Final Report
Functional Servicing and Stormwater Management Report (FSR/SWM)

17 Elm Street, City of Toronto

Prepared for Fora Developments
by IBI Group
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Table of Contents

List of Tables

List of Figures

Appendices

List of Drawings

1 Introduction

1.1 Background

IBI Group Professional Services (Canada) Inc. (IBI Group) has been retained by For a Developments (the "Owner") to prepare a Functional Servicing Report to support the Zoning By-Law Amendment (ZBA) and a Site Plan Application (SPA) for a proposed mixed-use development located at 15-17 Elm 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 Elm Street;
- City of Toronto Digital Map Owners Group (DMOG) mapping;
- Topographic Survey prepared by Barich Grenkie Surveyors Ltd., dated May 2022; and,
- Architectural plans and site statistics prepared by Partisans Architects.

1.2 Existing Site Description

Located in the City of Toronto at 15 and 17 Elm Street, the 793 m^2 (0.08 ha) subject site is bounded by a small laneway to the east and south, Elm Street to the north, and commercial buildings to the west. Please see **Figure 1** following the report for an aerial view of the site.

The site currently hosts an existing commercial building and an asphalt parking surface. The site is relatively flat with ground surface elevations ranging from 93.88 m to 94.20 m and is self-contained with no external drainage areas to consider.

The subject site is located within Basement Flooding Study Area (BFA) #42 which is currently in progress, therefore, the Environmental Assessment documentation and Infoworks model were not available at the time of this report.

1.3 Site Proposal

The proposed development includes the construction of a 32-storey mixed-use building. The existing buildings will be removed within the subject site. Two underground levels are also proposed which will contain parking, storage, and the utility rooms. 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 limit, two fire service connections is 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
As the proposed development aims to qualify for Tier 1 of the Toronto Green Standard (TGS), controls should be in place. The runoff resulting from a 5 mm rainfall event must be retained on-site for rainwater re-use, infiltration, and evapotranspiration.

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 Groundwater Discharge

3.1 Groundwater Quality

A hydrogeological assessment was carried out by Groundwater Environmental Management Services (GEMS), dated August 2022 to assess existing groundwater conditions. Per the hydrogeological assessment, observed levels of total manganese, TSS and total phosphorus exceed the City's threshold for discharge to storm sewer. These observed levels do not exceed the City's threshold for discharge to the sanitary or combined sewer. It is therefore recommended that all dewatering activities be discharged to the 900 mm combined sewer system without pre-treatment. Please see **Appendix B** for an excerpt copy of the hydrogeological assessment.

3.2 Short-Term Groundwater Discharge

The anticipated short-term groundwater discharge has been estimated by GEMS to be 28.1 m^3/day (0.32 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 4 hours per day.

As the pre-development flow to the combined sewer exceeds the anticipated short-term pumping rate, it can be stated that there is sufficient capacity to support the dewatering rate, this will be further discussed in the subsequent sections. **Table 3.1** summarizes the recommendations for groundwater discharge during construction. It should be noted that a Permit to Take Water (PTTW) application must be submitted to the Ministry of the Environment, Conservation and Parks (MCEP) if dewatering rates exceed 50 m^3/day.

Table 3.1 Short-Term Groundwater Discharge Summary

BUILDING	AVERAGE DISCHARGE	AVERAGE DISCHARGE	HOURS OF PUMPING	PEAK DISCHARGE	CONNECTION OUTLET	TREATMENT REQUIRED
17 Elm Street	28.1 m^3/day	0.32 L/s	4 Hours	1.95 L/s	Combined	None

3.3 Long-Term Discharge Condition

Per the City's Foundation Drainage Policy, groundwater infiltration will be discharged to the municipal system under post-development conditions. Per the hydrogeological assessment, it is anticipated that the proposed foundation of the building will be above the groundwater table.

As infiltrated stormwater can be considered clean, it will be collected via the weeping tile system which will direct the water to the stormwater management tank located on P1. The average infiltrated stormwater flow rate has been provided by GEMS as 4.3 m^3/day. At the time of preparation of this report, no mechanical confirmation letter was available. It was therefore conservatively assumed that the pump would operate for 1 hour per day.

The additional flow has been accounted for in the Allowable Release Rate and Storage Volume calculations. Detailed calculations can be found in **Appendix C** for reference.

Table 3.2 Long-Term Stormwater Infiltration Summary

BUILDING	DAILY DISCHARGE	AVERAGE DISCHARGE	HOURS OF PUMPING	PEAK DISCHARGE	CONNECTION OUTLET	TREATMENT REQUIRED
17 Elm Street	4.3 m^3/day	0.05 L/s	1 Hour	1.19 L/s	SCSO	None

4 Stormwater Management

4.1 Pre-Development Conditions

Local storm infrastructure consists of a 1200 mm storm and combined sewer overflow sewer within Elm Street, which conveys flows east and a 900 mm combined sewer within Elm Street which conveys flows east.

The site currently hosts an existing building and a surface asphalt parking lot resulting in a pre-development runoff coefficient greater than 0.50. As per WWFM Guidelines, the allowable release rate will be calculated using a pre-development runoff coefficient of 0.50.

4.2 Grading

Under pre-development conditions, no external drainage enters the site and all drainage within the site is conveyed to the adjacent rights-of-way.

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 matching pre-development conditions.

4.3 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 for the site is calculated as follows:

$$Q_{Allowable} = \frac{(A \times R) * I_2}{360} = \frac{(0.0793\ \text{ha} \times 0.50) \times 88.2\ \text{mm/hr}}{360} \times \left(\frac{1000\ \text{L}}{\text{m}^3}\right) = \mathbf{9.7\ L/s}$$

As shown above, the release rate from the subject site shall be limited to a maximum of **9.7 L/s**. The associated pre-development drainage area plan is shown on **Figure DAP-1** which can be found in **Appendix C** for reference.

4.4 Quantity Control

The post-development release rate for the subject site shall be limited to the 2-year target flow which has been calculated to be **9.7 L/s**. To attenuate flows, the subject site will require a stormwater management tank and an orifice control. Setting the 100-year storage depth at 0.62 m and utilizing a 75 mm orifice plate, the orifice discharge is calculated as follows:

$$Q_{Orifice} = (0.63) * \frac{\pi * (0.073)^2}{4} * \sqrt{2 * 9.81 * (0.62\text{-}0.075/2)} \text{ x } \frac{1000 \text{ L}}{1 \text{ m}^3} = \mathbf{9.4 \text{ L / s}}$$

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

Table 4.1 Quantity Control Summary

ORIFICE DIA. (mm)	ORIFICE TYPE	COEFF. OF DISCHARGE (k)	DEPTH (m)	HEAD (m)	ORIFICE DISCHARGE (L/s)	UNCONTROL. FLOW (L/S)	ALLOWABLE SITE DISCHARGE (L/s)
75	Plate	0.63	0.62	0.59	9.4	0.0	9.7

The total site discharge is calculated to be less than the allowable release rate. 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's. Based on the proposed site conditions and surface treatment, the following table summarizes the inferred TSS removal rate of the site:

Table 4.2 TSS Performance

SURFACE TYPE	AREA (m^2)	EFFECTIVE TSS REMOVAL	OVERALL TSS REMOVAL
Conv. Roof	650	80	65.6
Extensive Green Roof	0	80	0.0
Intensive Green Roof	90	80	9.1
Landscape	0	80	0.0
Pavers	0	80	0.0
Impervious (Clean)	53	80	5.3
TOTAL	**793**		**80.0**

As the drive aisle is covered by upper floors, there are no "dirty" areas within the site. As such, 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 TGS Tier 1, a rainfall depth of 5 mm must be retained over the entire area of development, and the landscape plan should include one of the alternatives allowed by the Tier 1 TGS. The water balance volume required to be detained is calculated as follows:

$$\text{Vol.}_{5\text{ mm}} = 793\text{ m}^2 * 5\text{ mm} * \left(\frac{1\text{ m}}{1000\text{ mm}}\right) = \mathbf{4.0\ m^3}$$

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 4.3 Initial Abstraction

AREA	AREA (m^2)	INITIAL ABSTRACTION	TOTAL (m^3)
Conv. Roof	650	1	0.7
Extensive Green Roof	0	5	0.0
Intensive Green Roof	90	7	0.6
Landscape	0	5	0.0
Pavers	0	5	0.0
Impervious	53	1	0.1
TOTAL	**793**		**1.3**

As shown above, 1.3 m^3 is retained on-site through initial abstraction. It has been identified that 1.1m^3 of stormwater can be reused in 72 hours for irrigation purposes. The balance of 1.6 m^3 will be retained through water re-use methods such as additional landscape irrigation and / or toilet flushing the details of which will be provided with a subsequent submission.

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 200 mm storm service at a 2.0% slope be installed from a new control manhole at the property line to the existing 1200 mm SCSO sewer within Elm Street. The following table illustrates the peak flow and corresponding capacity of the service:

Table 4.4 Storm Service Performance

FROM	TO	PIPE SIZE (mm)	PIPE SLOPE	PEAK FLOW (L/s)	CAPACITY (L/s)	PERCENT OF FULL FLOW
Cntrl.MH	Storm Sewer	200	2.0 %	9.5	46.4	20 %

As shown above, the proposed storm service and existing storm service connection can easily convey the controlled discharge while operating at 20% (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 Existing Site Flows

Per the City's record information, local sewer infrastructure consists of a 900 mm combined sewer flowing east on Elm Street. As such, MECP F-5-5 will be applied to the site.

Existing Sanitary Flows
The existing site hosts a retail/commercial building and an asphalt parking surface. The resulting pre-development population is 9. The existing peak sanitary flow is calculated as follows:

$$Q_{\text{Pre-Dev.}} = \left(\frac{250\ \text{L/c·d} \cdot 9\ \text{pers}}{86400\ \text{s / day}}\right) + (0.26\ \text{L/s·ha} \cdot 0.0793\ \text{ha}) = \mathbf{0.05 L/s}$$

Existing Stormwater Flows
The existing site conveys stormwater to the combined sewer on Elm Street with no controls in place. Per Section 4, the existing stormwater flow to the combined sewer is **9.7 L/s** under a 2-year rainfall event.

5.2 Proposed Site Flows

The proposed sanitary servicing connection is proposed to connect to the 900 mm combined sewer on Elm Street while the proposed storm servicing connection is proposed to connect to the 1200 mm SCSO sewer on Elm Street.

Proposed Sanitary Flows
The anticipated sanitary discharge flows for the proposed site were calculated based on the site statistics provided by Partisans along with the design criteria outlined in **Section 2.3**. The proposed site statistics can be found in **Appendix B**. The population calculations are shown in **Table 5.1**.

Table 5.1 Proposed Development Site Populations

	UNITS	DENSITY	POPULATION
1 Bedroom	100	1.4 pp/unit	140
2 Bedroom	51	2.1 pp/unit	107
3 Bedroom	23	3.1 pp/unit	71
Commercial	212	1.1 pp/100m2	2
		TOTAL PROPOSED POPULATION	**321**

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

$$Q_{\text{Post-Dev.}} = \left(\frac{240\ \text{L/c·d} \cdot 319\ \text{pers} \cdot 4.1}{86400\ \text{s / day}}\right) + \left(\frac{250\ \text{L/c·d} \cdot 2\ \text{pers}}{86400\ \text{s / day}}\right) + (0.26\ \text{L/s·ha} \cdot 0.08\ \text{ha}) = \mathbf{3.6\ L/s}$$

Proposed Stormwater Flows
The proposed site will convey stormwater to the SCSO sewer on Elm Street with controls in place.

Sanitary Service Connection
It is proposed that a new sanitary service at a 2.0% slope be installed from the new control manhole to the existing 900 mm combined sewer on Elm Street. Using the design flow of 450 L/cd, the corresponding post-development sanitary sewer flow is calculated as follows:

$$Q_{\text{Post-Dev.}} = \left(\frac{450\ \text{L/c·d} \cdot 321\ \text{pers} \cdot 4.1}{86400\ \text{s / day}}\right) + (0.26\ \text{L/s·ha} \cdot 0.08\ \text{ha}) = \mathbf{6.8\ L/s}$$

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

Table 5.1 Sanitary Service Performance

FROM	TO	PIPE SIZE (mm)	PIPE SLOPE	PEAK FLOW (L/s)	CAPACITY (L/s)	PERCENT OF FULL FLOW
Cntrl.MH	Combined Sewer	200	2.0 %	6.8	48.4	14 %

As shown above, the sanitary service has ample capacity to convey the post-development peak sanitary flow while operating at 14% of full flow capacity. Please see the detailed design sheet which can be found in **Appendix D** and **Drawing SS-01**.

5.3 Summary of Sanitary Drainage System

As per MECP F-5-5, the proposed development must demonstrate that it will not contribute to an increase in combined sewer overflow volume to the natural system under wet weather conditions. **Table 5.3** below, summarizes the flows from the development site to the combined sewer on Elm Street between existing and proposed conditions.

Table 5.3 Total Flow to Combined Sewer

Condition	Sanitary Flow (L/s)	Storm Flow (L/s)	Groundwater Flow (L/s)	Total (L/s)
Existing	0.05	9.7	0	10.2
Proposed	3.6	0.0	0	3.6
	+3.5	-9.7	0	-6.6

As the proposed development represents an overall decrease the flows to the combined sewer under 2-year rainfall conditions, it can be stated that the existing sewer has the capacity to support the development. It can also be stated, due to the net decrease in flow to the combined sewer, that the site is compliant with MECP F-5-5.

6 Water Supply System

6.1 Existing Water Infrastructure

Per the City's record information, local water infrastructure consists of a 150 mm watermain within Elm Street. Hydrant flow testing was performed at existing fire hydrants along Elm Street in order to confirm the available water supply's flow-pressure response curve. These tests were performed on July 20, 2022 and were conducted in accordance with NFPA 291. The results are summarized as follows:

Table 6.1 Hydrant Response Curve

ELM STREET			
FLOW (gpm)	**FLOW (L/s)**	**PRESSURE (psi)**	**PRESSURE (kPa)**
0	0	61	421
375	23.7	36	248
0	0	32	221

As shown above, static pressure within the system is expected to be approximately 61 psi. A copy of the hydrant flow test can be found in **Appendix E** for reference.

Under existing conditions, the municipal water supply network cannot support the proposed development under fire flow conditions. Therefore, it is proposed that the existing 150mm watermain within Elm Street (installed 1876) be replaced with a 300mm watermain between Yonge Street and Bay Street.

Further discussions with the City will be conducted in order to determine a preferable solution.

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	140	0.3	0.8	0.4
2 Bedroom	107	0.2	0.6	0.3
3 Bedroom	71	0.2	0.4	0.2
Retail	2	0.0	0.0	0.0
TOTAL	**321**	**0.7**	**1.8**	**0.9**

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, 1999 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 = 1,134 m2 + 25% (1,134 m2 + 788 m^2)
- Effective Floor Area = 1,615 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 %	+ 75 %

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)
$F = 220 \cdot 0.6 \sqrt{Area}$	$F_1 = F \cdot 0.85 = 4{,}250$ L/min	Fire Flow $= F_1 - F_2 + F_3$	TD= FF + MDD
$F = 220 \cdot 0.6 \sqrt{1{,}615}$ m^2	$F_2 = F_1 \cdot 0.30 = 1{,}275$ L/min	FF= 6,000 L/min (rnd'd)	TD=100.0 L/s + 0.9L/s
F = 5,000 L/min (rnd'd)	$F_3 = F_1 \cdot 0.75 = 3{,}188$ L/min	FF = 100.0 L/s	TD= 100.9 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 Water Service Connection

To service the proposed development, a new 200 mm fire service shall be connected to the proposed 300 mm watermain within Elm Street 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 proposed 300 mm watermain within Elm Street.

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 will be provided.

6.5 Hydrant Coverage

Existing municipal hydrants are located on the south side of Elm Street and provide the required 45 m of coverage for all proposed siamese connections to satisfy OBC requirements. Please see **Drawing SS-01** for the location of all existing and proposed water infrastructure.

7 Conclusions and Recommendations

Storm Sewer and Stormwater Management
The objectives of the City's WWFMG's 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 there is no exposed drive aisle area to be considered "dirty", the site will meet the City's target for quality control. Through initial abstraction and water reuse, the site will meet the City's target for Tier 1 water balance. Details pertaining to water re-use applications will be finalized at a later stage.

Sanitary Sewers
Through the implementation of the City's WWFMG's, there is an overall reduction in flows conveyed to the receiving combined sewer within Elm Street, thus the site complies with MECP procedure F-5-5. Furthermore, as the site represent an overall improvement to the receiving municipal sewer network, it can therefore be deemed an appropriate conclusion that the proposed development can proceed without upgrades to the municipal infrastructure.

Water Supply
The existing 150 mm watermain within Elm Street does not have sufficient pressure to support the proposed fire demands. It is therefore recommended that the 150 mm watermain be upsized to a 300 mm watermain between Yonge Street and Bay Street.

CLIENT: FORA DEVELOPMENTS 2440 DUNDAS STREET WEST, Unit 200, TORONTO, ON M6P 1W9	PROJECT NAME: 17 ELM 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: 2022-08-19	FIGURE NAME: AERIAL PLAN	FIGURE NO.: FIG.1 / REVISION: 1
	PROJECT ENG: JMJ / DRAWN BY: CG		
	CHECKED BY: / APPROVED BY:		
	PROJECT NO: 137680		

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Appendix A
Background Information

Sample Architectural Drawings (Partisans)

Plan and Profile Drawings (City of Toronto)

DMOG Mapping (City of Toronto)

Existing Building Plans

Topographic Survey (KRCMAR)

PARTISANS

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ARCHITECTURAL LIST	
A0000	Cover Sheet / Project Info / Consulatants / Code Matrix
A0001	Project Statistics
A0002	Saleable Area
A0003	GCA & GFA
A0011	Site Plan
A900	Level P2
A901	Level P1
A1000	Ground Floor Plan
A1002	Level 2
A1003	Typical Podium Floor (Level 3-7)
A1004	Typical Podium Floor (Level 8-9)
A1005	Podium Terraces (Level 10)
A1006	Typical Tower Floor (Level 11-20)
A1007	Amenity (Level 21)
A1008	Typical Tower Floor (Level 22-30)
A1009	Mechanical Floor (Level 31)
A1010	MPH (Level 32)
A1011	Roof Plan
A2000	Building Elevations
A2010	Building Elevations
A2020	Detailed Building Elevations
A3000	Building Sections
A4000	Project Renders
A4001	Project Renders

PLANNING CONSULTANT	CIVIL ENGINEER	LANDSCAPE ARCHITECT	MECHANICAL & ELECTRICAL ENGINEER	STRUCTURAL ENGINEER	TRAFFIC CONSULTANT	ARCHITECT
GOLDBERG GROUP 2098 Avenue Road Toronto, Ontario, M5M 4AB	**IBI GROUP** 8133 Warden Ave, Unit 300 Markham ON L6G 1B3	**STUDIO TLA** 20 Champlain Blvd., Suite 102 Toronto, ON, M3H 2Z1	**MCW CONSULTANTS LTD.** 207 Queen's Quay W, Suite 615 Toronto, ON, M5J 1A7	**JABLONSKY AST & PARTNERS** 3 Concorde Gate #400 North York, ON, M3C 3N7	**BA CONSULTING GROUP LTD.** 45 St. Clair Ave. W., Suite 300 Toronto, ON, M4V 1K9	**PARTISANS** 950 Dupont St Toronto,Ontario M6H 1Z2

SPA	
Permit	
Tender	
Contract	
Construction	

No.	DESCRIPTION	Date
1	Issued for SPA	Aug 22, 2022

NOT FOR CONSTRUCTION

PARTISANS
116 Geary Ave Unit 204, Toronto, ON, Canada, M6H 4H1
www.partisanprojects.com

Certificate of Practice No.: ????
Architect's BCIN: 7211

True North
North Arrow

Scale: 1 : 1
Drawn: Author
Checked: Checker
Approved: Approver

Client
Fora Developments

Project
15-17 ELM STREET

Project Address
17 Elm Street
Toronto, Ontario
M5G 1H1

Drawing Title
Cover Sheet / Project Info / Consulatants / Code Matrix

Project Number: 88
Drawing Number: A0000

Stage	
SPA	
Permit	
Tender	
Contract	
Construction	

No.	DESCRIPTION	Date
1	Issued for SPA	Aug 22, 2022

1. SITE INFO

1.0 SITE INFORMATION	
SITE AREA (includes building area, paved area, and private road)	793 sm
PROPOSED TOTAL GFA	14,287 sm
PROPOSED AREA OF PRIVATE ROAD	96 sm
PROPOSED FSI GROSS	18.02
PROPOSED RESIDENTIAL GFA	14,087 sm
PROPOSED NUMBER OF UNITS	174
PAVED AREA	69 sm
BUILDING HEIGHT	99 m

1.1 RESIDENTIAL GFA		1.2 NON-RESIDENTIAL GFA		1.3 TOTAL GFA PER 425-1993	
SF	SM	SF	SM	SF	SM
151,633	14,087	2,153	200	153,786	14,287

NOTES
*as per By-law 569-2013, Gross Floor Area is reduced by: Parking, Loading & Bicycle spaces below-ground; Storage rooms, Washrooms, Elec, Utility, Mech and Ventilation rooms in the Basement; required Shower & Change facilities; required Indoor Amenity space; Elevator shafts; Garbage shafts; Mech. Penthouse and Exit stairwells.

1.5 UNIT COUNT TOTALS					
UNIT TYPE	TOTAL AREA SM	TOTAL AREA SF	TOTAL UNIT COUNT	% OF TOTAL UNIT	REQUIRED %
STUDIO	501.0	5,393	5	3%	10%
1B	6075.0	65,391	95	55%	65%
2B	2297.0	24,725	51	29%	15%
3B	1510.0	16,254	23	13%	10%
TOTAL	10383.0	111,762	174	100%	

2. PARKING INFO

2.1 PARKING SUMMARY PROVIDED		
LEVEL	RES	TOTAL
P1	0	
P2	22	22

2.2 BICYCLE PARKING				
LEVEL	SHORT TERM	REQUIRED (0.1 spaces/unit)	LONG TERM	REQUIRED (0.9 spces/unit)
LEVEL 1	34	28	0	157
LEVEL 2			86	
LEVEL P1			72	
TOTAL	34		158	

3. LOADING

3.0 LOADING SUMMARY			
	COUNT	REQUIRED	
TYPE G	1	1	
GARBAGE & STAGING	55	64	*25SM for the first 50 units, plu

4. AMENITY

4.0 RESIDENTIAL AMENITY INDOOR				
LEVEL	SM	SF	Required (SM)	*Required to provide 2sm indo *Required indoor amenity dedu
LEVEL 21	348	3,746	2SM / Unit	
			348	
TOTAL	348			

4.2 AMENITY OUTDOOR				
LEVEL	SM	SF	Required	*Required to provide 2sm outd
GROUND	74	797	2SM / Unit	
LEVEL 21	141	1,518		
ROOFTOP	88	947	348	*green roof can only be 25% o
TOTAL	303	3,262		

2 A0001 Project Stats 1 : 1

TOTAL GFA PER FLOOR		
FLOOR	BYLAW GFA 569-2013	
	TOTAL BUILDING GFA	
	ft2	m2
P2	0	0
P1	0	0
1	1636	152
2	3197	297
3	5920	550
4	6049	562
5	6135	570
6	6469	601
7	6480	602
8	6797	632
9	6797	632
10	5776	537
11	5726	532
12	5490	510
13	5560	517
14	5560	517
15	5726	532
16	5694	529
17	5490	510
18	5560	517
19	5560	517
20	5560	517
21	334	31
22	4446	413
23	4446	413
24	4446	413
25	4446	413
26	4446	413
27	4446	413
28	4446	413
29	4446	413
30	4446	413
31 - MPH	0	0
32 - MPH	0	0
TOTALS	151525.9	14077.1

*By-law GFA includes area of residential suites, office, and retail, mechanical areas above grade (excluding penthouse), space allocated for storage lockers above grade

TOTAL UNIT COUNT PER FLOOR						
	<50 Studio	51-65 1 Bedroom	66-85 2 Bedroom	>85 3 Bedroom	TOTAL PER FLOOR	
% required:	10%	65%	15%	10%		
total required:	17	113	26	17		
P2						
P1						
1	0	0	0	0		
2	0	0	3	0	3	
3	1	4	0	2	7	
4	1	4	0	2	7	
5	1	4	0	2	7	
6	1	4	0	2	7	
7	1	4	0	2	7	
8	0	2	3	2	7	
9	0	2	3	2	7	
10	0	4	3	0	7	terrace
11	0	4	3	0	7	
12	0	4	3	0	7	
13	0	4	3	0	7	
14	0	4	3	0	7	
15	0	4	3	0	7	
16	0	4	3	0	7	
17	0	4	3	0	7	
18	0	4	3	0	7	
19	0	4	3	0	7	
20	0	4	3	0	7	
21	0	0	0	0	0	terrace
22	0	3	1	1	5	
23	0	3	1	1	5	
24	0	3	1	1	5	
25	0	3	1	1	5	
26	0	3	1	1	5	
27	0	3	1	1	5	
28	0	3	1	1	5	
29	0	3	1	1	5	
30	0	3	1	1	5	
31 - MPH					0	
32 - MPH					0	
	5	95	51	23	174	
15% of units to be accessible	1	14	8	3		
	3%	55%	29%	13%		

1 A0001 Residential Count 1 : 1

NOT FOR CONSTRUCTION

PARTISANS
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North Arrow — True North

Scale 1 : 1
Drawn Author
Checked Checker
Approved Approver

Client
Fora Developments

Project
15-17 ELM STREET

Project Address
17 Elm Street
Toronto, Ontario
M5G 1H1

Drawing Title
Project Statistics

Project Number 88
Drawing Number A0001

RESIDENTIAL UNIT BREAKDOWN

	UNIT NAME	UNIT TYPE	UNIT AREA SM
Level 2	2B	C1	76
		C2	83
		C3	76
			235.0
Level 3	STUDIO	A1	43
	1B	B1	63
		B2	60
		B3	63
		B4	64
	3B	D1	92
		D2	94
			479.0
Level 4	STUDIO	A1	44
	1B	B1	63
		B2	60
		B3	63
		B4	65
	3B	D1	92
		D2	97
			484.0
Level 5	STUDIO	A1	44
	1B	B1	67
		B2	62
		B3	62
		B4	71
	3B	D1	92
		D2	95
			493.0
Level 6	STUDIO	A1	50
	1B	B1	68
		B2	69
		B3	61
		B4	71
	3B	D1	97
		D2	108
			524.0
Level 7	STUDIO	A1	55
	1B	B1	69
		B2	75
		B3	64
		B4	65
	3B	D1	99
		D2	115
			542.0
Level 8	1B	B1	63
		B2	70
	2B	C1	72
		C2	72
		C3	84
		C4	90
	3B	D1	105
			556.0
Level 9	1B	B1	63
		B2	70
	2B	C1	72
		C2	72
		C3	84
		C4	90
	3B	D1	105
			556.0
Level 10 (Podium w Terrace)	1B	B1	49
		B2	54
	2B	C1	0
		C2	79
		C3	63
		C4	53
	3B	D1	81
			379.0
Level 11	1B	B1	43
		B2	51
		B3	65
		B4	59
		B5	73
	2B	C1	74
		C2	81
			446.0
Level 12	1B	B1	43
		B2	51
		B3	65
		B4	59
		B5	73
	2B	C1	74
		C2	81
			446.0
Level 13	1B	B1	43
		B2	51
		B3	65
		B4	59
		B5	73
	2B	C1	74
		C2	81
			446.0
Level 14	1B	B1	43
		B2	51
		B3	65
		B4	59
		B5	73
	2B	C1	74
		C2	81
			446.0
Level 15	1B	B1	43
		B2	51
		B3	65
		B4	59
		B5	73
	2B	C1	74
		C2	81
			446.0
Level 16	1B	B1	43
		B2	51
		B3	65
		B4	59
		B5	73
	2B	C1	74
		C2	81
			446.0
Level 17	1B	B1	43
		B2	51
		B3	65
		B4	59
		B5	73
	2B	C1	74
		C2	81
			446.0
Level 18	1B	B1	43
		B2	51
		B3	65
		B4	59
		B5	73
	2B	C1	74
		C2	81
			446.0
Level 19	1B	B1	43
		B2	51
		B3	65
		B4	59
		B5	73
	2B	C1	74
		C2	81
			446.0
Level 20	1B	B1	43
		B2	51
		B3	65
		B4	59
		B5	73
	2B	C1	74
		C2	81
			446.0
Level 21 (Amenity)	STUDIO		
	1B		
	2B		
	3B		
			0.0
Level 22	1B	B1	60
		B2	52
		B3	60
	3B	D1	75
	3B	D2	95
			342.0
Level 23	1B	B1	60
		B2	52
		B3	60
	3B	D1	75
	3B	D2	95
			342.0
Level 24	1B	B1	60
		B2	52
		B3	60
	3B	D1	75
	3B	D2	95
			342.0
Level 25	1B	B1	60
		B2	52
		B3	60
	3B	D1	75
	3B	D2	95
			342.0
Level 26	1B	B1	60
		B2	52
		B3	60
	3B	D1	75
	3B	D2	95
			342.0
Level 27	1B	B1	60
		B2	52
		B3	60
	3B	D1	75
	3B	D2	95
			342.0
Level 28	1B	B1	60
		B2	52
		B3	60
	3B	D1	75
	3B	D2	95
			342.0
Level 29	1B	B1	60
		B2	52
		B3	60
	3B	D1	75
	3B	D2	95
			342.0
Level 30	1B	B1	60
		B2	52
		B3	60
	3B	D1	75
	3B	D2	95
			342.0
TOTALS			**11,786**

1 Saleable Area
A0002 1 : 1

SPA	
Permit	
Tender	
Contract	
Construction	

No.	DESCRIPTION	Date
1	Issued for SPA	Aug 22, 2022

NOT FOR CONSTRUCTION

PARTISANS
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Architect's BCIN: 7211

True North
North Arrow

Scale: 1 : 1
Drawn: Author
Checked: Checker
Approved: Approver

Client
Fora Developments

Project
15-17 ELM STREET

Project Address
17 Elm Street
Toronto, Ontario
M5G 1H1

Drawing Title
Saleable Area

Project Number: 88
Drawing Number: A0002

		TOTAL GCA PER FLOOR					
		FLOOR					
			TOTAL BUILDING GFA				
			SF	SM			
Below Grade		P2	8481	788			
		P1	8481	788			
	total		16963	1576			
				Total	Balconies	Interior Area	
Above Grade		1	5648	525	0	525	
		2	5006	465	21	444	
		3	6507	605	33	572	
		4	6567	610	39	571	
		5	6666	619	39	580	
		6	7000	650	39	611	
		7	7276	676	22	654	
		8	7420	689	38	652	
		9	7397	687	38	650	
		10	7422	690	116	574	
		11	6334	588	48	540	
		12	6226	578	26	552	
		13	6198	576	33	543	
		14	6200	576	33	544	
		15	6270	582	48	534	
		16	6326	588	45	543	
		17	6218	578	26	552	
		18	6201	576	33	544	
		19	6193	575	33	543	
		20	6181	574	33	542	
		21	6260	582	0	582	*amenity flc
		22	5004	465	39	426	
		23	5004	465	39	426	
		24	5004	465	39	426	
		25	4922	457	39	418	
		26	4944	459	39	420	
		27	5004	465	39	426	
		28	5004	465	39	426	
		29	5004	465	39	426	
		30	4553	423	39	384	
		31	4520	420	0		
		32	4162	387	0		
	total		188642.3	17525.3	1090.1	15628.7	
TOTAL GCA			SF	SM			
			205604.8	19101.2			

2 GCA
A0003 1 : 1

ENTIAL GFA PER BYLAW 569-2013				RESIDENTIAL GFA PER BYLAW 569-2013								BYLAW GFA 569-2013	
BOH, CIRCULATION		TOTAL NON-RESIDENTIAL		LOBBY , CIRCULATION, BOH		BALCONIES		SUITE AREA		TOTAL RESIDENTIAL		TOTAL BUILDING GFA	
ft2	m2			ft2	m2	ft2	m2	ft2	m2	ft2	m2	ft2	m2
0		0	0	108	10	0	0	0	0	108	10	108	10
0		1711	159	0	0	0	0	0	0	0	0	1711	159
0	0	441	41	1636	152	0	0	0	0	1636	152	2077	193
	0	0	0	441	41	226	21	2530	235	3197	297	3197	297
0	0	0	0	409	38	355	33	5156	479	5920	550	5920	550
0	0	0	0	420	39	420	39	5210	484	6049	562	6049	562
0	0	0	0	409	38	420	39	5307	493	6135	570	6135	570
0	0	0	0	409	38	420	39	5640	524	6469	601	6469	601
0	0	0	0	409	38	237	22	5834	542	6480	602	6480	602
0	0	0	0	409	38	404	38	5985	556	6797	632	6797	632
0	0	0	0	409	38	404	38	5985	556	6797	632	6797	632
0	0	0	0	452	42	1244	116	4080	379	5776	537	5776	537
0	0	0	0	409	38	517	48	4801	446	5726	532	5726	532
0	0	0	0	409	38	280	26	4801	446	5490	510	5490	510
0	0	0	0	409	38	350	33	4801	446	5560	517	5560	517
0	0	0	0	409	38	350	33	4801	446	5560	517	5560	517
0	0	0	0	409	38	517	48	4801	446	5726	532	5726	532
0	0	0	0	409	38	484	45	4801	446	5694	529	5694	529
0	0	0	0	409	38	280	26	4801	446	5490	510	5490	510
0	0	0	0	409	38	350	33	4801	446	5560	517	5560	517
0	0	0	0	409	38	350	33	4801	446	5560	517	5560	517
0	0	0	0	409	38	350	33	4801	446	5560	517	5560	517
0	0	0	0	334	31	0	0	0	0	334	31	334	31
0	0	0	0	344	32	420	39	3681	342	4446	413	4446	413
0	0	0	0	344	32	420	39	3681	342	4446	413	4446	413
0	0	0	0	344	32	420	39	3681	342	4446	413	4446	413
0	0	0	0	344	32	420	39	3681	342	4446	413	4446	413
0	0	0	0	344	32	420	39	3681	342	4446	413	4446	413
0	0	0	0	344	32	420	39	3681	342	4446	413	4446	413
0	0	0	0	344	32	420	39	3681	342	4446	413	4446	413
0	0	0	0	344	32	420	39	3681	342	4446	413	4446	413
0	0	0	0	344	32	420	39	3681	342	4446	413	4446	413
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.0	0.0	2152.8	200.0	13035.2	1211.0	11733.8	1090.1	126864.5	11786.0	151633.5	14087.1	153786.3	14287.1

*By-law GFA includes area of residential suites, office, and retail, mechanical areas above grade (excluding penthouse), space allocated for storage lockers above grade

1 GFA
A0003 1 : 1

SPA
Permit
Tender
Contract
Construction

No.	DESCRIPTION	Date
1	Issued for SPA	Aug 22, 2022

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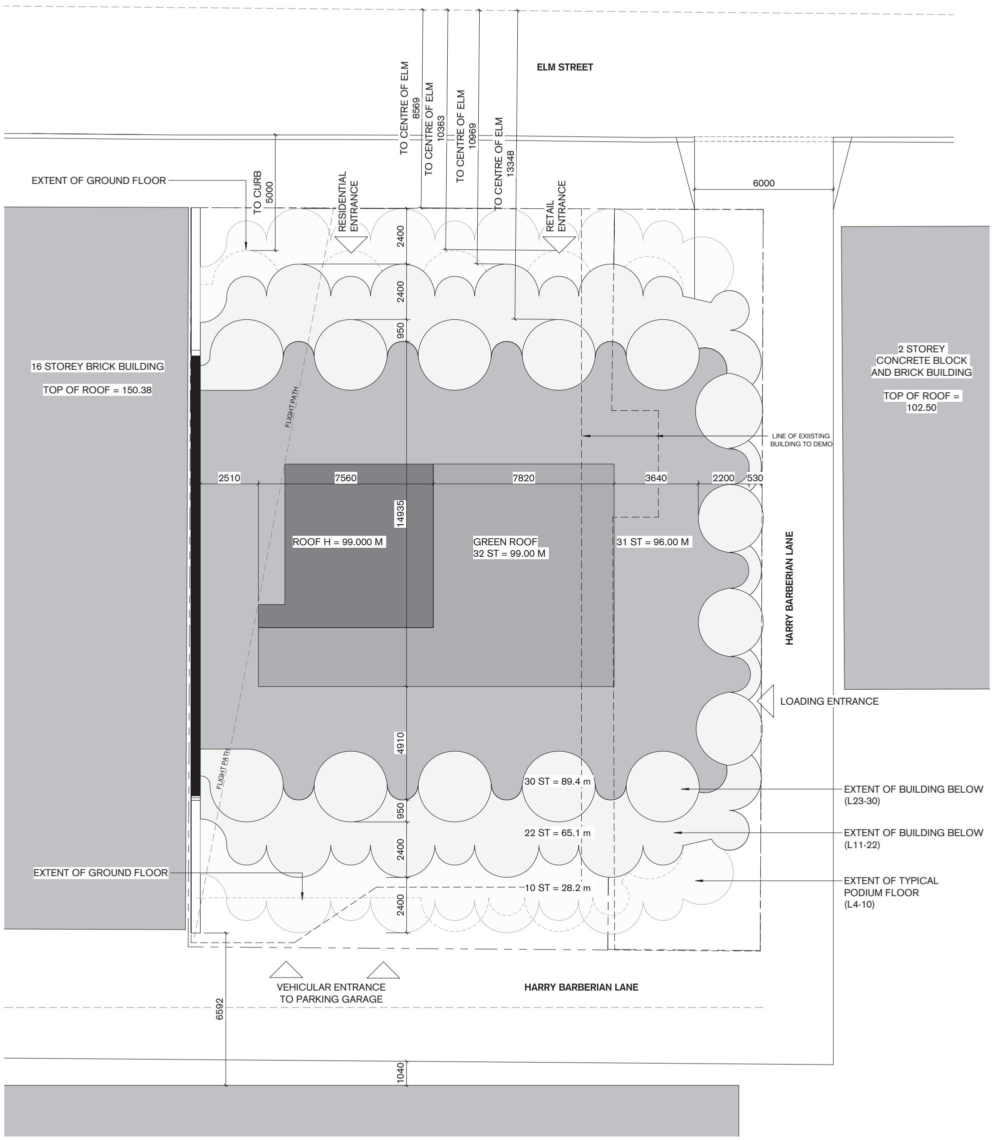
Client
Fora Developments

Project
15-17 ELM STREET

Project Address
17 Elm Street
Toronto, Ontario
M5G 1H1

Drawing Title
GCA & GFA

Project Number: 88
Drawing Number: A0003



1 Roof Plan Site plan
A0011 1 : 100

2 Context Plan
A0011 1 : 1000

SPA	
Permit	
Tender	
Contract	
Construction	

No.	DESCRIPTION	Date
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Scale: As indicated
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Approved: Approver

Client
Fora Developments

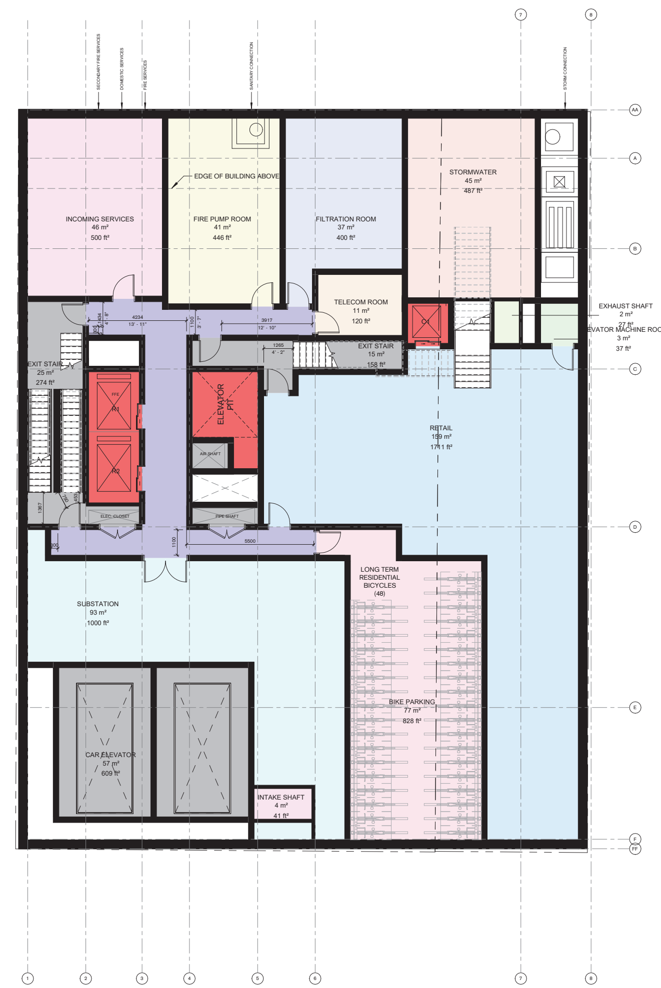
Project
15-17 ELM STREET

Project Address
17 Elm Street
Toronto, Ontario
M5G 1H1

Drawing Title
Site Plan

Project Number: 88
Drawing Number: A0011

ARCH_D (24x36) 2022-08-17 11:00:01 AM C:\Users\trisha\Documents\17 ELM - PAR - MAIN_v2_trishaJBKF4.rvt



SPA	
Permit	
Tender	
Contract	
Construction	

No.	DESCRIPTION	Date
1	Issued for SPA	Aug 22, 2022

BICYCLE PARKING & LOCKERS LEGEND:

610
1786
2134
STACK (HORIZONTAL)

BICYCLE PARKING STATISTICS:

LEVEL	SHORT-TERM BICYCLE		LONG-TERM BICYCLE	
	RES.	COM.	RES.	COM.
L2	0	0	86	0
GROUND	28	6	0	0
P1	0	0	72	0
TOTAL	28	6	158	0
	34		158	
	185			

PARKING NOTES:

1. PARKING IS AN AUTOMATED SYSTEM
2. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED): 2450mm WIDE X 5650mm LONG
3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.
4. ALL SPACES ARE EQUIPPED WITH EVSE

PARKING LEGEND:

R1 PARKING SPACE

C=COMMERCIAL PARKING
R=RESIDENTIAL PARKING
V=VISITOR PARKING
E=EXISTING PARKING

2450
5650
TYPICAL - AUTOMATED PARKING
ACCESSIBLE AND EVSE

VEHICLAR PARKING:

LEVEL	RESIDENTIAL
P2	22

NOT FOR CONSTRUCTION

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True North

Scale: As indicated
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Client
Fora Developments

Project
15-17 ELM STREET

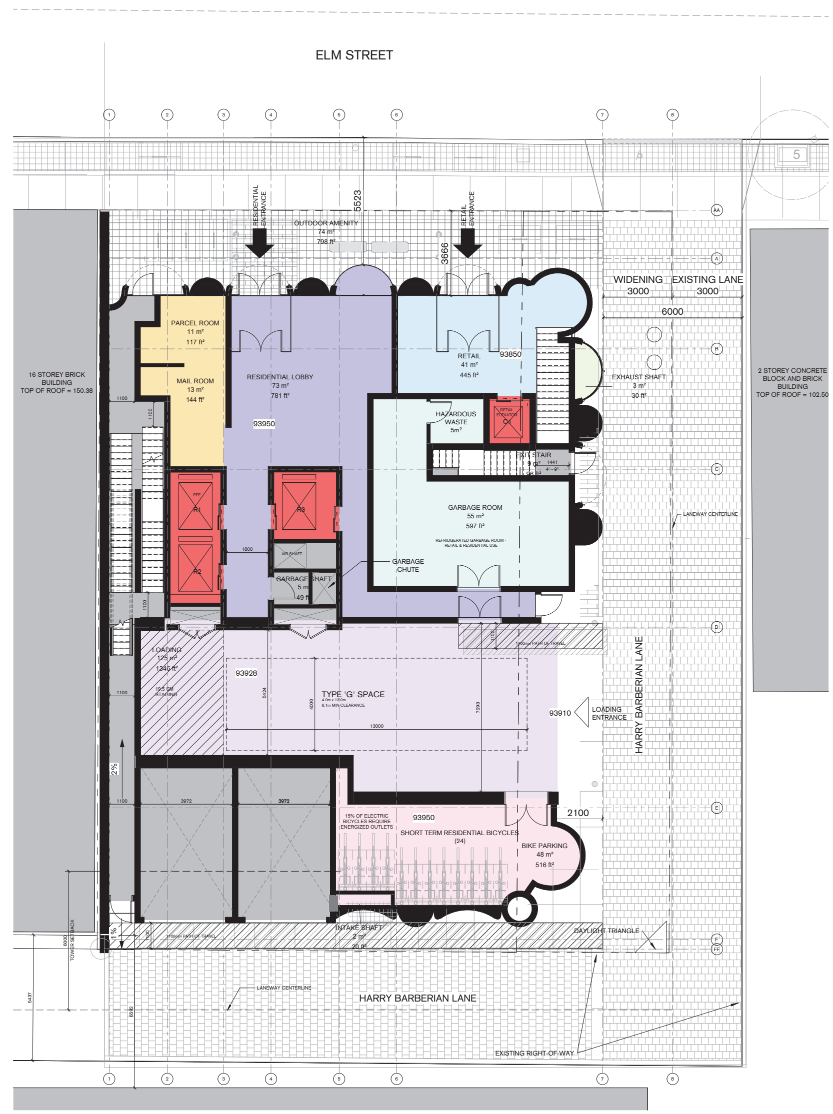
Project Address
17 Elm Street
Toronto, Ontario
M5G 1H1

Drawing Title
Level P1

Project Number: 88
Drawing Number: A901

NOTES:

-ANY ROOFTOP AND FACADE ILLUMINATION WILL BE DIRECTED DOWNWARD AND TURNED OFF BETWEEN 11PM-6AM
- LIGHTING AND PHOTOMETRIC LAYOUTS PROVIDED BY MCW



SPA	
Permit	
Tender	
Contract	
Construction	

No.	DESCRIPTION	Date
1	Issued for SPA	Aug 22, 2022

BICYCLE PARKING & LOCKERS LEGEND:

STACK (HORIZONTAL)

BICYCLE PARKING STATISTICS:

LEVEL	SHORT-TERM BICYCLE		LONG-TERM BICYCLE	
	RES.	COM.	RES.	COM.
L2	0	0	86	0
GROUND	28	6	0	0
P1	0	0	72	0
TOTAL	28	6	158	0
	34		158	
	185			

PARKING NOTES:

1. PARKING IS AN AUTOMATED SYSTEM
2. MINIMUM PARKING SPACE SIZES (UNLESS OTHERWISE NOTED): 2450mm WIDE X 5650mm LONG
3. MAINTAIN MINIMUM HEADROOM CLEARANCE OF 2100mm THROUGHOUT.
4. ALL SPACES ARE EQUIPPED WITH EVSE

PARKING LEGEND:

R1 PARKING SPACE

C=COMMERCIAL PARKING
R=RESIDENTIAL PARKING
V=VISITOR PARKING
E=EXISTING PARKING

TYPICAL - AUTOMATED PARKING *ACCESSIBLE AND EVSE*

VEHICLAR PARKING:

LEVEL	RESIDENTIAL
P2	22

SITE LEGEND:

PROPERTY LINE
LINE OF BUILDING ABOVE
GROUND FLOOR OUTLINE
MAIN BUILDING ENTRANCE
LOADING ENTRANCE / EXIT

NOT FOR CONSTRUCTION

PARTISANS
116 Geary Ave Unit 204, Toronto, ON, Canada, M6H 4H1
www.partisanprojects.com

Certificate of Practice No.: ????
Architect's BCIN: 7211

North Arrow

Scale: As indicated
Drawn: Author
Checked: Checker
Approved: Approver

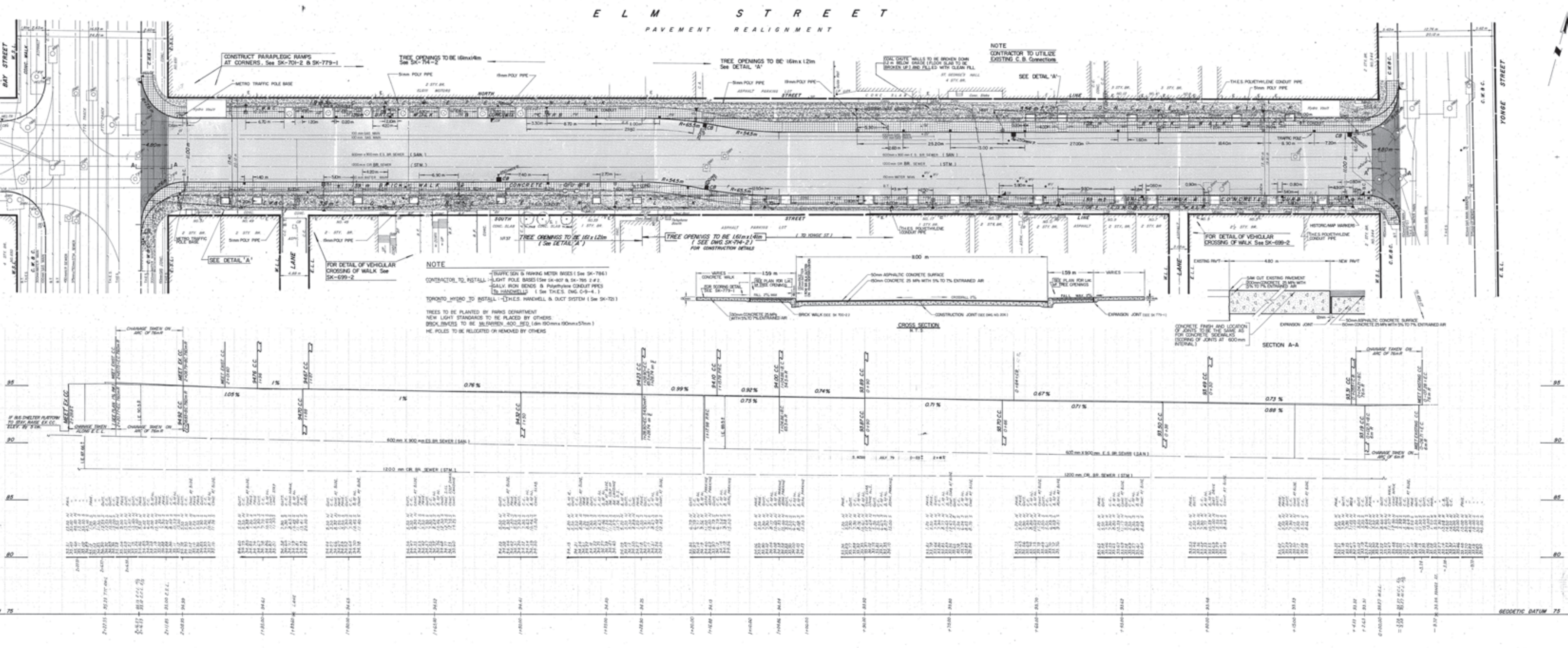
Client: Fora Developments

Project: 15-17 ELM STREET

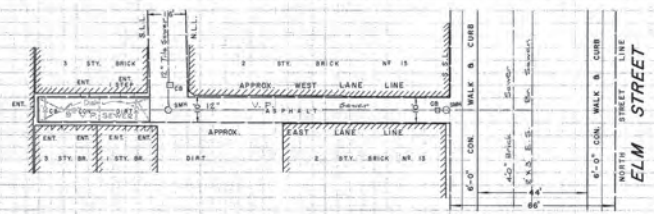
Project Address: 17 Elm Street, Toronto, Ontario, M5G 1H1

Drawing Title: Ground Floor Plan

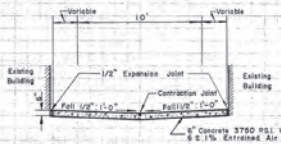
Project Number: 88
Drawing Number: A1000


E L M S T R E E T
P A V E M E N T R E A L I G N M E N T
BAY STREET
YONGE STREET
CONSTRUCT PARAPLEGIC RAMPS AT CORNERS, See SK-701-2 & SK-779-1
TREE OPENINGS TO BE 1.61m x 1.4m See SK-714-2
TREE OPENINGS TO BE 1.61m x 1.21m See DETAIL 'A'
NOTE
CONTRACTOR TO UTILIZE EXISTING C.B. Connections
SEE DETAIL 'A'
METRO TRAFFIC POLE BASE
NORTH
SOUTH
BRICK WALK
CONCRETE
CONCRETE CURB
R=54.5m
R=65.5m
(SAN.)
(STM.)
TRAFFIC POLE
HISTORICANP MARKERS
T.H.E.S. POLYETHYLENE CONDUIT PIPE
51mm POLY PIPE
ASPHALT PARKING LOT
LANE
SEE DETAIL 'A'
FOR DETAIL OF VEHICULAR CROSSING OF WALK See SK-699-2
TREE OPENINGS TO BE 1.61m x 1.21m (See DETAIL 'A')
TREE OPENINGS TO BE 1.61m x 1.4m (SEE DWG. SK-714-2) FOR CONSTRUCTION DETAILS
(TO YONGE ST.)
FOR DETAIL OF VEHICULAR CROSSING OF WALK See SK-699-2
NOTE
CONTRACTOR TO INSTALL - TRAFFIC SIGN & PARKING METER BASES (See SK-786)
- LIGHT POLE BASES (See SK-807 & SK-785 2 # 2)
- GALV. IRON BENDS & Polyethylene CONDUIT PIPES To HANDWELLS (See T.H.E.S. DWG. C-9-4.)
TORONTO HYDRO TO INSTALL - T.H.E.S. HANDWELL & DUCT SYSTEM (See SK-721)
TREES TO BE PLANTED BY PARKS DEPARTMENT
NEW LIGHT STANDARDS TO BE PLACED BY OTHERS
BRICK PAVERS TO BE McFARREN 400 RED (dim 190mm x 90mm x 57mm)
H.E. POLES TO BE RELOCATED OR REMOVED BY OTHERS
8.00 m
1.59 m
VARIES
CROSS SECTION
N.T.S.
SECTION A-A
EXPANSION JOINT
50mm ASPHALTIC CONCRETE SURFACE
150mm CONCRETE 25 MPa WITH 5% TO 7% ENTRAINED AIR
CONSTRUCTION JOINT
BRICK WALK
600 mm X 900 mm E.S. BR. SEWER (SAN.)
1200 mm CIR. BR. SEWER (STM.)
1.05%
1%
0.76%
0.99%
0.92%
0.75%
0.74%
0.71%
0.67%
0.73%
0.88%
MEET EX. C.C.
CHAINAGE TAKEN ON ARC OF 76m R
GEODETIC DATUM 75
95
90
85
80
75

LANE 200 FEET WEST OF YONGE STREET



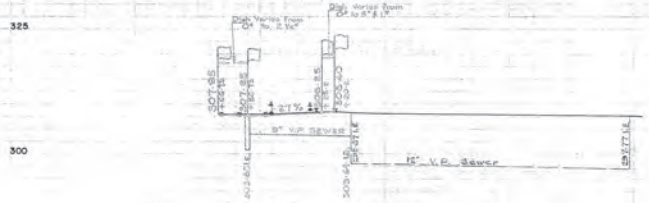
KEY PLAN
NOT TO SCALE



CROSS SECTION
Scale: 1/4" = 1'-0"

NOTE
Coton Drain Connection take of 9"ø Extra Strength Plain End Vitrified Pipe with Mechanical Coupling on Class 'B' Bedding See Plan No. CC. 100 for Detail See Plan No CC. 1120 for C.B. Details

Note
See Plan RE 1150 for Pav't. Details



NOTE:
CLASS OF PAVEMENT TO BE CONCRETE
SEE L.L 2172 FOR SURVEY & LEVELS

LEGEND:
EXISTING ELEVATIONS SHOWN THUS: ——0.00 5' N. ASPHALT
PROPOSED DISH LINE ELEVATIONS SHOWN THUS: 0.00

LEGEND:
CON. APPROACH
VERANDAH
DOOR SILL
WINDOW SILL
AREA WAY
BOTTOM STEP

GEODETIC DATUM
B.M. Nº 767 ELEV. 313-21
B.M. Nº 784 ELEV. 306.45

CITY OF TORONTO
DEPARTMENT OF PUBLIC WORKS

LANE 200 FEET WEST OF YONGE STREET
FROM LANE 104 FEET SOUTH OF ELM STREET TO 45 FEET SOUTH

DRAWING NO. L - 2113	SCALES 1" = 20'-0"
DESIGN DRAWN BY	DESIGN BY
CHECKED BY	CHECKED BY K. YOUNG
DIRECTOR	CONTRACT NO.
COMMISSIONER	DATE AUGUST, 1969

LANE 200 FEET WEST OF YONGE STREET
FROM LANE 104 FEET SOUTH OF ELM STREET TO 45 FEET SOUTH

LANE

Scales— Horz. 40 ft. = 1 in.
Vert. 10 ft. = 1 in.

ST. ELM STREET ST.

TERAULEY

YONGE

Existing 2'-3"

This is the plan referred to in our contract with the City

Dated

Witness

Total length of 12 inch Tile Sewer = 548 ft.

Invert at M.H. to be curved to conform to direction of flow.

Manhole tops & frames to be supplied and delivered to work by the City.

3 Manholes
30 6 x 12 R.D. Connections
3 9 x 12 Culvert Connections
12 Inch Tile Pipe Sewer

All joints to be made with Portland Cement & Gasket
All brickwork to be laid in Portland Cement Mortar
Work commenced
Work completed
Inspector

City Engineers Office
Toronto Ont. Nov. 28th 1912

W. Worthington
Assistant Engineer

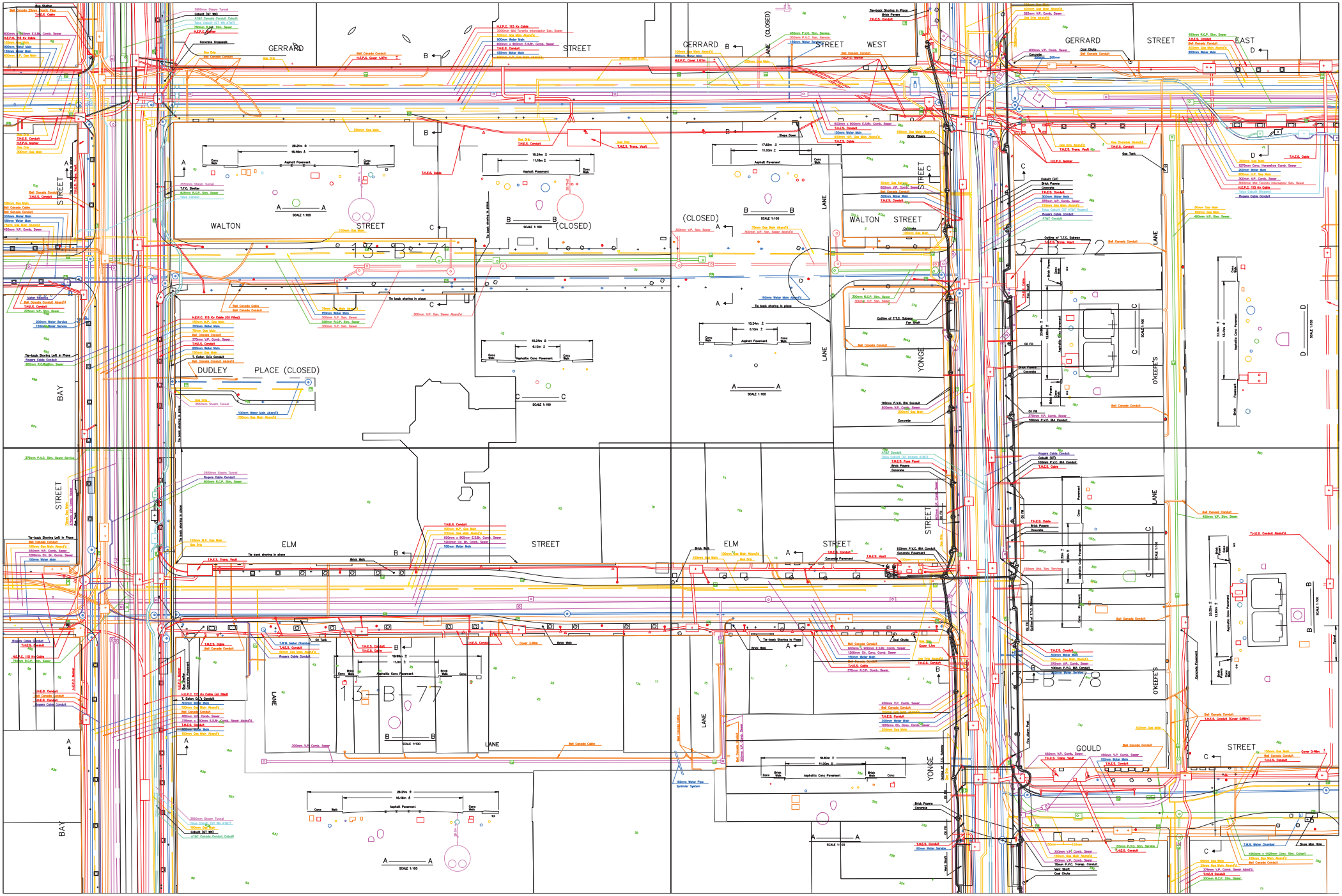
Principal Assistant Engineer

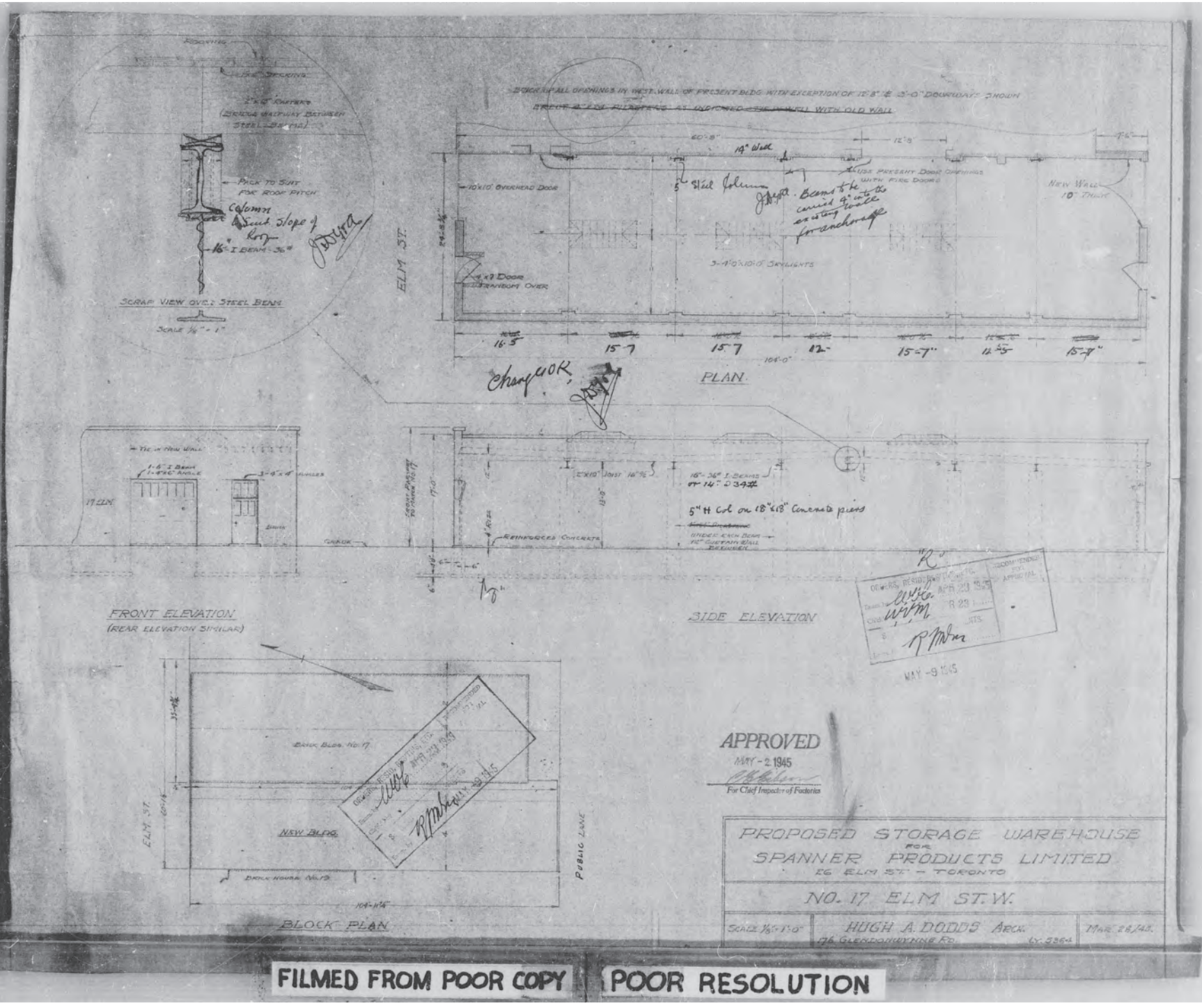
Grade 1 in 100

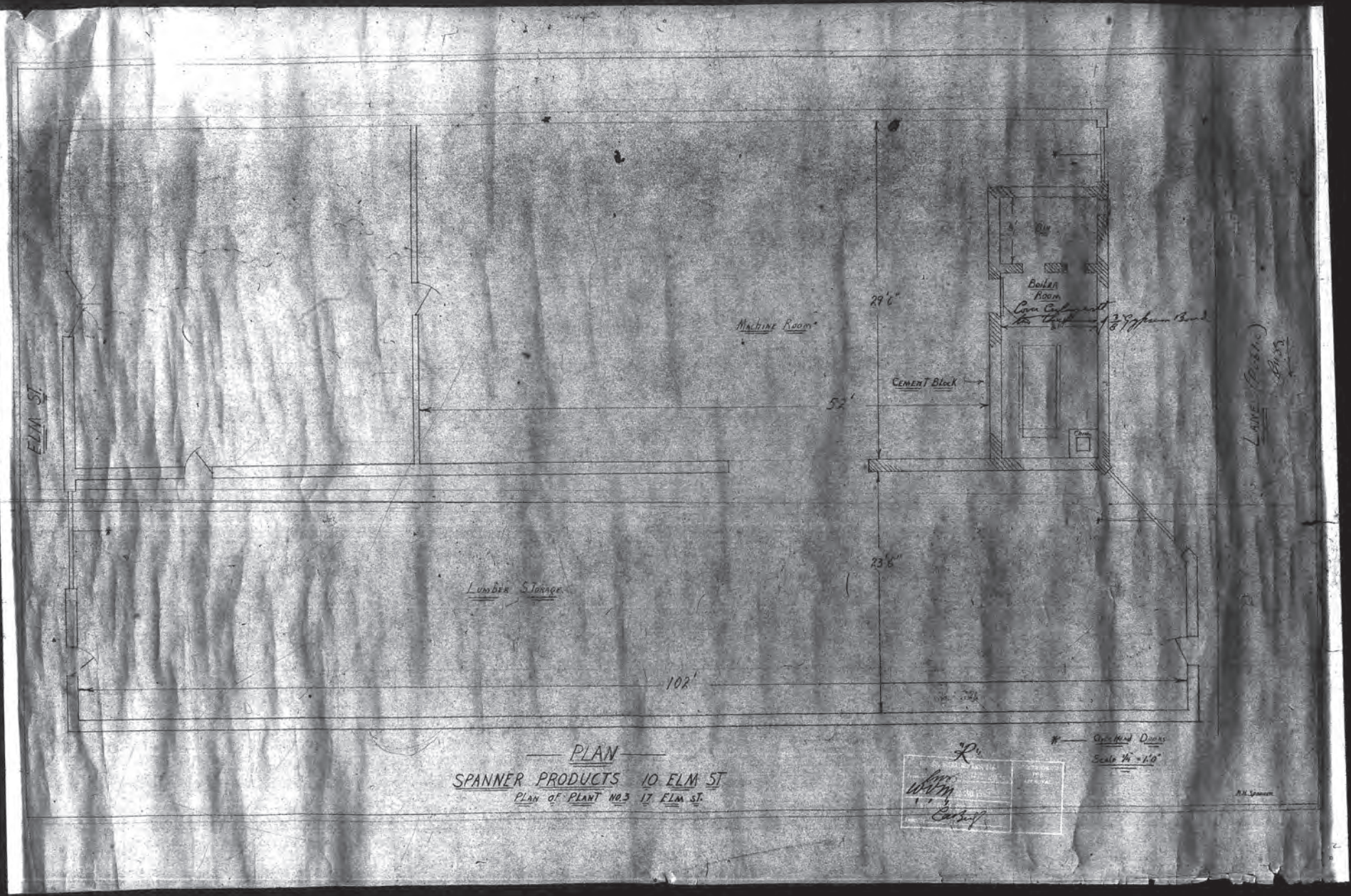
Levels by
Plotted by J.E.B.
Checked by H.B.D.

50 ft. above datum

0 1 2 3 4 5 6 7 8


GERRARD
STREET
WEST
EAST
LANE (CLOSED)
WALTON
STREET
(CLOSED)
DUDLEY
PLACE (CLOSED)
BAY
YONGE
LANE
ELM
O'KEEFE'S
GOULD
13-B-71
13-B-72
13-B-77
13-B-78





POOR ORIGINAL

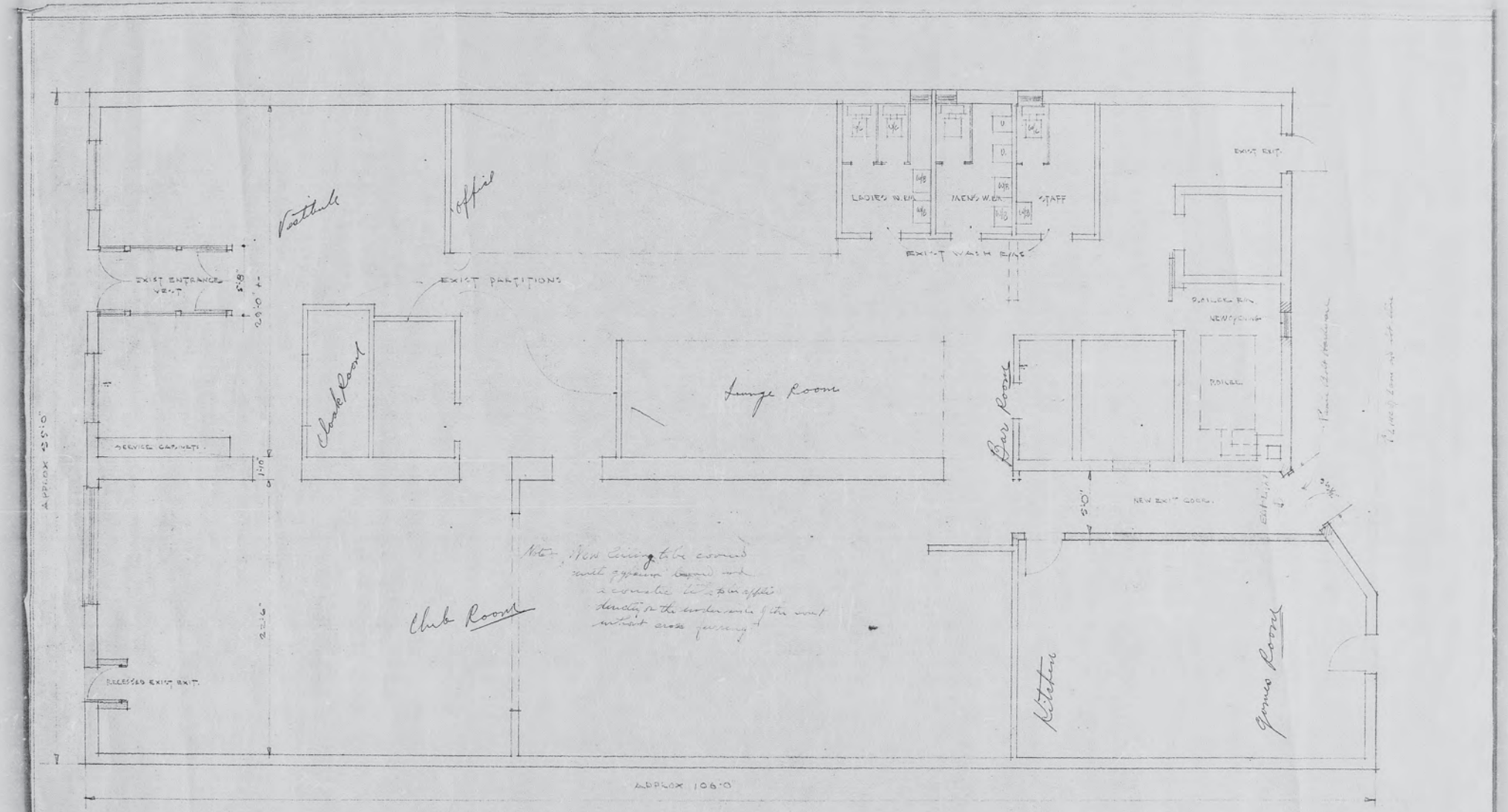
PLAN

SPANNER PRODUCTS 10 ELM ST

PLAN OF PLANT NO. 3 17 ELM ST.

APPROVED

JAN 13 1948



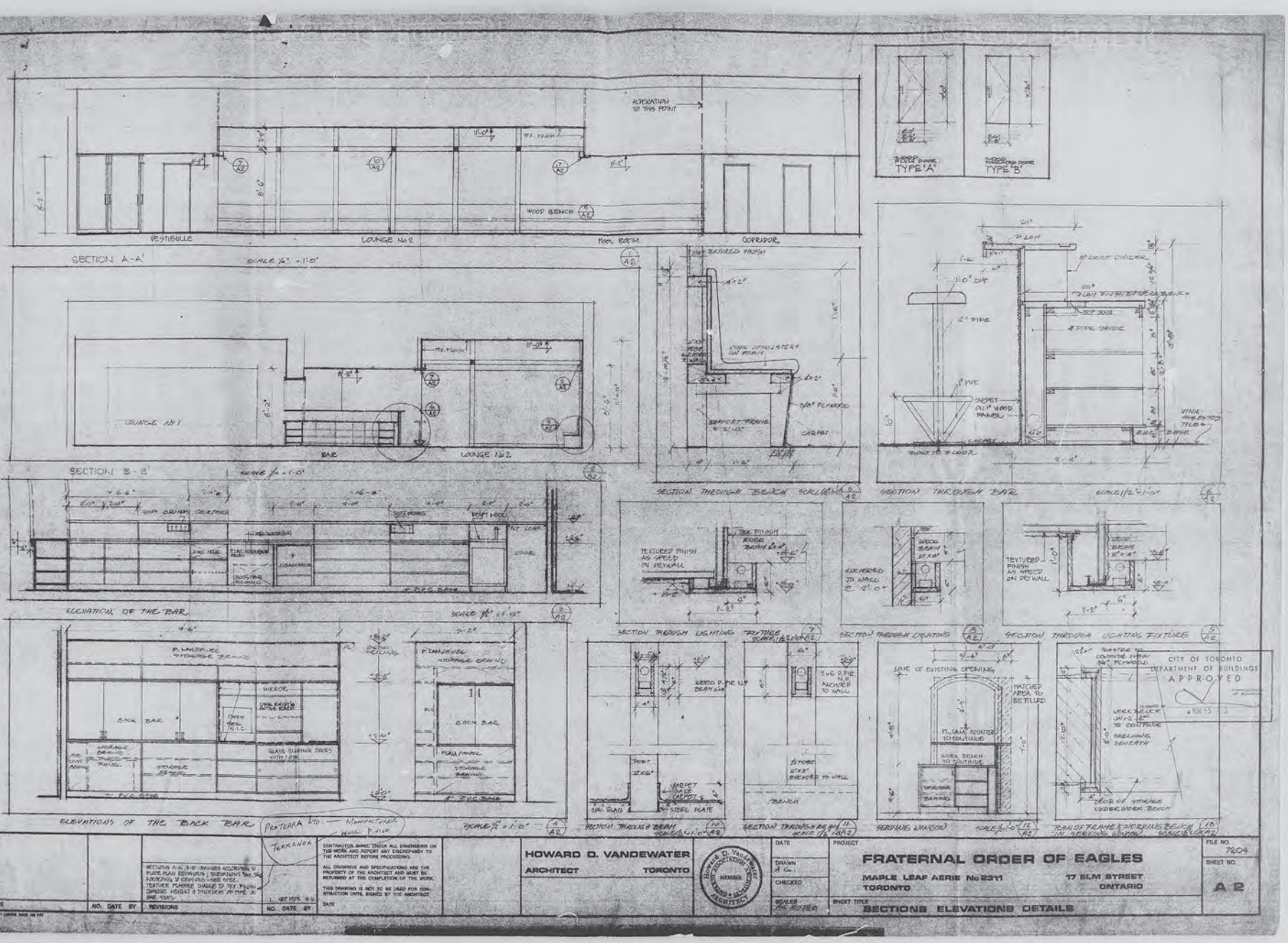
GROUND FLOOR PLAN

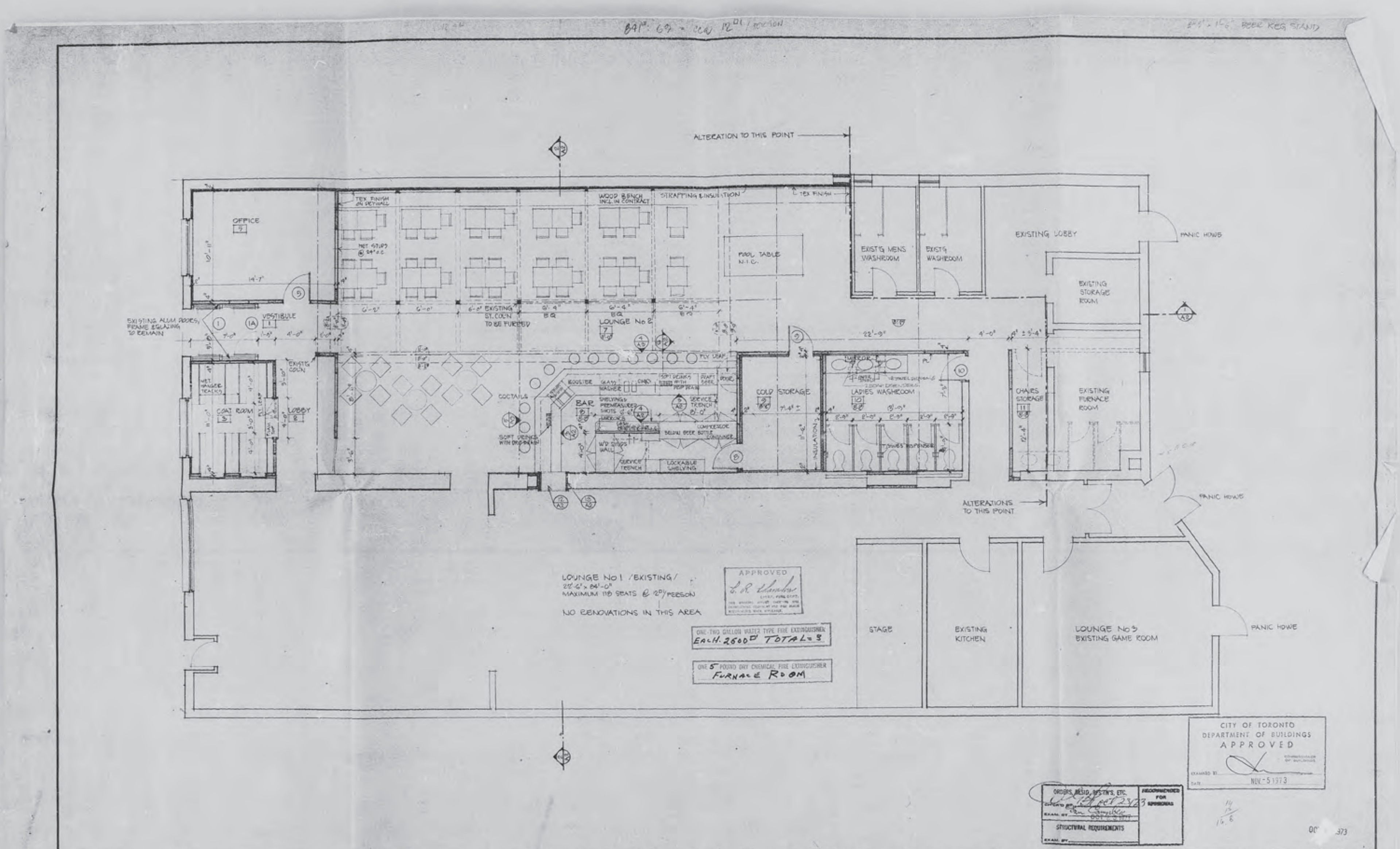
SCALE 1/4" = 1'0"

PLAN SHOWING EXIST'G WASH ROOMS, EXIT'S & PROPOSED NEW EXIT-TO BUILDING 17-17A ELM STREET TORONTO ONTARIO

SHT #1

MAY 9TH/51


ALTERATION TO THIS POINT
VESTIBULE
LOUNGE No 2
POOL ROOM
CORRIDOR
WOOD BENCH
SECTION A-A'
SCALE 1/4" = 1'-0"
LOUNGE No 1
BAR
LOUNGE No 2
SECTION B-B'
SCALE 1/4" = 1'-0"
ELEVATION OF THE BAR
SCALE 1/2" = 1'-0"
ELEVATIONS OF THE BACK BAR
SCALE 1/2" = 1'-0"
TYPE 'A'
TYPE 'B'
SECTION THROUGH BENCH
SECTION THROUGH BAR
SECTION THROUGH LIGHTING FIXTURE
SECTION THROUGH LIGHTING FIXTURE
SECTION THROUGH LIGHTING FIXTURE
SECTION THROUGH BEAM
SECTION THROUGH BEAM
SERVING WINDOW
PLAN OF FRAME & WORKING BENCH IN SERVING WINDOW
CITY OF TORONTO
DEPARTMENT OF BUILDINGS
APPROVED
HOWARD D. VANDEWATER
ARCHITECT
TORONTO
FRATERNAL ORDER OF EAGLES
MAPLE LEAF AERIE No 2311
TORONTO
17 ELM STREET
ONTARIO
SECTIONS ELEVATIONS DETAILS
A 2
7204



REVISIONS	NO.	DATE	BY	REVISIONS	NO.	DATE	BY
				CHANGE LOCATION OF EM No1 VESTIBULE EM No 2-LOBBY, No 3-COATRM; No6 FWD RM DELETE EM No4-GARAGE No 4; CHANGE ALL 4" BLK WALLS TO MET STUD DRYWALL; BAR & CAB TRE. REVISIONS - SEE SPECS., DELETE FRONT EXTERIOR RENOVATIONS	1	SEP 1973	S.U.

CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCY TO THE ARCHITECT BEFORE PROCEEDING.

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DATE

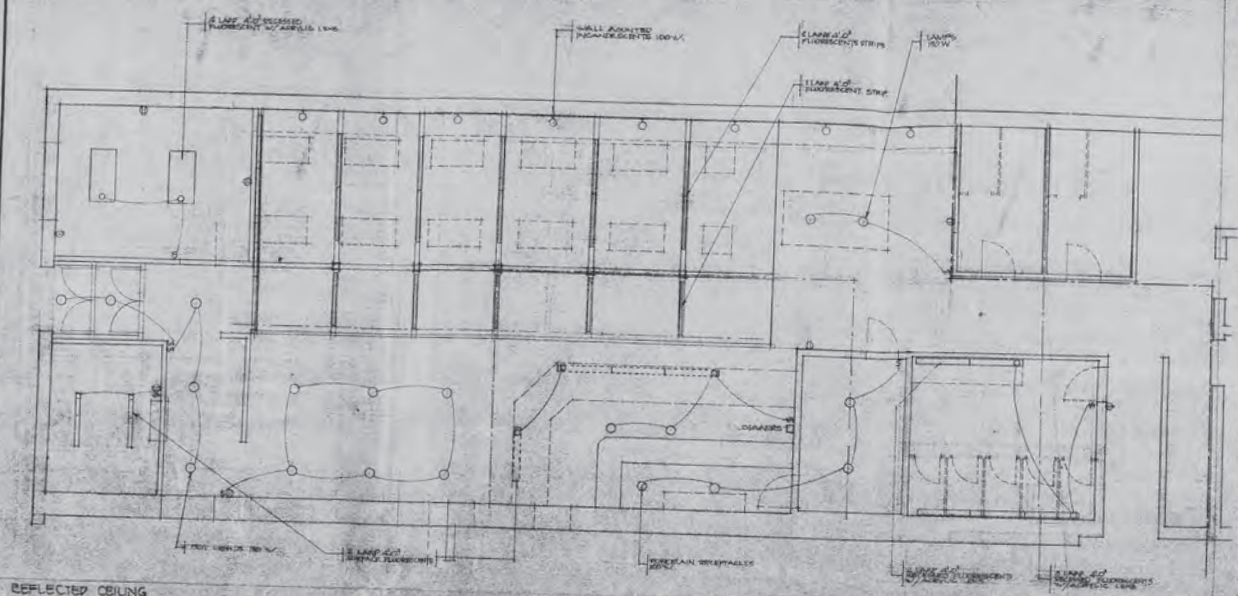
HOWARD D. VANDEWATER
ARCHITECT TORONTO

DATE: JULY 73
DRAWN: S. URBAN
CHECKED: G.P.
SCALES: 1/4" = 1'-0"

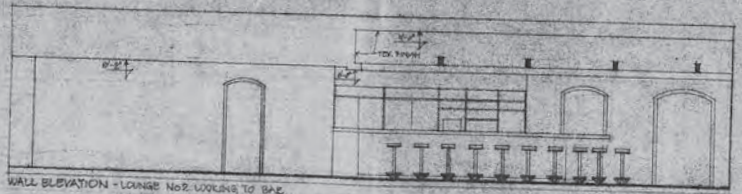
PROJECT: **FRATERNAL ORDER OF EAGLES**

SHEET TITLE: **FLOOR PLAN**

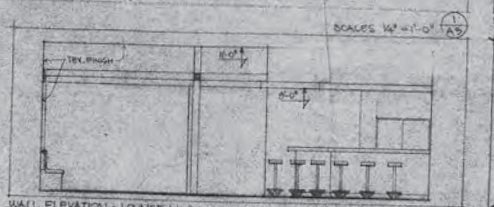
FILE NO. 7204
SHEET NO. **A 1**



REFLECTED CEILING

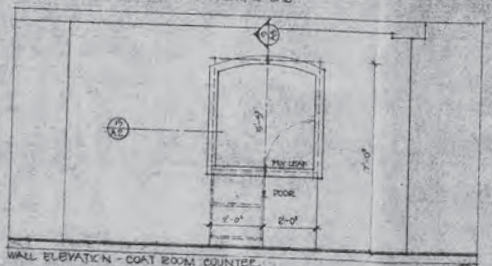


WALL ELEVATION - LOUNGE No2 LOOKING TO BAR



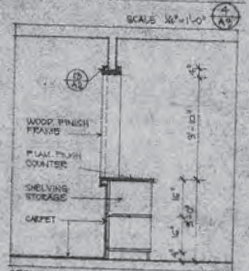
SCALES 1/4" = 1'-0"

WALL ELEVATION - LOUNGE No 2



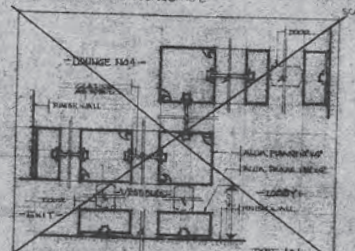
WALL ELEVATION - COAT ROOM COUNTER

SCALE 1/2" = 1'-0"

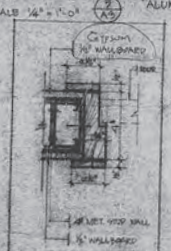


SECTION THRU COAT ROOM COUNTER

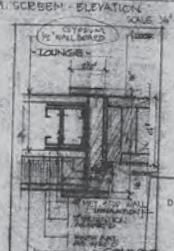
SCALE 1/2" = 1'-0"



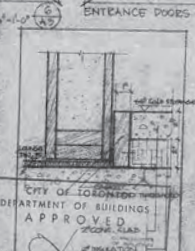
DETAIL OF ALUM. FRAME



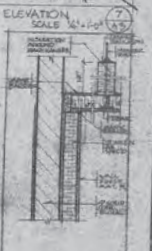
DOOR FRAME DETAIL



DOOR FRAME DETAIL / COLD STORAGE



THRESHOLD DETAIL / COLD STORAGE



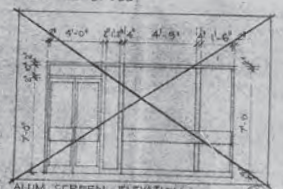
WALL & CEILING DETAILS

ROOM No	NAME	FLOOR MATERIAL	BASE MATERIAL	WALLS MATERIAL	CEILING MATERIAL	NOTES
1	VESTIBULE	V.A.S.T.	P.V.C.	BRICK	TEX. FIN.	
2	LOBBY	CARPET	CARPET	TEX. FIN.	↓	
3	COAT ROOM			PAINT	PAINT	
4	COUNTER No 4			TEX. FIN.		
5	OFFICE			PAINT	↓	
6	POOL ROOM			TEX. FIN.	TEX. FIN.	
7	LOUNGE No 2	↓	↓	↓	↓	
8	BAR	V.A.S.T.	P.V.C.	PAINT	↓	
9	COLD STORAGE	PREFAB.	–	PREFAB.	PREFAB.	
10	LADIES WASHROOM	V.A.S.T.	P.V.C.	PAINT	PAINT	
11	CHAIRS STORAGE	↓	↓	↓	↓	

ROOM SCHEDULE (2/A5)

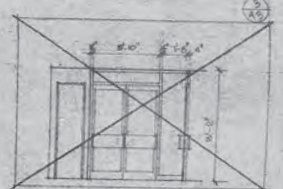
DOOR No	SIZE	THICK	TYPE	MATERIAL FIN	MATERIAL CORE	FRAME MAT	FRAME TYPE	FIRE RATE	NOTES
1	2 x 2'-6" x 7'-0"	1¾		ALUM.		ALUM.			ENTRANCE
1A	2 x 2'-6"			↓		↓			EXISTING
4	2'-6" x 6'-8"								
5	2'-6"	1¾		W.D.		W.D.	'B'		
6	2'-6"								
7	2'-6"								
8	2'-6"	↓	REFRIGERATOR DOOR						
9	2'-6"		REFRIGERATOR DOOR				'C'		INSULATED DOOR / SEE SPEC. 12.15/A5
10	2'-6"	1¾	'A'	W.D.		W.D.	'B'		INSULATED DOOR / SEE SPEC. 12.15/A5

DOOR SCHEDULE (3/A5)



ALUM. SCREEN - ELEVATION

SCALE 1/4" = 1'-0" (6/A5)



ENTRANCE DOORS - ELEVATION

SCALE 1/4" = 1'-0" (7/A5)

REVISIONS

NO.	DATE	BY	REVISIONS
1	1ST. ISSUE		

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HOWARD D. VANDEWATER
ARCHITECT
TORONTO

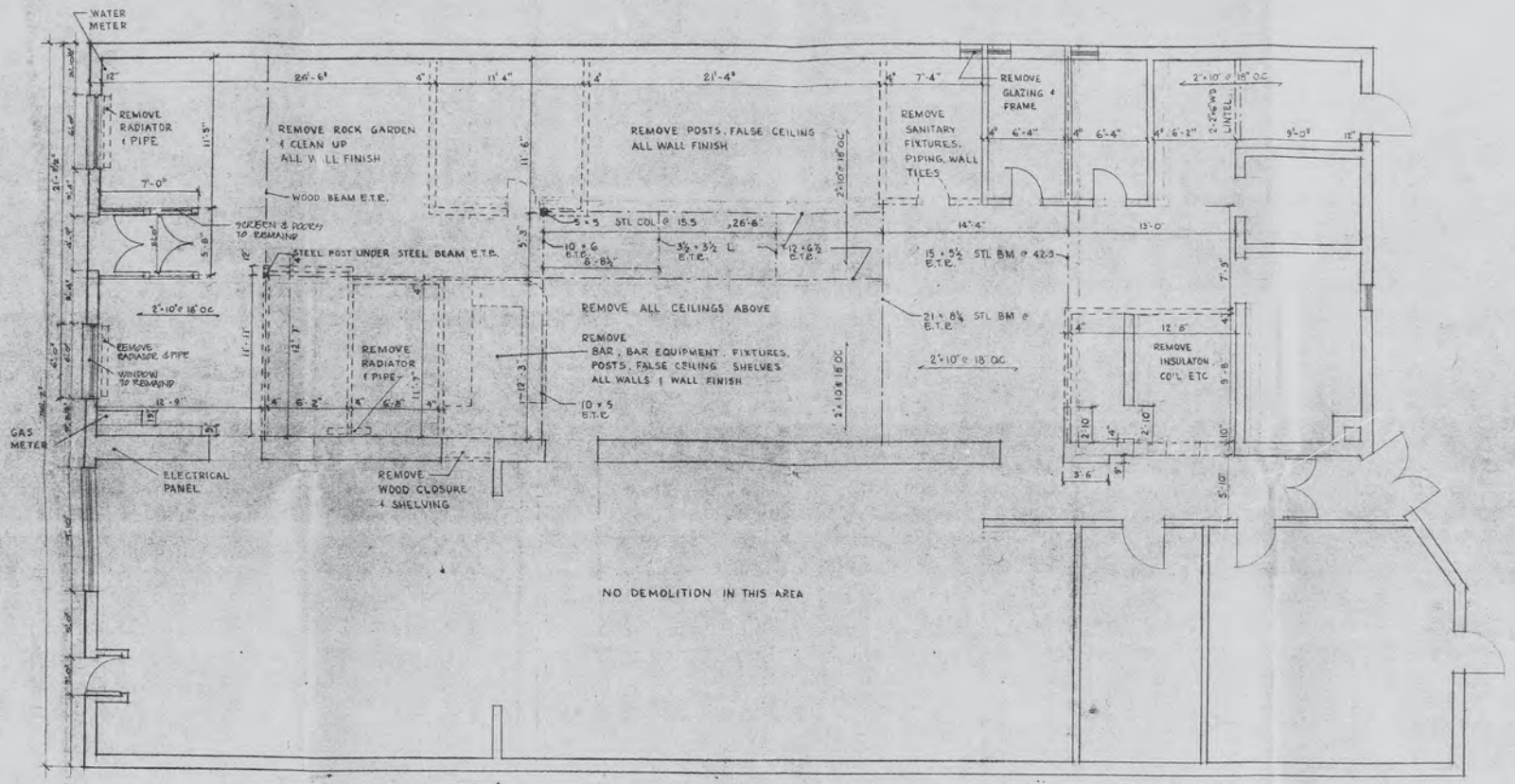
Howard D. Vandewater ASSOCIATION OF ONTARIO ARCHITECTS MEMBER

DATE:
DRAWN: S.U.
CHECKED:
SCALES: AS NOTED

PROJECT
FRATERNAL ORDER OF EAGLES
MAPLE LEAF AERIE No 9211
TORONTO
17 ELM STREET
ONTARIO

SHEET TITLE
REFLECTED CEILING, ELEVATIONS DETAILS

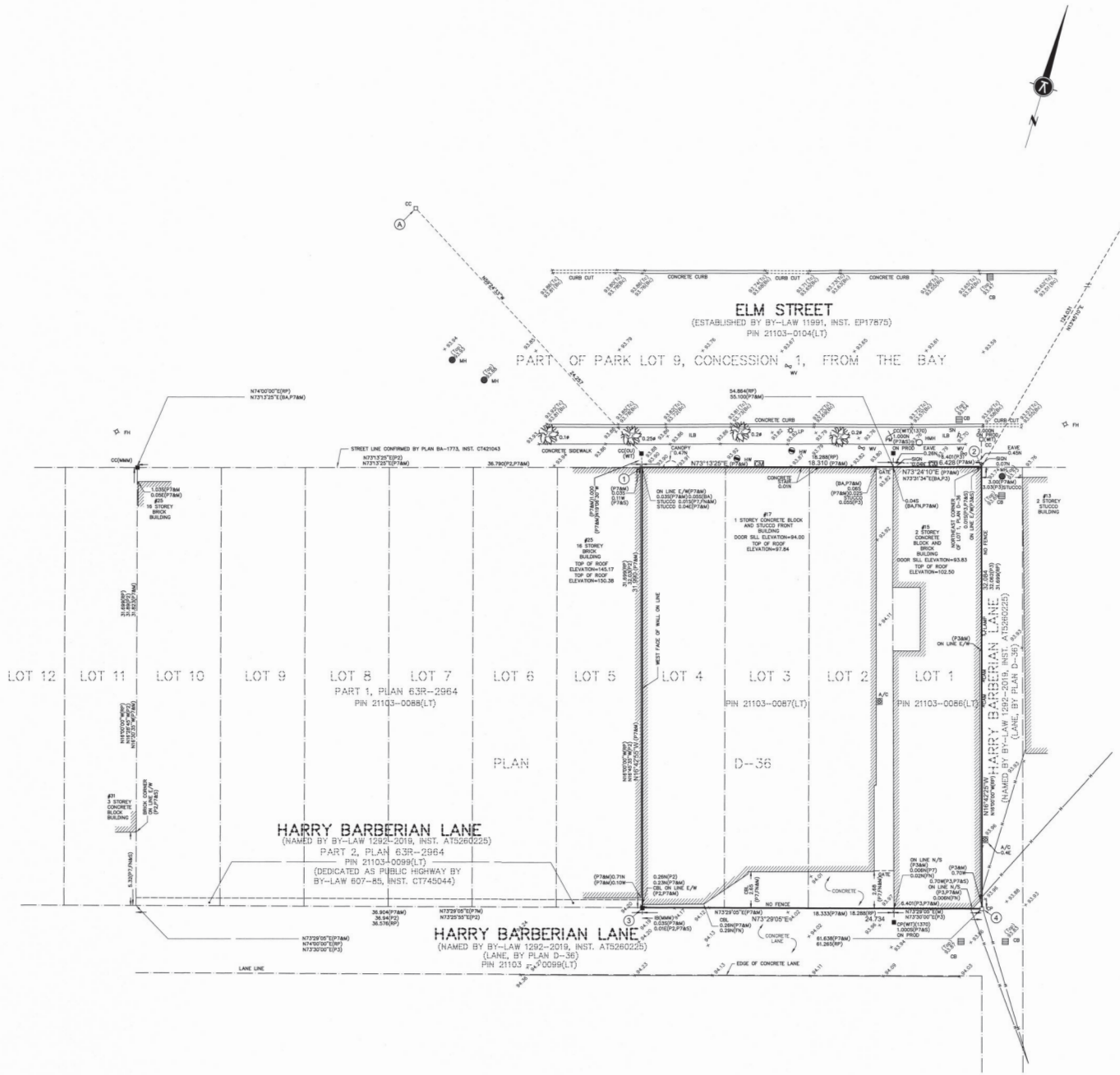
FILE NO. 7204
SHEET NO. A 3



FOR REFERENCE ONLY

REVISIONS	NO.	DATE	BY	REVISIONS	NO.	DATE	BY	CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCY TO THE ARCHITECT BEFORE PROCEEDING. ALL DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF THE ARCHITECT AND MUST BE RETURNED AT THE COMPLETION OF THE WORK. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT. DATE	HOWARD D. VANDEWATER ARCHITECT TORONTO	DATE	PROJECT FRATERNAL ORDER OF EAGLES MAPLE LEAF AERIE No2311 17 ELM STREET TORONTO ONTARIO	FILE NO. 7204
										DRAWN		SHEET NO. A 4
										CHECKED		
										SCALES 1/4" = 1'-0"	SHEET TITLE DEMOLITION PLAN	

24 x



PLAN OF SURVEY SHOWING TOPOGRAPHICAL INFORMATION OF

LOTS 1, 2, 3 AND 4
PLAN D-36
CITY OF TORONTO

SCALE 1:150

3 0 3 6 9 12 15m

KRCMAR SURVEYORS LTD. 2022

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 0.999886.

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	4 835 310.81	314 238.59
(B) CC	4 835 425.12	314 312.98

REFERENCE POINTS

POINT	NORTHING	EASTING
1	4 835 297.52	314 259.80
2	4 835 304.64	314 283.48
3	4 835 266.88	314 269.00
4	4 835 273.91	314 292.71

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.

ELEVATION

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO CITY OF TORONTO BENCH MARK No. CT767 HAVING AN ELEVATION OF 95.467 METRES.

LEGEND

- ■ DENOTES SURVEY MONUMENT FOUND
- □ DENOTES SURVEY MONUMENT PLANTED
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
- CP DENOTES CONCRETE PIN
- CC DENOTES CUT CROSS
- (M) DENOTES MEASURED
- (S) DENOTES SET
- (OU) DENOTES ORIGIN UNKNOWN
- (WIT) DENOTES WITNESS
- (BA) DENOTES PLAN BA-1773
- (RP) DENOTES PLAN D-36
- (P2) DENOTES PLAN 63R-2964
- (P3) DENOTES BUILDING LOCATION SURVEY BY TOM CZERWINSKI SURVEYING LTD., O.L.S. DATED MAY 23, 1985.
- (P7) DENOTES PLAN OF SURVEY SHOWING TOPOGRAPHICAL INFORMATION BY KRCMAR SURVEYORS LTD. O.L.S., DATED MARCH 02, 2022
- (FN) DENOTES FIELD NOTES BY CITY OF TORONTO DATED AUGUST 4, 1982. (NOTE INDEX 36-26)
- (1370) DENOTES KRCMAR SURVEYORS LTD. O.L.S.
- (MMM) DENOTES MARSHALL, MACKLIN & MONAGHAN, O.L.S.
- PROD DENOTES PRODUCTION OF BEARING
- (Tc) DENOTES TOP OF CURB
- (Bc) DENOTES BOTTOM OF CURB
- 123.45 DENOTES EXISTING GRADE ELEVATION
- A/C DENOTES AIR CONDITIONER
- CB DENOTES CATCH BASIN
- 0.1# DENOTES DECIDUOUS TREE WITH TRUNK DIAMETER
- FH DENOTES FIRE HYDRANT
- GM DENOTES GAS METER
- HW DENOTES HYDRO HAND WELL
- HMH DENOTES HYDRO MANHOLE
- LP DENOTES LAMP POST (PRIVATE)
- MH DENOTES MANHOLE
- PM DENOTES PARKING METER
- SN DENOTES SIGN
- WV DENOTES WATER VALVE
- ILB DENOTES INTERLOCKING BRICK
- CBL DENOTES TIE TO CONCRETE BLOCK
- LAMP DENOTES LAMP ON WALL
- CAM DENOTES CAMERA ON WALL
- -H- DENOTES OVERHEAD WIRE

ALL BUILDING TIES TAKEN TO BRICK UNLESS NOTED OTHERWISE

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. LAND COMPRISES ALL OF PINs 21103-0087(LT) AND 21103-0086(LT).

TOTAL SITE AREA = 792.7m²

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 19th DAY OF MAY, 2022

DATE MAY 25, 2022

S.N. RAMSAMOOJ
ONTARIO LAND SURVEYOR

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-26190

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR in accordance with Regulation 1026, Section 29(3)

MUNICIPAL ADDRESS: Nos. 15 AND 17 ELM STREET, TORONTO

FIELD:	D.L./R.K.	DRAWN:	S.D./J.Y.	CHECKED:	S.N.R.	JOB NO:	22-014
DWG NAME:	22-014BT02	PLOT INFO:	10:32 25/May/2022	WORK ORDER NO:	36469		

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

PLAN AVAILABLE AT www.ProtectYourBoundaries.ca

KRCMAR

Appendix B
Groundwater

Excerpt Hydrogeological Assessment (GEMS)

Groundwater Servicing Summary Form

GEMS®

Groundwater Environmental Management Services

Hydrogeological Report

15 and 17 Elm Street Toronto, Ontario

Project: 22-1422

August 12, 2022

Prepared For:

Fora Developments200 – 2440 Dundas St. W., Toronto, ON, M6P 1W9

Prepared By:

Groundwater Environmental Management Services Inc.
8800 Dufferin Street, Suite 303
Concord, ON, L4K 0C5

Table 6.4.2: Groundwater Monitoring and Mitigation Plan, On-Site Water Quality Monitoring

Period	Monitoring Location	Monitoring Frequency	Method	Triggers for Mitigation	Mitigation Measures/Comments
During Construction	Discharge outlet pipe or sampling port of the dewatering system.	First sample is recommended to be obtained within first two (2) days of discharge start. Routine samples are recommended to be obtained monthly thereafter.	Samples should be sent to a certified laboratory and be analyzed against the City of Toronto sewer use By-Law.	Discharge quality exceeds City of Toronto sewer use By-Law.	Filtration/treatment approaches would be reviewed on a specific basis. Upon installation of a filtration/treatment system, an additional sample should be performed to ensure compliance with the criteria.
Post Construction	No post-construction water quality monitoring is required.				

Note: This Plan does not include Geotechnical Monitoring (settlement monitoring), which is not recommended for this site.

7.0 Conclusion

Based on the above analysis, the following conclusions and recommendations are offered for the proposed construction of 17 Elm Street, Toronto, Ontario:

- The geology within the Site is characterized by Beveled till plains, including coarse textured glaciolacustrine deposits overlaying Paleozoic bedrock.
    - The silty clay, sandy silt, fine sand, sandy clay, and shale/bedrock units at the Site are interpreted to all belong to the same unconfined water-bearing zone or aquifer.
- Hydraulic conductivity for the water-bearing zone (MW101, MW103 and MW104) ranges from 5.52 x 10^{-8} m/s to 1.71 x 10^{-6} m/s, with an overall geometric mean of 4.7 x 10^{-7} m/s.
- Groundwater table at the Site ranges from 80.53 masl to 86.13 masl.
    - The maximum anticipated groundwater is estimated at 86.9 masl, incorporating a 0.8 m fluctuation allowance to the peak static water level as outlined by the City of Toronto Foundation Drainage Guidelines (COT, 2021) for peak season monitoring.
- Groundwater quality at the Site currently meets the City of Toronto Sanitary and Combined Sewers Discharge Guidelines
    - Groundwater quality exceeds the City of Toronto Storm Sewer Discharge Use By-Law for Total Suspended Solids, Total Manganese (Mn), and Total Phosphorus
    - It is recommended that an additional sample is obtained from the accumulated

stormwater on-site prior to discharge to determine if the water quality meets the City of Toronto Sewer Use By-law.

- To drawdown groundwater to a target elevation of 86.47 masl, a dewatering rate of 7.6 L/min or 10,882 L/day will be required.
    - Applying a safety factor of 1.5 for permitting applications and accounting for precipitation during dewatering, GEMS forecasts a total dewatering rate of 19.5 L/min or 28,053 L/day.
- The zone of influence for steady-state construction dewatering (40 days) is expected to extend 29 m beyond the excavation area.
- Long-term dewatering rates are expected to be minimal due to deep water level conditions and low hydraulic conductivity of site material. Long-term infiltrated stormwater is estimated at 4,275 L/day with a safety factor of 1.5
- Well decommissioning will be required prior to construction. Any inactive wells within the Site should be decommissioned by a licensed well contractor under Ontario Regulation 903.

8.0 Limitations

Groundwater Environmental Management Services Inc. (GEMS) has prepared this report for our client and its agents exclusively. GEMS accepts no responsibility for any damages that may be suffered by third parties as a result of decisions or actions based on this report.

The findings and conclusions are site-specific and were developed in a manner consistent with that level of care and skill normally exercised by environmental professionals currently practicing under similar conditions in the area. Changing assessment techniques, regulations, and site conditions mean that environmental investigations and their conclusions can quickly become dated, so this report is current up to two years from the published date. The report should not be used after that without GEMS review/approval.

The project has been conducted according to our instructions and work program. Additional conditions, and limitations on our liability are set forth in our work program/contract. No warranty, expressed or implied, is made.

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:	2022 August	Cover Page	
Title of Servicing Report:	17 Elm Street FSRSWM Report	Cover Page	
Name of Consulting Firm that prepared Servicing Report:	IBI Group Ltd.	Cover Page	
Site Address	15-17 Elm Street Toronto, Ontario	Cover Page	
Postal Code	M5G 1H1	N/A	
Property Owner (identified on planning request for comments memo)	Trustees of Maple Leaf Aerie No. 2311, Fraternal Order of Eagles; AND Cooper, Annette; Cooper, David	N/A	
Proposed description of the project (ex. number of point towers, number of podiums, etc.)	32 storey mixed use building retail and residential space two underground levels	2	
Land Use (ex. commercial, residential, mixed, industrial, institutional) as defined by the Planning Act	Mixed	2	
Number of below grade levels	2	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.	The foundation of the development is located above the measured groundwater table. Therefore, no long term pumping is proposed or required.	Appendix B	

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		
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?			
What is the diameter of the receiving sewer?			
Is there capacity in the proposed local sewer system? ☑ YES ☐ NO	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		
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	_____ L/sec		

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	2.6 L/sec		
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	0 L/sec		
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.		
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?	No long term groundwater discharge is required	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		
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		
D. WATER TIGHT REQUIREMENTS		**Included in SR (reference page number)**	**Report Includes this information City Staff**

October 2017

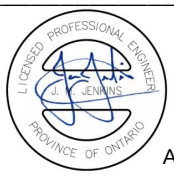
SERVICING REPORT GROUNDWATER SUMMARY

		(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.	N/A	

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

Consulting Firm that prepared Servicing Report: IBI Group Ltd.

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

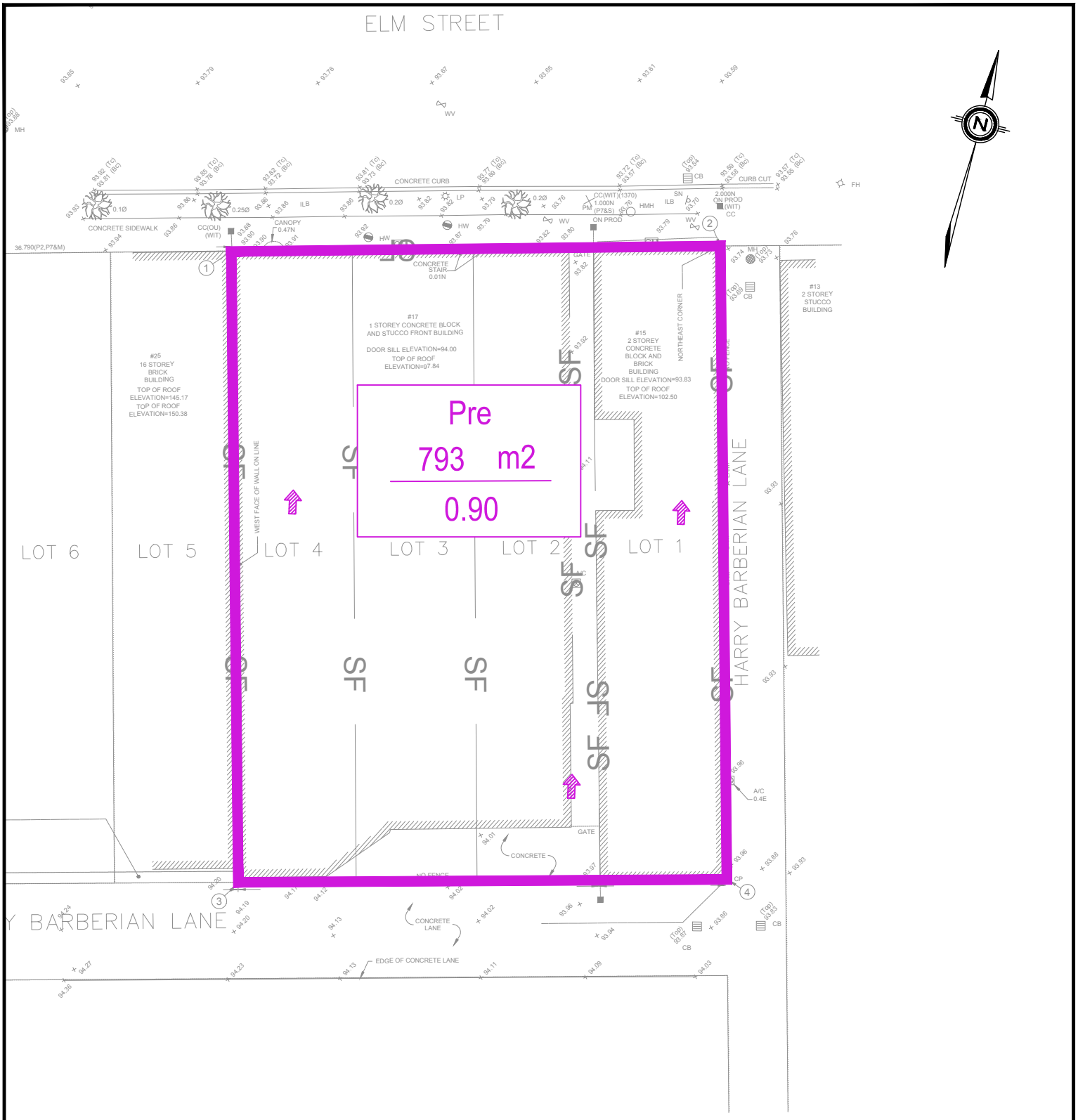
Professional Engineer who completed the report summary:   August 2022
Signature Date & Stamp

Appendix C
Stormwater Analysis

Pre- and Post-Development Drainage Area Plans

Stormwater Design Calculations

Irrigation Calculations



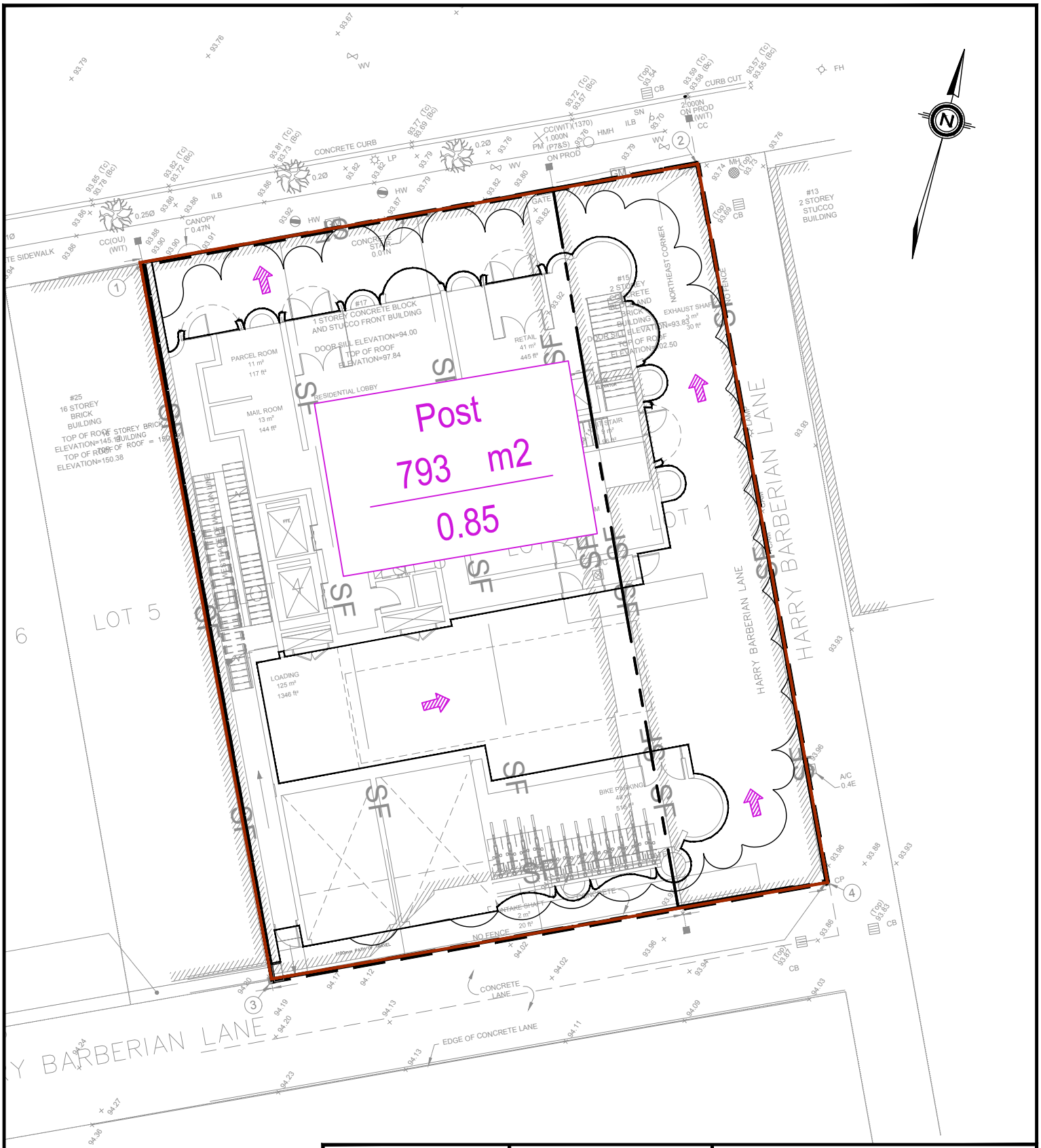
LEGEND

- PROPERTY LINE
- DRAINAGE BOUNDARY
- OVERLAND FLOW DIRECTION

CLIENT: FORA DEVELOPMENTS	PROJECT NAME: 17 ELM STREET		
2440 DUNDAS STREET WEST, UNIT 200, TORONTO, ON M6P 1W9	SCALE: NTS	DATE: 2022-04-08	FIGURE NAME: PRE-DEVELOPMENT STORM DRAINAGE PLAN
	PROJECT ENG: JMJ	DRAWN BY: CG	FIGURE NO.: DAP-1
	CHECKED BY: JMJ	APPROVED BY: JMJ	REVISION: 1
	PROJECT NO: 137680		

IBI GROUP
Unit 300 – 8133 Warden Avenue
Markham ON L6G 1B3 Canada
tel 905 763 2322 fax 905 763 9983
ibigroup.com

SCALE CHECK 10mm 1 in



LEGEND

- PROPERTY LINE
- DRAINAGE BOUNDARY
- OVERLAND FLOW DIRECTION

CLIENT	FORA DEVELOPMENTS
	2440 DUNDAS STREET WEST, UNIT 200, TORONTO, ON M6P 1W9
PROJECT NAME	17 ELM STREET
SCALE:	NTS
DATE:	2022-08-17
PROJECT ENG:	CG
DRAWN BY:	JMJ
CHECKED BY:	JMJ
APPROVED BY:	JMJ
PROJECT NO:	137680
FIGURE NAME	POST-DEVELOPMENT STORM DRAINAGE PLAN
FIGURE NO.	DAP-2
REVISION	1

IBI GROUP
Unit 300 – 8133 Warden Avenue
Markham ON L6G 1B3 Canada
tel 905 763 2322 fax 905 763 9983
ibigroup.com

17 Elm Street
Mixed Use Development

Runoff Coefficients

Project Name: 17 Elm Street
Project Number: 137680
Date: 19 August 2022
Designed By: Jason Jenkins, P.Eng.

Total Site Area				
Conventional Roof	650	82.0%	0.90	0.74
Extensive Green Roof	0	0.0%	0.50	0.00
Intensive Green Roof	90	11.3%	0.50	0.06
Landscape	0	0.0%	0.25	0.00
Landscape over P1	0	0.0%	0.45	0.00
Permeable Pavers	0	0.0%	0.55	0.00
Impervious (Clean)	53	6.7%	0.90	0.06
Impervious (Dirty)	0	0.0%	0.90	0.00
Total Area	**793**	100%		**0.85**

Pre Dev Total Site Area				
Conventional Roof	0	0.0%	0.90	0.00
Green Roof	0	0.0%	0.50	0.00
Landscape	0	0.0%	0.25	0.00
Landscape over P1	0	0.0%	0.45	0.00
Permeable Pavers	0	0.0%	0.55	0.00
Impervious	793	100.0%	0.90	0.90
Total Area	**793**	100%		**0.90**

17 Elm Street
Mixed Use Development

IBI

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: 17 Elm Street
Project Number: 137680
Date: 19 August 2022
Designed By: Jason Jenkins, P.Eng.

	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
ALLOWABLE RELEASE RATE																			
Allowable Release Rate (Total Site)			0.0793	0.50	0.040	0.040	10.0	88.2	**9.7**										
Uncontrolled Flow			0.0000	0.90	0.000	0.000	10.0	88.2	**0.0**										
Controlled Allowable Release Rate									9.7										
100-YEAR FLOWS																			
Subject Site (Un-Attenuated)			0.0793	0.90	0.071	0.071	10.0	250.3	**49.6**										
ORIFICE AND SERVICE DESIGN				k	Orif.(mm)	Area (m2)	depth (m)	head (m)	Q (L/s)										
Orifice and Storm Service	Tank	Cntrl.MH		k=0.6	75	0.00442	0.61	0.58	**9.4**	200	2.00%	46.4	1.5	1.1	7.8	0.1	10.1	20%	
Storm Service	Cntrl MH	1200mm STM							**9.4**	200	2.00%	46.4	1.5	1.1	10.7	0.1	10.1	20%	

17 Elm Street **Rational Method - 100 Year Storm**

Mixed Use Development

IBI

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

Project Name:	17 Elm Street	Controlled Area =	0.0793
Project Number:	137680	Weighed Runoff Coefficient =	0.85
Date:	19 August 2022	Orifice Discharge (L/s) =	9.4

Time (min)	Intensity (mm/hr)	Q-100 (L/s)	Q-Infiltrated (L/s)	Q-stored (L/s)	Storage Volume (m^3)
0	0.0	0.000	1.19	0.000	0.000
10	250.3	47.123	1.19	38.943	23.366
20	143.8	27.065	1.19	18.885	22.662
30	103.9	19.567	1.19	11.387	20.497
40	82.6	15.545	1.19	7.365	17.675
50	69.1	13.003	1.19	4.823	14.470
60	59.7	11.239	1.19	3.058	11.010
70	52.8	9.935	1.19	1.755	7.369
80	47.4	8.928	1.19	0.748	3.590
90	43.2	8.125	1.19	0.000	0.000
100	39.7	7.468	1.19	0.000	0.000
110	36.8	6.920	1.19	0.000	0.000
120	34.3	6.455	1.19	0.000	0.000
130	32.2	6.054	1.19	0.000	0.000
140	30.3	5.706	1.19	0.000	0.000
150	28.7	5.400	1.19	0.000	0.000
160	27.2	5.128	1.19	0.000	0.000
170	25.9	4.885	1.19	0.000	0.000
180	24.8	4.667	1.19	0.000	0.000
190	23.7	4.469	1.19	0.000	0.000
200	22.8	4.289	1.19	0.000	0.000
210	21.9	4.125	1.19	0.000	0.000
220	21.1	3.975	1.19	0.000	0.000
230	20.4	3.836	1.19	0.000	0.000
240	19.7	3.707	1.19	0.000	0.000
250	19.1	3.588	1.19	0.000	0.000
260	18.5	3.477	1.19	0.000	0.000
270	17.9	3.374	1.19	0.000	0.000
280	17.4	3.277	1.19	0.000	0.000
290	16.9	3.186	1.19	0.000	0.000
300	16.5	3.101	1.19	0.000	0.000
310	16.0	3.021	1.19	0.000	0.000
320	15.6	2.945	1.19	0.000	0.000
330	15.3	2.874	1.19	0.000	0.000
340	14.9	2.806	1.19	0.000	0.000
350	14.6	2.741	1.19	0.000	0.000
360	14.2	2.680	1.19	0.000	0.000

Storage Volume Required (cu.m) =	**23.4**
Storage Volume Provided (cu.m) =	**152.0**
HGL Depth (m) =	0.6
Orifice Diameter (mm) =	75

17 Elm Street
Mixed Use Development

IBI

Water Quality Calculations

Project Name: 17 Elm Street
Project Number: 137680
Date: 19 August 2022
Designed By: Jason Jenkins, P.Eng.

TSS Removal (Un-Treated)

Surface	Area (m^2)		Effective TSS Removal	Overall TSS Removal
Conventional Roof	650	82%	80	65.6
Extensive Green Roof	0	0%	80	0.0
Intensive Green Roof	90	11%	80	9.1
Landscape	0	0%	80	0.0
Landscape over P1	0	0%	80	0.0
Permeable Pavers	0	0%	80	0.0
Impervious (Clean)	53	7%	80	5.3
Impervious (Dirty)	0	0%	0	0.0
Total Area:	**793**	100%		**80.0**

Site Meets 80% TSS Removal

17 Elm Street
Mixed Use Development

IBI

Water Balance Calculations

Project Name: 17 Elm Street
Project Number: 137680
Date: 19 August 2022
Designed By: Jason Jenkins, P.Eng.

Total Volume to be Retained	
Required Water Balance (mm):	5.0
Recall Site Area (m^2):	793
Total Water Balance to be Retained (m^3):	**4.0**

Volume Achieved Through Initial Abstraction				
Surface	**Area (m^2)**		**I.A.**	**Vol. (m^3)**
Conventional Roof	650		1	0.7
Extensive Green Roof	0		5	0.0
Intensive Green Roof	90		7	0.6
Landscape	0		5	0.0
Landscape over P1	0		5	0.0
Permeable Pavers	0		5	0.0
Impervious (Clean)	53		1	0.1
Impervious (Dirty)	0		1	0.0
Total Area:	**793**			**1.3**

Water Balance Summary	**Vol. (m^3)**
Recall Initial Abstraction (see above):	1.3
Water Re-Use (Irrigation):	1.1
Water Re-Use (Toilet Flushing):	1.6
Total Water Balance Achieved:	**4.0**

Site Meets City's Water Balance Criteria

Check Tank Capacity to Capture Re-Use Volume	
Area of SWM Tank (m^2):	38.0
Float Switch Operating Range (m):	0.07
Total Water Balance Achieved:	**2.7**

SWM Tank has sufficient capacity for Re-Use Volumes

TERRAPLAN LANDSCAPE ARCHITECTS

PROJECT NUMBER	22-155	**PROJECT NAME**	17 Elm Street	**TERRAPLAN LANDSCAPE ARCHITECTS**
DATE	2022 07 28	**COMPLETED BY**	Gosia Farun	

CALCULATIONS FOR WATER COLLECTED vs. WATER NEEDED

GENERAL INFO — All measures are in Metric
Refer to the 'Water Efficiency' section of the LEED Canada-NC 2009 Document
Using the chart below please note the below

Species Factor (*Ks*) — Species Factor is determined as follows: — Water needs: Low for drought plants, Average and High per plant water needs
Shrubs & Grd Cover: Low = .2, Avg=.5, High=.7. Mixed .2, .5, .9. Turfgrass .6, .7, .8

Density Factor (*Kd*) — Plant grouping: — Sparsely planted: 'Low' (0.5, shrubs, 0.6 mixed, 0.6 turf, and 0.6 Sedum mats)
Densely Planted: 'High' (1.0 shrubs, 1.3 mixed, 1.0 turf, and 1.0 Sedum Plugs)

Microclimate Factor (*Kmc*) — Plant grouping exposure to wind, heat, reflected light: — NE / shaded: 'Low', see above
SW / hot and gets the summer wind: 'Ave or High'

Kl = *Ks* x *Kd* x *Kmc*
Etl = *Kl x 138.2 mm/ mth (5.44 ins/ mth) of July, highest ET rate (for Toronto and region)*
IE can be Drip, Sprinkler (Spray) or Efficient Flow Nozzles
TPWA (*L*)= area (m^2) x (*Etl* / *IE*)

WATER COLLECTION (if applicable)

			X
Cistern:	5mm Retention of Storm Water for Irrigation Purposes	m^3	0.000

DESIGN CASE

Landscape Type	Area m^2	Species Factor *Ks*	Density Factor *Kd*	Microclimate *Kmc*	*Kl*	*Etl July*	*IE* Drip (.9), Low flow (0.75), Spray (.625)	*TPWA Average* (liters)	*TPWA* May	*TPWA* June	*TPWA* July	*TPWA* August	*TPWA* Sept
Trees (Canopy Area)		0.5	1.0	0.5	0.250	34.550	0.625	0	0	0	0	0	0
Shrubs	10.0	0.4	1.1	1.3	0.572	79.050	0.625	1,001	930	1,143	1,265	1010	655
Perennials	20.0	0.3	1.1	1.3	0.429	59.288	0.625	1,501	1,395	1,715	1,897	1516	983
Mixed		0.2	1.3	0.5	0.130	17.966	0.625	0	0	0	0	0	0
Turfgrass		0.7	1.0	1.2	0.840	116.088	0.625	0	0	0	0	0	0
Sedum Mats	88.0	0.5	1.0	1.0	0.500	69.100	0.625	7,698	7,153	8,793	9,729	7772	5041
Total m²	**118.0**				**Subtotal (L) per month**			10,199	**9,477**	**11,651**	**12,891**	**10,298**	**6,679**
* Trees require 55 L					**Net potable water (L) from Design Case per week**			2,550	**2,369**	**2,913**	**3,223**	**2,575**	**1,670**
per week or 220 L/ mth					**Irrigation water use for 72 hours, (subtotal/7days)*3days**			1,093	**1,015**	**1,248**	**1,381**	**1,103**	**716**
less rainfall, 6.4 sq m per tree													
					5mm Retention for Irrigation Purposes (see *X* above)			**0**	**0**	**0**	**0**	**0**	**0**
				AVERAGE WATER REMAINING IN CISTERN AFTER 72 HR (May-Sept)				**0**	**0**	**0**	**0**	**0**	**0**

Appendix D
Sanitary Analysis

Sanitary Service Design Calculations

17 Elm Street

Mixed use development

IBI

Sanitary Sewer Design Sheet

NOTES: Post-development domestic sewage flow based upon a unit flow of 240.0 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: 17 Elm Street
Project Number: 137680
Date: August 19, 2022
Designed By: Jason Jenkins, 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)*	Stormwater Flow (L/s) *(4)*	Total Flow, Qd (L/s) *(1)+(2)+(3)+(4)*	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																					
			0.0793		9	0.0763	9		0.026	0.02	0.0	9.7	**9.7**								
Post-Development	**Services**																				
240 and 250 L/cap/day	Cntrl MH	200 San Sewer	0.0793		321	0.0763	321	4.07	3.62	0.020	0.0		**3.6**								
450L/cap/day			0.0793		321	0.0763	321	4.07	6.79	0.020	0.0		**6.8**	200	2.0%	21.5	48.4	1.49	1.05	14.1%	

Pre-Development

	Units / Area	Density	Population
Retail	737 m2	1.1 pp/100m2	8
			0
		Pop. =	**9**

Post-Development

	Units / Area	Density	Population
1 Bedroom	100	1.4 pp/unit	140
2 Bedroom	51	2.1 pp/unit	107
3 Bedroom	23	3.1 pp/unit	71
Retail	212 m2	1.1 pp/100m2	2
		Pop. =	**321**

Appendix E
Water Analysis

Hydrant Flow Test (Elm Street)

Water Demand and Fire Demand Calculations

Fire Resistive Construction 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	20-Jul-22
Project Number:	137680-task8
Site Location / Address:	17 Elm St
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	1:08 PM
Pipe Size (mm)	150
Flow Hydrant Test Location (description)	13 Elm St
Residual Hydrant Test Location (description)	31 Elm St
Static Pressure(PSIG)	61

Q1 Test Data (1 Orifice)

# OUTLETS	ORIFICE SIZE(IN)	PITOT PRESSURE(PSIG)	FLOW(USGPM)	RESIDUAL PRESSURE(PSIG)
1	2.5	<5 psi	<375	36

QT Test Data (2 Orifices)

# OUTLETS	ORIFICE SIZE(IN)	PITOT PRESSURE(PSIG)	FLOW(USGPM)	RESIDUAL PRESSURE(PSIG)
2	2.5	-	-	32

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 √5<375
QT - 2 Orifice(s)	QT= -
Static Pressure(PSIG)	61

Additional Information

Notes/ Comments	Low flow was observed during the test.

17 Elm Street

Mixed-use development

DOMESTIC WATER DEMAND CALCULATIONS

Project Name: 17 Elm Street
Project Number: 137680
Date: August 19, 2022
Designed By: Jason Jenkins, 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	100 units	1.4 pp/unit	140	0.3	0.8	0.4
2 Bedroom	51 units	2.1 pp/unit	107	0.2	0.6	0.3
3 Bedroom	23 units	3.1 pp/unit	71	0.2	0.4	0.2
Retail	212 m2	1.1 pp/100m2	2	0.0	0.0	0.0
		Totals	**321**	**0.7**	**1.8**	**0.9**

17 Elm Street

Mixed-use development

FIRE FLOW DEMAND CALCULATIONS

Project Name: 17 Elm Street
Project Number: 137680
Date: August 19, 2022
Designed By: Jason Jenkins, 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)

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

Construction Coefficient =	0.6	
Largest Floor Area =	1,134	m2
Floor Above =	788	m2
Floor Below =	1,134	m2
Area =	1,615	m2
Fire Flow (F) =	**5,000**	L/min

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 =	**4,250**	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 =	**1,275**	L/min

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

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

Proximity Adjustment =	75%	(max 75%)
$F_3 = F_1$ x Factor =	**3,188**	L/min

Separation	Adjustment	Separation	Adjustment
0m to 3m	25%	20.1m to 30m	10%
3.1m to 10m	20%	30.1m to 45m	5%
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)

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

F_1 =	4,250	L/min
- F_2 =	1,275	L/min
+ F3 =	3,188	L/min
Fire Flow =	6,000	L/min
Fire Flow =	**100.0**	L/s
Total Demand (Fire Flow + MDD) =	**100.9**	L/s

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

PARTISANS

PARTISANS
950 Dupont St.
Toronto, Ontario M6H 1z2
partisans.com

17 Elm Street – Fire Restrictive Criteria Confirmation Letter

Project:
17 Elm Street

Date: August 9th, 2022
of Pages: 01

To whom it may concern,

Please be advised that the above-referenced building will be constructed in compliance with the 2015 Ontario Building Code (OBC), and equipped with a Fire Protection System conforming to the NFPA 13 Standards for Installation of Sprinkler Systems and specifically:

1. All structural members and floors will be of fire resistive construction per the Fire Underwriters Survey (FUS) 1999 with 2-hour ratings per the OBC.
2. All vertical openings and exterior vertical communications will be constructed with a 1-hour fire rating.

Thank you,

Alex Josephson
Partner, PARTISANS