams Street
Project Number: 143025
Date: June 21, 2023
Designed By: Cassidy Goetz, P.Eng.

Hydrant Flow Test - Western Battery Road

Flow (gpm)	Flow (L/s)	Flow (L/min)	Pressure (psi)	Pressure (kPa)
0	0.0	0	72	**496**
1,244	78.5	4,709	66	**455**
1,744	110.0	6,602	63	**434**

Residual Pressure at Main

Source: Walski, Thomas M. (2007): Advanced Water Distribution Modeling and Management

$$Q_R = Q_F \times \frac{hr^{0.54}}{hf^{0.54}}$$

where: Q_R = flow predicted at desired residual pressure
Q_F = total flow measured during test
h_r = pressure drop to desired residual pressure
h_f = pressure drop to measured during test

	Flow (gpm)	Flow (L/s)	Flow (L/min)	Residual Pressure @ Main (psi)	Residual Pressure @ Main (kPa)	
Domestic (PHD)	86	5.4	326	**72**	**496**	
Fire Flow (Fire+MDD)	1,894	119.5	7,170	**62**	**424**	Projecting Curve to Fire Flow
To 20 psi	4,497	283.7	17,022	**20**	**138**	Projecting Curve to 20 psi

(1 gal = 3.785 L) *(Goal Seek)*

Residual Pressure at Building

$$h_L = \frac{10.675 * L * Q^{1.85}}{C^{1.85} * D^{4.8655}}$$

where: h_L = Pressure Drop (m)
L = Length of Service (m)
Q = Flow Rate (m^3/s)
D = Pipe Diameter (m)
C = Roughness Coefficient

PHD Conditions

	Domestic	
L=	4.4	m
Q=	0.005	m^3/s
D=	150	mm
C=	100	
h_L=	**0.0**	m
h_L=	**0.2**	in
h_L=	**0.0**	psi
h_L=	**0.1**	kPa

Fire + MDD Conditions

	Fire Service	
L=	6.4	m
Q=	0.120	m^3/s
D=	200	mm
C=	110	
h_L=	**0.6**	m
h_L=	**22.2**	in
h_L=	**0.8**	psi
h_L=	**5.5**	kPa

	Flow (gpm)	Flow (L/s)	Flow (L/min)	Residual Pressure @ Bldg. (psi)	Residual Pressure @ Bldg. (kPa)
Fire	1,894	119.5	7,170	**61**	**419**
Domesitc	86	5.4	326	**72**	**496**

Residual Pressure (DOMESTIC) at building is greater than 40 psi (275 kPa).

Residual Pressure (FIRE) at building is greater than 20 psi (140 kPa).

MCW Consultants Ltd.

June 29th, 2023

Queen's Quay Terminal
207 Queen's Quay West,
Suite 615
Toronto, Ontario M5J 1A7

Phone (416) 598-2920
Fax (416) 598-5394
Internet: www.mcw.com

Collecdev
365 Bloor Street East Suite 1400
Toronto, Ontario
M4W 3L4

Attention Mr. Fernando Valenzuela
Vice President, Development

Re: 70 – 86 Lynn Williams
MCW Project Number: 23107

Dear Fernando,

This letter is to confirm that the above referenced building will be fully sprinklered and designed to meet NFPA 13 and all applicable codes and standards.

The water supply will be standard for both sprinkler system and fire standpipe system required and the sprinkler system and standpipe system will be fully monitored and supervised.

In the event that you require any additional information please do not hesitate to contact us.

Yours truly,

Agustin Olt
P.Eng (Mechanical)
aolt@mcw.com

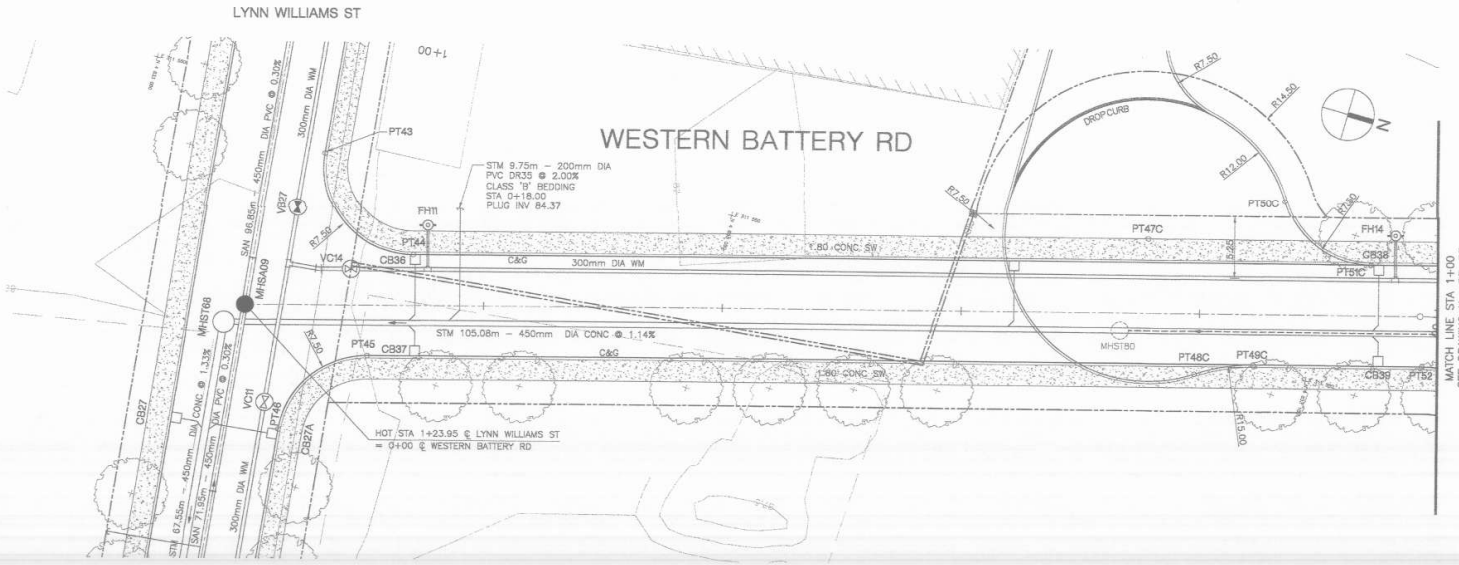
Appendix F

Parkland Dedication

Plan and Profile Drawing (City of Toronto)

Stormwater Design Calculations

Vortex Valve Specification



CURB LAYOUT POINTS

Pt. No.	LOCATION STATION	OFFSET	NORTHING	EASTING	NOTES
43	–	–	–	–	DWG PP-28
44	–	–	–	–	DWG PP-28
45	–	–	–	–	DWG PP-28
46	–	–	–	–	DWG PP-28
47C	0+75.63	6.25L	4 833 084.05	311 542.16	
48C	0+79.58	5.08R	4 833 090.88	311 552.03	
49C	0+84.50	4.25R	4 833 095.41	311 549.91	
50C	0+87.15	9.63L	4 833 094.25	311 535.83	
51C	0+94.34	4.25L	4 833 102.62	311 539.09	
52	0+98.69	4.25R	4 833 109.08	311 546.12	

STRUCTURE DATA

CATCH BASINS

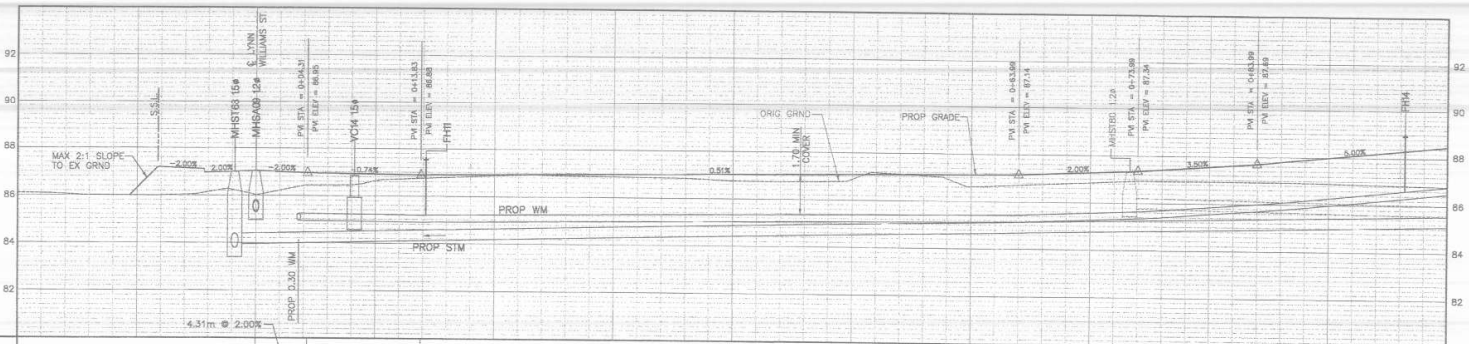
No.	LOCATION STATION	OFFSET	FRAME ELEV	INVERTS	STRUCTURE OPSD	FRAME & GRATE OPSD	NOTES
CB36	0+14.25	4.25L	86.80	85.60	705.010	400.02	
CB37	0+14.25	4.25R	86.80	85.60	705.010	400.02	
CB38	0+95.00	4.25L	88.16	86.95	705.010	400.02	
CB39	0+95.00	4.25R	88.16	86.95	705.010	400.02	
CB27/27A	–	–	–	–	–	–	DWG PP-28

MAINTENANCE HOLES

No.	LOCATION STATION	OFFSET	RIM ELEV	STRUCTURE OPSD	FRAME & COVER OPSD	NOTES
MHSA09	0+00	0.00	87.04	701.010	401.01'A'	
MHST88	–0+01.76	1.50R	87.03	701.011	401.01'A'	
MHST80	0+73.32	1.50R	87.30	701.010	401.01'A'	ALTERNATIVE

VALVE CHAMBERS

No.	LOCATION STATION	OFFSET	RIM ELEV	STRUCTURE OPSD	FRAME & COVER OPSD	NOTES
VC11	0+08.25	3.00L	86.86	1101.010	–	SEE DWG PP-28
VC14	–	–	–	–	402.01	
V927	–	–	–	–	–	SEE DWG PP-28



ROAD GRADE		9.52m @ –0.74%	50.16m @ 0.50%		10.00m @ 2.00%	10.00m @ 3.50%	16.41m @ 5.00%
SAN SEWER INVERT	85.28ø 85.31E						
STM SEWER INVERT	83.79E 83.94W	STM 105.08m – 450mm DIA CONC 100–D @ 1.14% CLASS 'B' BEDDING			ALTERNATIVE STM 30m – 450mm DIA CONC 100–D @ 0.80% CLASS 'B' BEDDING		
STATION	01.75 0+00	+03.04	+08.25	+14.25	0+20	0+40	0+60	0+80	+96.40

ROAD GRADE | SAN SEWER INVERT | STM SEWER INVERT | STATION

TORONTO WORKS & EMERGENCY SERVICES TECHNICAL SERVICES DIVISION

ACCEPTED TO BE IN ACCORDANCE WITH THE CITY OF TORONTO STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING
CITY OF TORONTO

DATE AUG 2 9 2002

No.	DATE	REVISIONS	BY	SIGNED
10				
9				
8				
7				
6				
5				
4				
3	JUL. 05/02	ISSUED FOR TENDER	MG	
2	JUN. 17/02	RE-ISSUED FOR CITY & MOE APPROVAL	MG	
1	DEC. 07/01	ISSUED FOR CITY APPROVAL	MG	

DIGITAL INFORMATION

LICENSED PROFESSIONAL ENGINEER J.P. STRUK PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER M. GIULIANO PROVINCE OF ONTARIO

IBI GROUP
Beinhaker/Irwin Associates
Architects, Engineers, Planners
230 Richmond Street West, 5th Floor
Toronto, Canada M5V 1V6
(416)596-1930 (416)596-0473

CanAlfa Liberty Village Homes Inc.

WESTERN BATTERY ROAD

STA 0+20 TO 1+00

PLAN AND PROFILE

DESIGN:	MG	DRAWN:	FS	CHECKED:	JS	PROJECT No. 3242
SCALES:	HOR 1:200 0 2 4 6 8 m			DATE:	AUG., 2001	DRAWING NUMBER PP-32
	VER 1:100 0 1 2 3 4 m					

86 & 70 Lynn Williams Street

Parkland Dedication

ARCADIS

Post-Development Runoff Coefficients

Project Name: 86 & 70 Lynn Williams Street
Project Number: 143025
Date: July 26, 2023
Designed By: SB

Pre-Development: A3 Pre (TO WESTERN BATTERY ROAD)				
Conventional Roof	0	0.0%	0.90	0.00
Green Roof:	0	0.0%	0.50	0.00
Landscaping:	0	0.0%	0.25	0.00
Permeable Pavers:	0	0.0%	0.55	0.00
Impervious:	433	100.0%	0.90	0.90
Total Area:	**433**	100%		**0.90**

Post-Development				
Conventional Roof	-	-	0.90	-
Green Roof:	-	-	0.50	-
Landscaping:	-	-	0.50	-
Permeable Pavers:	-	-	0.55	-
Impervious:	-	-	0.90	-
Total Area:	**433**	0%		**0.50**

Note: As detailed design of the park dedication is not available at this time, a runoff coefficient of 0.50 is assumed

86 & 70 Lynn Williams Street

Parkland Dedication

ARCADIS

ALLOWABLE RELEASE RATE AND STORM SERVICE DESIGN

2 / 100 -YEAR STORM SEWER DESIGN SHEET

$I_{2\text{-year}} = \frac{21.8}{(T)^{0.78}}$ = 88.19 mm/hr

$I_{100\text{-year}} = \frac{59.7}{(T)^{0.80}}$ = 250.32 mm/hr

Project Name: 86 & 70 Lynn Williams Street
Project Number: 143025
Date: September 29, 2023
Designed By: SB

	From MH	To MH	DESIGN FLOW CALCULATIONS A (ha)	R	A x R	Accum. A x R	T_c (min)	I (mm/hr)	Q_{act} (l/s)	SEWER DESIGN & ANALYSIS Size of Pipe (mm)	Slope (%)	Nominal Capacity Q_{cap} (L/s)	Full Flow Velocity (m/s)	Actual Velocity (m/s)	Length (m)	Time in Sect. (min)	Total Time (min)	Percent of Full Flow (%)	Notes
WWFMG ALLOWABLE RELEASE RATE (ENTIRE SITE)																			
Allowable Release Rate			0.0433	0.50	0.022	0.022	10.0	88.2	**5.3**										
ORIFICE AND SERVICE DESIGN					Orif.(mm)	Area (m2)	depth (m)	head (m)	Q (L/s)										
Orifice and Storm Service Design	MH2 (Cntrl MH)	Ex Stm							**5.3**	200	2.00%	46.4	1.5	1.0	41.8	0.5	10.5	11%	Ex. STM Lead

86 & 70 Lynn Williams Street

Rational Method - 100 Year Storm

Parkland Dedication

Site Flow and Storage Summary

ARCADIS

$$I_{100\text{-}year} = \frac{59.7}{(10)^{0.80}} = 250.32 \text{ mm/hr}$$

Project Name:	& 70 Lynn Williams Street	Area of Site =	0.0433
Project Number:	143025	Weighed Runoff Coefficient =	0.50
Date:	September 29, 2023	Orifice Discharge (L/s) =	5.3

Time (min)	Intensity (mm/hr)	Q-100 (L/s)	Q-stored (L/s)	Storage Vol. (m^3)
0	0.0	0.000	0.000	0.000
10	250.3	15.054	9.754	5.852
20	143.8	8.646	3.346	4.015
30	103.9	6.251	0.951	1.712
40	82.6	4.966	0.000	0.000
50	69.1	4.154	0.000	0.000
60	59.7	3.590	0.000	0.000
70	52.8	3.174	0.000	0.000
80	47.4	2.852	0.000	0.000
90	43.2	2.596	0.000	0.000
100	39.7	2.386	0.000	0.000
110	36.8	2.211	0.000	0.000
120	34.3	2.062	0.000	0.000
130	32.2	1.934	0.000	0.000
140	30.3	1.823	0.000	0.000
150	28.7	1.725	0.000	0.000
160	27.2	1.638	0.000	0.000
170	25.9	1.561	0.000	0.000
180	24.8	1.491	0.000	0.000
190	23.7	1.428	0.000	0.000
200	22.8	1.370	0.000	0.000
210	21.9	1.318	0.000	0.000
220	21.1	1.270	0.000	0.000
230	20.4	1.225	0.000	0.000
240	19.7	1.184	0.000	0.000
250	19.1	1.146	0.000	0.000
260	18.5	1.111	0.000	0.000
270	17.9	1.078	0.000	0.000
280	17.4	1.047	0.000	0.000
290	16.9	1.018	0.000	0.000
300	16.5	0.991	0.000	0.000
310	16.0	0.965	0.000	0.000
320	15.6	0.941	0.000	0.000
330	15.3	0.918	0.000	0.000
340	14.9	0.896	0.000	0.000
350	14.6	0.876	0.000	0.000
360	14.2	0.856	0.000	0.000

Storage Volume Required (cu.m) =	**5.9**
Storage Volume Provided (cu.m) =	**6.2**
HGL Depth (m) =	0.6
Hydro-Brake Optimum Vortex Valve Model:	SHE-0114-5300-0600-5300

Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	0.600	5.300
Flush-Flo™	0.196	5.290
Kick-Flo®	0.431	4.547
Mean Flow		4.452

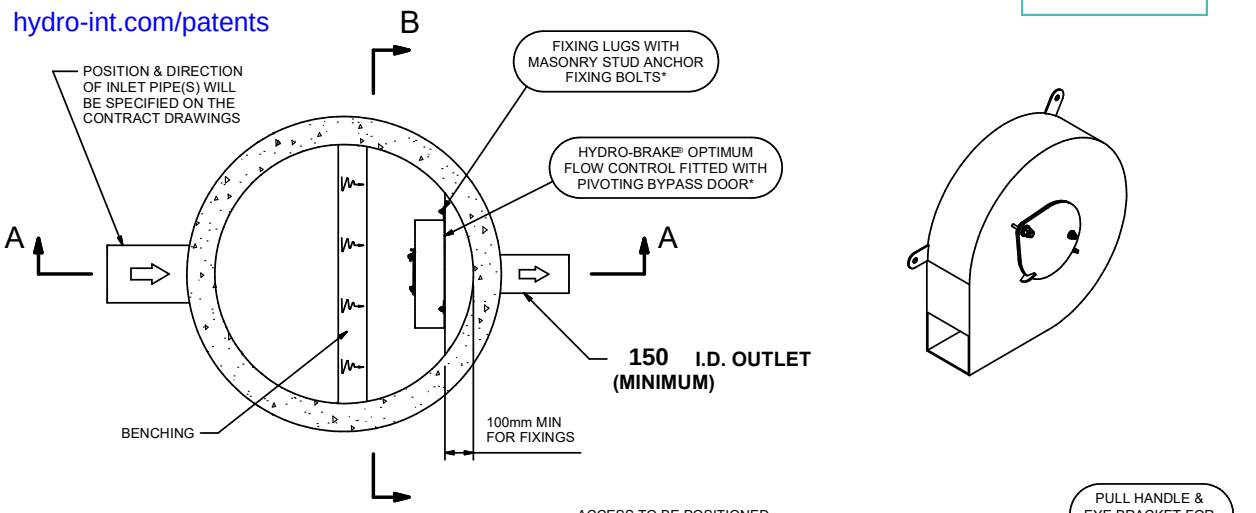
Hydro-Brake® Optimum Flow Control including:

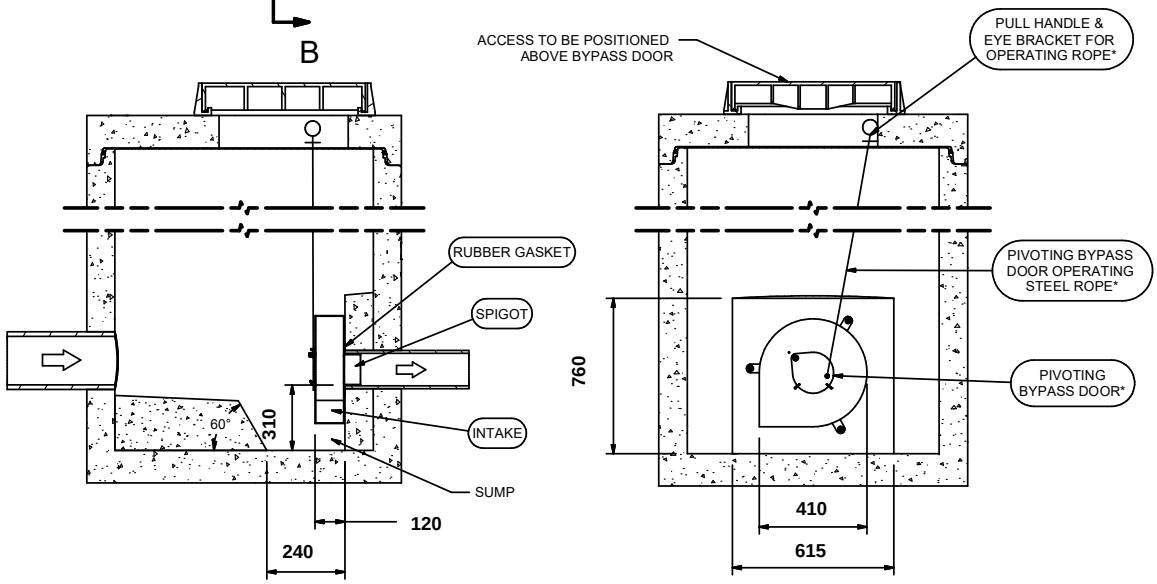
- **3 mm** grade 304L stainless steel
- Integral stainless steel pivoting by-pass door allowing clear line of sight through to outlet, c/w stainless steel operating rope
- Beed blasted finish to maximise corrosion resistance
- Stainless steel fixings
- Rubber gasket to seal outlet
- Indicative Weight: 10 kg

BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 08/4596

wrc approved PT/503/0422 Valid: 01/04/2022 - 31/03/2027

hydro-int.com/patents





SECTION A-A SECTION B-B

IMPORTANT: LIMIT OF HYDRO INTERNATIONAL SUPPLY
THE DEVICE WILL BE HANDED TO SUIT SITE CONDITIONS
FOR SITE SPECIFIC DETAILS AND MINIMUM CHAMBER SIZE REFER TO HYDRO INTERNATIONAL
ALL CIVIL AND INSTALLATION WORK BY OTHERS
* WHERE SUPPLIED
HYDRO-BRAKE® FLOW CONTROL & HYDRO-BRAKE® OPTIMUM FLOW CONTROL ARE REGISTERED TRADEMARKS FOR FLOW CONTROLS DESIGNED AND MANUFACTURED EXCLUSIVELY BY HYDRO INTERNATIONAL

THIS DESIGN LAYOUT IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE.

DESIGN ADVICE

The head/flow characteristics of this SHE-0114-5300-0600-5300 Hydro-Brake® Optimum Flow Control are unique. Dynamic hydraulic modelling evaluates the full head/flow characteristic curve.
The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.

Hydro International®

DATE	7/24/2023 6:26 PM
SITE	70 & 86 Lynn Williams Street
DESIGNER	**Shirley Beaudoin**
REF	**Park**

SHE-0114-5300-0600-5300

Hydro-Brake® Optimum

 Hydro International Ltd, 94 Hutchins Drive, Portland, Maine, 04102-1930. Tel; +1 (207) 756 6200 Fax; +1 (207) 756 6212 Web; www.hydro-int.com Email; enquiries@hydro-int.com

shirley.beaudoin@ibigroup.com

Technical Specification

Control Point	Head (m)	Flow (l/s)
Primary Design	0.600	5.300
Flush-Flo	0.196	5.290
Kick-Flo®	0.431	4.547
Mean Flow		4.452

hydro-int.com/patents

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE No 08/4596

wrc approved™
PT/503/0422
Valid: 01/04/2022 - 31/03/2027

Head (m)	Flow (l/s)
0.000	0.000
0.021	0.253
0.041	0.944
0.062	1.945
0.083	3.092
0.103	4.155
0.124	5.009
0.145	5.209
0.166	5.264
0.186	5.288
0.207	5.288
0.228	5.271
0.248	5.244
0.269	5.211
0.290	5.175
0.310	5.136
0.331	5.091
0.352	5.037
0.372	4.964
0.393	4.862
0.414	4.717
0.434	4.565
0.455	4.663
0.476	4.760
0.497	4.854
0.517	4.947
0.538	5.037
0.559	5.126
0.579	5.213
0.600	5.298

DESIGN ADVICE

The head/flow characteristics of this SHE-0114-5300-0600-5300 Hydro-Brake Optimum® Flow Control are unique. Dynamic hydraulic modeling evaluates the full head/flow characteristic curve.

! **The use of any other flow control will invalidate any design based on this data and could constitute a flood risk.**

Hydro International®

DATE	7/24/2023 6:26 PM
Site	70 & 86 Lynn Williams Street
DESIGNER	Shirley Beaudoin
Ref	Park

SHE-0114-5300-0600-5300

Hydro-Brake Optimum®

Arcadis Professional Services (Canada) Inc.
8133 Warden Ave, Unit 300
Markham, ON L6G 1B3
Canada
Phone: 1 905 763 2322
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