

WATER/WASTEWATER GENERATION REPORT

for

1842 King Street East

Hamilton, Ontario

Prepared for:

**New Horizon Development Group Inc. (NHDGI)
1842 King St. E. Inc.**

Prepared by:

LANHACK CONSULTANTS INC.
1709 Upper James Street
Hamilton, ON L9B 1K7

Project No. 20064A

April 09, 2021

Revised February 15, 2022





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1.0 INTRODUCTION

1.1 Overview

New Horizon Development Group Inc. (NHDGI) have retained Lanhack Consultants Inc. to prepare a Storm Water Management Report (SWM) and a Water/Wastewater Generation Report (WWGR) in support of a proposed residential condominium and stacked townhouse development consisting of 1271 units in the condominium buildings and 80 units in the stacked townhouse buildings, totaling 1351 units. The property is approximately 2.683 hectares, after road widening, located between King Street East and Lawrence Road, just west of Kenilworth Avenue South. Please refer to **Figure 1** for the Location Map and **Appendix B** for the Site Plan designed by Graziani and Corazza Architects Inc.

The site is currently developed with an existing school.

The site will be equipped with storm and sanitary service connections to Lawrence Road and water service connections to King Street East and Lawrence Road. The proposed building will be sprinklered.

This portion of the report will provide the conceptual framework for water distribution, fire flows, sanitary sewage, and storm water for the development of this site. This report will also provide design drawings, prepared by Graziani and Corazza Architects Inc. and Lanhack Consultants Inc., in support of the planning applications.

Please refer to the Graziani and Corazza Architects Inc. and Lanhack drawings attached in **Appendix B** for additional information.

The proposed condominium development is intended to be a LEED certified development. The developer, at the site plan stage, will be considering the feasibility of several sustainable measures such as:

- Over sizing the SWM tank for rainwater collection for irrigation purposes
- Infiltration trenches along the west and east property lines
- Permeable paver driveway
- Salt management
- Increasing topsoil thickness along the side lot lines due to the native clay soils
- Heat island mitigation measures
- Stockpiling of topsoil off site to be reused after the structure has been completed.

1.2 Background Information

The following documents were referenced in the preparation of this report:

- Ref. 1: Comprehensive Development Guidelines and Financial Policies Manual (City of Hamilton, 2019)*
Ref 2: Ontario Building Code (OBC - 2012)
Ref 3: Ministry of the Environment (MOE) – Design Guidelines for Drinking Water Systems (2008)

1.3 Geotechnical Investigation

The Geotechnical Report will be submitted by others under a separate cover.

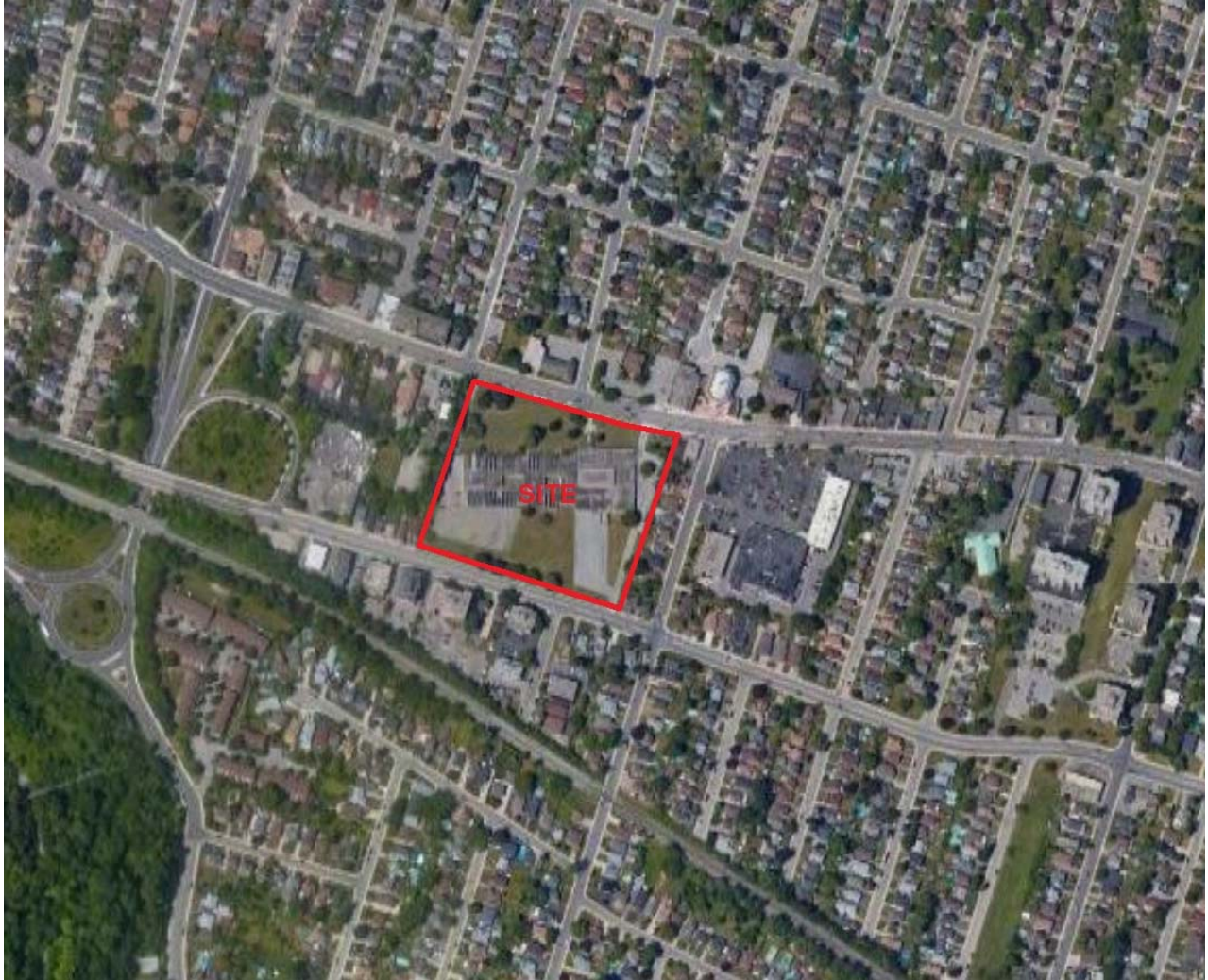


Figure 1: Location plan of 1842 King Street East (via Google Maps)



2.0 Wastewater Assessment

The proposed development will consist of four (4) residential condominium buildings containing 1082 one-bedroom units, 165 two-bedroom units, and 24 three-bedroom units, totaling 1271 units between the four condominium buildings. There will also be two (2) stacked townhouse buildings on the proposed development each containing 40 two-bedroom units, totaling 80 two-bedroom units. Based on the site plan and floor plans prepared by Graziani and Corazza Architects Inc., the design population and equivalent sanitary flow for the development were determined using the City of Hamilton Comprehensive Development Guidelines and Financial Policies Manual 2019.

2.1 Existing Sanitary Drainage System

The existing sanitary drainage system consists of a 450mm \emptyset combined sewer within the King Street East right-of-way, and a 600mm \emptyset sanitary sewer within the Lawrence Road right-of-way. See Servicing Plan in **Appendix B** for more details.

2.2 Sanitary Demands

The anticipated sanitary discharge from the proposed development was estimated using the City of Hamilton Development Guidelines (2019). The sanitary discharge flow from the subject site is summarized in **Table 2.1**.



Table 2.1: Sanitary Discharge Flow Rate

Type of Unit	Number of Bedrooms per Unit ⁽¹⁾	Average Daily Flow per Capita (L/d) ⁽²⁾	Total Number of Units ⁽³⁾	Design Population ⁽⁴⁾	Total Peak Flow ⁽⁵⁾⁽⁶⁾ (L/s)	Including Infiltration Allowance ⁽⁷⁾ (L/s)
1-Bedroom Unit	1.0	360	1082	2164	53.98	55.59
2-Bedroom Unit	2.0	360	245	980		
3-Bedroom Unit	3.0	360	24	144		
<i>(1) Number of bedrooms based on site plan and floor plans prepared by Graziani and Corazza Architects Inc.</i>						
<i>(2) Average Domestic Sewage Flow Rate from City of Hamilton Development Guideline Chapter E.1.4 Daily Flow = 360 L/day/capita</i>						
<i>(3) Refer to site plan prepared by Graziani and Corazza Architects Inc. – Appendix B</i>						
<i>(4) Design population based on two (2) persons per sleeping room within a dwelling unit or suite. Refer to OBC Section 3.1.17.1.(1).(b)</i>						
<i>(5) Total Avg. Flow = [(Avg. Daily Flow per Capita) x (Total Design Population)] = [360 L/d/person x (2164 persons + 980 persons+ 144 persons)] / 24 / 60 / 60 = 13.70 L/s</i>						
<i>(6) Total peak flow determined from City of Hamilton Development Guideline Chapter E.1.5 (Babbitt Formula) $M = 5 / P^{0.2} = 5 / (3288/1000)^{0.2} = 3.94$</i>						
<i>(7) Infiltration Allowance determined from the City of Hamilton development Guideline Chapter E.1.6. Infiltration Allowance of 0.6 L/s/ha was used for the site = 0.6 L/s x 2.68 ha = 1.61 L/s</i>						

Total Sanitary Discharge Peak Flow Rate = 55.59 L/s

2.3 Proposed Servicing Plan and Capacity Analysis (Review based on peak flows)

The proposed development will be serviced with two (2) 375mmØ sanitary services. The sanitary services will drain to the existing sanitary sewer along Lawrence Road. As calculated in **Table 2.1**, the total anticipated peak sanitary sewer discharge from the proposed development is **55.59 L/s**. It is expected that the receiving system has the capacity for the estimated sanitary discharge rate.



3.0 Proposed Water Assessment

The proposed development will consist of four (4) residential condominium buildings and be two (2) stacked townhouse buildings which will contain 1082 one-bedroom units, 245 two-bedroom units, and 24 three-bedroom units, totaling 1351 units between the six (6) buildings. Based on the site plan and floor plans prepared by Graziani and Corazza Architects Inc., the design population for the development will be determined using the Ontario Building Code (OBC 2012), City of Hamilton Design Standards and the equivalent domestic water flow will be determined using the Design Guidelines for Drinking-Water Systems (MOE, 2008).

3.1 Existing Water Distribution System

The existing municipal water distribution system around the site consists of a 200mmØ within King Street East and Lawrence Road. There are two existing fire hydrants along King Street East and two existing fire hydrants along Lawrence Road on the other side of the street. See Servicing Plan in **Appendix B** for more detail.

3.2 Domestic/Fire Water Demands

The expected domestic demand for the proposed development was estimated according to the City of Hamilton Design Standards and MOE design criteria. The estimated water consumption was calculated based on an occupancy rate of 2.0 persons per sleeping room within a dwelling unit or suite as per OBC Section 3.1.17.1(1).(b). The design population will be taken at 3,288 persons at the domestic water demand at a rate of 360 L/day/capita. Anticipated water demands are summarized in **Table 3.1**.

Water supply calculations for fire protection were determined using the Ontario Building Code (OBC 2012) and the City of Hamilton Watermain Fire Flow Requirement Design Guidelines. See **Appendix B** for a detailed analysis. The required fire flow is **150.00 L/s**.



Table 3.1: Estimated Domestic Water Supply Demands

Expected ⁽¹⁾ Population	Average Day ⁽²⁾ Demand (L/s)	Maximum Day ⁽³⁾ Demand (L/s)	Peak Hour ⁽⁴⁾ Demand (L/s)	Fire Flow ⁽⁵⁾ (L/s)	Max. Day + Fire Flow (L/s)
3288	13.70	26.03	41.10	150.00	176.03
<i>(1) Design population based on two (2) persons per sleeping room within a dwelling unit or suite. Refer to OBC Section 3.1.17.1.(1).(b)</i>					
<i>(2) Average Consumption Rate for Residential Area = 360 L/cap/day = (360 L/d x 3288 persons) / 24 / 60 / 60 = 13.70 L/s</i>					
<i>(3) *Maximum Day Factor of 1.9 x Average Day Demand</i>					
<i>(4) *Peak Hour Factor of 3.0 x Average Day Demand</i>					
<i>(5) Fire Flow of (150.00 L/s) calculation based on greater of OBC and the City of Hamilton Watermain Fire Flow Requirement Design Guidelines - Appendix B</i>					

**Demand Factors from: City of Hamilton Water and Wastewater Masterplan, Class Environmental Assessment Report (November 2006)*

3.3 Proposed Water Servicing Plan and Analysis

Water servicing for the site will include the installation of a 200mm diameter fire service connected to both the existing 200mm diameter watermain on King Street East and Lawrence Road. A 150mm diameter domestic service will be teed off the 200mm diameter fire service, at both King Street East and Lawrence Road, to service the site. Refer to the Servicing Plan in **Appendix B** for more details.

The fire department connections will be serviced four (4) proposed fire hydrants located on both sides-of the main courtyards and standpipes (location to be determined). Refer to the Servicing Plan in **Appendix B** for more details.

Note: Typical water demand analysis would require a fixture-unit approach, but the floor plans have not been finalized yet. Instead, an equivalent population + 360 L/day/person + peak factors were used to determine the water rates. This will provide a rough estimate of water usage rates for the development (at a conservative rate of 360 L/day/person). A fixture-unit approach can be provided at a later date, if required, once floor plans have been finalized.



4.0 Hydraulic Assessment

C3 Water Inc. has prepared a supportive hydraulic assessment report for the proposed development. The hydraulic assessment will be submitted as a separate document.

5.0 Conclusion (Domestic/Fire and Sanitary)

Based on the information provided herein, we conclude that the maximum water supply flow and the sanitary discharge at 1842 King Street East meet the design requirements of the City of Hamilton and the Ministry of Environment (MOE). The available flows within the municipal system are adequate and are not expected to be negatively impacted from the proposed development. Therefore, it is recommended that:

Sanitary Drainage System

- The sanitary discharge for the subject site will drain to the existing 450mm and 600mm diameter sanitary sewer along Lawrence Road. The anticipated total peak discharge will be **55.59 L/s**.

Water Supply System

- The water supply for the subject site will be from the existing 200mm diameter watermains along King Street East and Lawrence Road, respectfully. The anticipated maximum daily water consumption rate for the development will be **26.03 L/s**.
- A minimum fire suppression flow of **9,000 L/min (150.00 L/s)** will be required as per the Ontario Building Code and City of Hamilton Watermain Fire Flow Requirement Design Guidelines.

We trust the information enclosed is satisfactory. Should you have any questions please do not hesitate to contact our office.

Respectfully submitted,

Glenn Worley
Lanhack Consultants Inc.



Dave Hacking, P.Eng
Lanhack Consultants Inc.



APPENDIX A: Fire Flow Requirements Calculations

The following calculations are for the proposed development at 1842 King Street East Hamilton, Ontario. The required fire flow for the proposed development is based on the largest residential condominium (Building B) representing the worst-case scenario. The required fire flow will be based calculated using the Ontario Building Code (OBC) and the City of Hamilton Watermain Fire Flow Requirement Design Guidelines, the greater of both methods will be used in the design calculations.

Required Fire Flow calculated using the OBC:

The Ontario Building Code 2012 requires that a minimum water supply source 'Q' be provided at a minimum pressure of 140 kPa (20 psi). The minimum flow 'Q' can be calculated as:

$$Q = K \cdot V \cdot Stot$$

Determining 'K' – Water Supply Coefficient:

As per Graziani and Corazza Architects Inc. design, the building is classified under the OBC as 3.2.2.42 Group C, Any Height, Any Area, Sprinklered. Therefore, the building will be of non-combustible construction with fire separations and fire resistance ratings provided in accordance with Subsection 3.2.2.42.

Using the OBC Div. B – A-3.2.5.7. Table 1 we determine the value of 'K' as:

$$K = 10$$

Determining 'V' – Volume of Building:

Volume of the residential condominium building provided by Graziani and Corazza Architects Inc.

$$V = 72,023 \text{ m}^3$$

Determining 'S_{tot}' – Spatial Coefficient:

The spatial coefficient is based on the exposure distance from the property line and other buildings on the site to all sides of the residential condominium. Refer to site plan designed by Graziani and Corazza Architects Inc., **Appendix B**. The spatial coefficient can be calculated as:

$$S_{tot} = 1.0 + (S_N + S_E + S_S + S_W)$$

The north side of the building will be used as S_1 and will then go in a clockwise manner. Values for all sides are as follows:



Side	Exposure Distance (m) ⁽¹⁾⁽²⁾⁽³⁾	Spatial Coefficient ⁽⁴⁾
Side S ₁	9.00	0.1
Side S ₂	8.00	0.2
Side S ₃	15.94	0.0
Side S ₄	7.50	0.25
Side S ₅	4.50	0.5
Side S ₆	19.00	0.0

(1) Refer to site plan designed by Graziani and Corazza Architects Inc. – **Appendix B**

(2) When facing a street, the property line shall be deemed to be the centre of the street as per the “Fire Protection Water Supply Guideline for Part 3 in the Ontario Building Code”

(3) When facing a building the exposure distance was calculated using the mid-point between the two buildings

(4) Spatial Coefficient from OBC Div. B – A-3.2.5.7. Figure 1

$$S_{\text{tot}} = 1.0 + (0.1 + 0.2 + 0.0 + 0.25 + 0.5 + 0.0) = 2.05$$

$$S_{\text{tot}} = \mathbf{2.0}$$
 as per OBC Div. B. - A-3.2.5.7.3.(a)

Determining ‘Q’ – Minimum Water Supply in Litres:

$$Q = K \cdot V \cdot S_{\text{tot}}$$

$$Q = 10 \times 72,023 \times 2.0$$

$$Q = \mathbf{1,440,460 \text{ L}}$$

Determining Minimum Water Supply Flow Rate:

Using OBC Div. B – A-3.2.5.7. Table 2 we can determine the minimum water supply flow rate using the value $Q = 1,440,460 \text{ L}$. Since the value of Q is greater than $270,000 \text{ L}$, we can determine the minimum water supply flow rate as:

$$\text{Flow Rate} = 9,000 \text{ L/min} = \mathbf{150.00 \text{ L/s}}$$

Required Fire Flow calculated using City of Hamilton Watermain Fire Flow Requirement Design Guidelines:

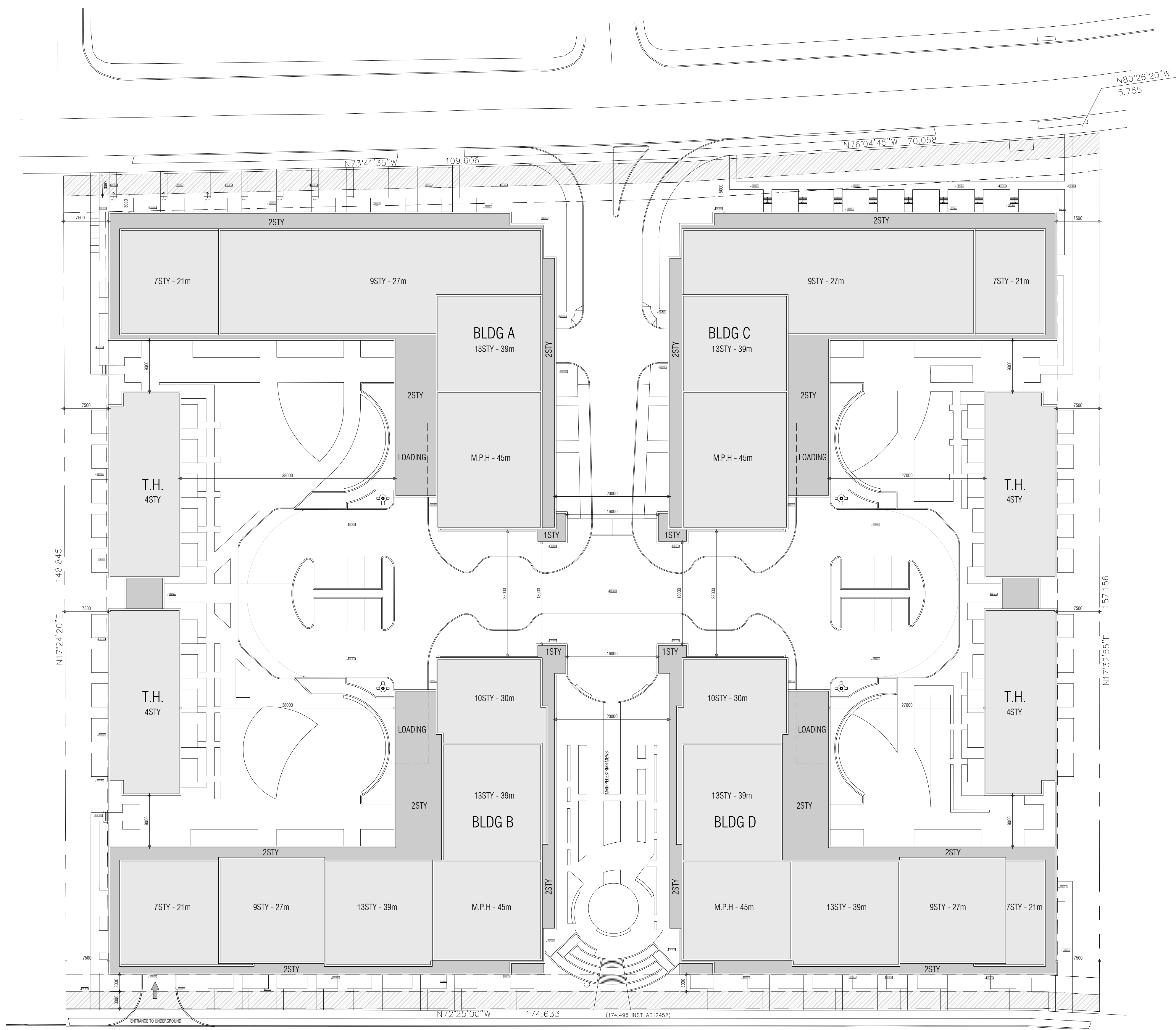
The building is classified as a Residential Multi (greater than 3 units) therefore we can determine the target available fire flow as:

$$\text{Flow Rate} = \mathbf{150.00 \text{ L/s}}$$



APPENDIX B: Site Plan and Engineering Drawings

- *Site Plan designed by Graziani and Corazza Architects Inc.*
- *Preliminary Grading, Erosion and Sediment Control Plan prepared by Lanhack Consultants Inc.*
- *Preliminary Servicing Plan prepared by Lanhack Consultants Inc.*
- *Sections prepared by Lanhack Consultants Inc.*



PROJECT STATISTICS

JOB No: 1804.20 1842 KING STREET
DATE: Jan 28, 2022

01. SITE AREA	(m ²)	(ha)	(ft ²)	(ac)
	26225.47	2.68	288746.68	6.63

02. G.C.A. (m ²)	LOWRISE	BLDG A	BLDG B	BLDG C	BLDG D	TOTAL
BELOW GRADE	0	1891.9	833.6	1609.7	911	5246.2
ABOVE GRADE	5370.6	21733.1	22726.5	23362.7	21182.2	91375.1
TOTAL	5370.6	23625	23560.1	24972.4	22095.2	96233.3

03. F.S.I	PROPOSED
	3.60

04. SETBACKS * (m)	PROPOSED
BELOW GRADE	NORTH 0.00 EAST 7.50 SOUTH 0.00 WEST 7.50
ABOVE GRADE	NORTH 3.00 EAST 7.50 SOUTH 3.00 WEST 7.50

05. UNIT BREAKDOWN	LOWRISE	BLDG A	BLDG B	BLDG C	BLDG D	TOTAL
RESIDENTIAL UNITS	Studio 0 1 Bedroom 0 2 Bedroom 89 3 Bedroom 0	0 278 33 5	0 307 49 5	0 221 45 9	0 274 47 6	0 1080 245 25
TOTAL	80	316	352	275	327	1350

05. B.F. UNIT BREAKDOWN **	LOWRISE	BLDG A	BLDG B	BLDG C	BLDG D	TOTAL
RESIDENTIAL UNITS	Studio 0 1 Bedroom 0 2 Bedroom 12 3 Bedroom 0	0 42 5 1	0 46 6 1	0 33 7 1	0 41 7 1	0 182 37 4
TOTAL	12	47	53	41	49	203

06. PARKING	PROPOSED
RESIDENTIAL	Studio 0 1 Bedroom 1,018 2 Bedroom 1374 3 Bedroom 0.222
NON RESIDENTIAL/VISITOR	300
TOTAL	1674

07. BIKE PARKING	PROPOSED
SHORT TERM	0.5
LONG TERM	675
TOTAL	743

08. STORAGE LOCKERS	PROPOSED
	T.B.D.

09. ESTABLISHED GRADE

10. BUILDING HEIGHT (m)	PROPOSED
TO MAIN ROOF SLAB	4 STY 13 STY 13 STY 13 STY 13 STY
TO MECH. PENTHOUSE	

11. ELEMENTARY (m ²)	PROPOSED
INDOOR	LOWRISE 0 BLDG A 601 BLDG B 732 BLDG C 560 BLDG D 656
OUTDOOR	692 3141 3428 2814 3103
TOTAL	692 3742 4160 3374 3759

NOTES:
* setbacks to main building face
** actual unit count may vary depending on market demand

LIST OF DRAWINGS

A.100 - Context Plan	A.307 - 7th Floor Plan
A.101 - Site Plan & Stats	A.308 - 8th-9th Floor Plan
A.201 - P3 Underground Floor Plan	A.309 - 10th Floor Plan
A.202 - P2 Underground Floor Plan	A.310 - 11th Floor Plan
A.203 - P1 Underground Floor Plan	A.311 - 12th Floor Plan
A.301 - Ground Floor Plan	A.312 - Mechanical Penthouse Plan
A.302 - 2nd Floor Plan	A.401 - South and West Elevations
A.303 - 3rd Floor Plan	A.402 - North and East Elevations
A.304 - 4th Floor Plan	A.501 - Section A
A.305 - 5th Floor Plan	A.502 - Section B
A.306 - 6th Floor Plan	A.503 - Section C

G.F.A. DEFINITION

"Gross Floor Area" with reference to the maximum permissible floor area of a building or structure in relation to the area of the lot on which it is situate means the aggregate of the areas of the building or structure at each storey, including mezzanine floors and a basement but not a cellar or sub-cellar.

THIS DRAWING, AS AN INSTRUMENT OF SERVICE, IS PROVIDED BY AND IS THE PROPERTY OF GRAZIANI-CORAZZA ARCHITECTS INC. THE CONTRACTOR MUST VERIFY AND ACCEPT RESPONSIBILITY FOR ALL DIMENSIONS AND CONDITIONS ON SITE AND MUST NOTIFY GRAZIANI-CORAZZA ARCHITECTS INC. OF ANY VARIATIONS FROM THE SUPPLIED INFORMATION. GRAZIANI-CORAZZA ARCHITECTS INC. IS NOT RESPONSIBLE FOR THE ACCURACY OF SURVEY, STRUCTURAL, MECHANICAL, ELECTRICAL, AND OTHER ENGINEERING INFORMATION SHOWN ON THIS DRAWING. REFER TO THE APPROPRIATE ENGINEERING DRAWINGS BEFORE PROCEEDING WITH THE WORK. CONSTRUCTION MUST CONFORM TO ALL APPLICABLE CODES AND REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION. UNLESS OTHERWISE NOTED, NO INVESTIGATION HAS BEEN UNDERTAKEN OR REPORTED ON BY THIS OFFICE IN REGARDS TO THE ENVIRONMENTAL CONDITION OF THIS SITE.

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1. ERRORS, OMISSIONS, INCOMPLETENESS DUE TO LOSS OF INFORMATION IN WHOLE OR PART WHEN INFORMATION IS TRANSFERRED.
2. TRANSMISSION OF ANY VIRUS OR DAMAGE TO THE RECEIVING ELECTRONIC SYSTEM WHEN INFORMATION IS TRANSFERRED.

1. APR.13.2021 ISSUED FOR COORDINATION B.G.

NEW HORIZON DEVELOPMENT GROUP

issued for revisions

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RESIDENTIAL

1842 KING ST E

HAMILTON ONT

PROJECT ARCHITECT: B.G.
ASSISTANT DESIGNER: R.L.
DRAWN BY: R.L.
CHECKED BY: D.B.
PLOT DATE: FEB. 10. 2022
JOB #: 1804.20

SITE PLAN

1:400 A101

TITLEBLOCK SIZE: 610 x 900

LEGEND

XXXXXX	EXISTING GRADE	AD	AREA DRAIN
EX(XXXXXX)	PROPOSED GRADE = EXISTING GRADE	CB	CATCH BASIN
XXXXXXSW	PROPOSED SWALE GRADE	DAD	DOUBLE AREA DRAIN
▲	MAN DOOR ENTRANCE	DC	DROP CURB
▲	OVERHEAD DOOR ENTRANCE (TRUCK LOADING)	DD	DRAINAGE DIVIDE
→	EXISTING SHEET FLOW DIRECTION	EA	EDGE OF ASPHALT
→	DIRECTION OF OVERLAND DRAINAGE	EX	EXISTING
---	PROPOSED HEAVY DUTY SILT FENCE AS PER OPSD 219.130	FC	FLUSH CURB
○	PROPOSED SILT SAC AS PER DETAIL 2/C1-1	FH	FIRE HYDRANT
○	PROPOSED FIRE HYDRANT	GW	GUY WIRE
		HP	HYDRO POLE
		MH	MANHOLE
		TD	TRENCH DRAIN
		R#	NUMBER OF RISERS

GENERAL GRADING NOTES:

- GRADING ON ADJACENT LANDS NOT OWNED BY THE DEVELOPER... THE DEVELOPER IS REQUIRED TO OBTAIN PERMISSION TO CARRY OUT THE GRADING ON THE ADJACENT LANDS... IF SUCH PERMISSION TO GRADE ON THE ADJACENT LANDS TO THE SITE IS NOT OBTAINED BY THE DEVELOPER... OR IF PERMISSION IS WITHDRAWN PRIOR TO CARRYING OUT THE GRADING... THE DEVELOPER IS REQUIRED TO REVISE THE GRADING PLAN, AS REQUIRED, AND RESUBMIT THE PLAN TO THE CITY FOR APPROVAL.
- ANY CHANGES IN GRADES AND/OR CATCH BASINS, REQUIRES THE APPROVAL OF THE DIRECTOR DEVELOPMENT DIVISION, PLANNING AND DEVELOPMENT DEPARTMENT FOR THE CITY OF HAMILTON.
- ALL DRIVEWAYS FROM PROPERTY LINES FOR THE FIRST 7.5m SHALL BE WITHIN 3% MAXIMUM GRADE THEREAFTER, ALL DRIVEWAYS SHALL BE WITHIN 10% MAXIMUM GRADES AS PER CITY STANDARDS.
- THE APPROVAL OF THIS GRADING PLAN DOES NOT EXEMPT THE OWNER'S BONDED CONTRACTOR FROM THE REQUIREMENTS TO OBTAIN THE VARIOUS PERMITS/APPROVALS NORMALLY REQUIRED TO COMPLETE A CONSTRUCTION PROJECT, SUCH AS, BUT NOT LIMITED TO THE FOLLOWING:
 - ROAD CUT PERMITS
 - SERVICING PERMITS
 - APPROACH APPROVAL PERMITS
 - RELOCATION SERVICES
 - COMMITTEE OF ADJUSTMENT
 - ENCROACHMENT AGREEMENTS (IF REQUIRED)

BEFORE STARTING WORK

- THE CONTRACTOR SHALL NOTIFY THE CITY OF HAMILTON AND LANHACK CONSULTANTS INC. AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
- THE POSITION OF THE POLE LINES, CONDUITS, WATERMANS, SEWERS, AND OTHER UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.
- PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, ALL BENCHMARKS, ELEVATIONS, DIMENSIONS, AND GRADES MUST BE CHECKED BY THE CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE ENGINEER.
- ALL EXISTING UNDERGROUND UTILITIES SHALL BE LOCATED, MARKED AND PROTECTED. ANY UTILITIES DAMAGED OR DISTURBED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.
- AT LEAST TWO DIFFERENT BENCHMARKS MUST BE REFERRED TO AT ALL TIMES.

SILTATION AND EROSION CONTROL

- SILTATION CONTROL BARRIERS SHALL BE PLACED AS DETAILED.
- ALL SILTATION CONTROL MEASURES SHALL BE CLEANED AND MAINTAINED AFTER EACH RAINFALL AS DIRECTED AND TO THE SATISFACTION OF THE CITY OF HAMILTON.
- ADDITIONAL SILT CONTROL LOCATIONS MAY BE REQUIRED AS DETERMINED BY THE CITY OF HAMILTON.

GENERAL EARTHWORKS NOTES:

- THE SUB-GRADE SOILS EXPOSED AFTER EXCAVATION SHALL BE INSPECTED AND CERTIFIED BY A QUALIFIED REGISTERED PROFESSIONAL SOILS ENGINEER AND A COPY OF THE REPORT SHALL BE FORWARDED TO THE CITY OF HAMILTON BUILDING DIVISION WHERE THE FOOTINGS WILL BE SITUATED ON FILL MATERIAL. THE FOOTINGS SHALL BE DESIGNED AND APPROVED BY QUALIFIED REGISTERED PROFESSIONAL ENGINEER.
- ALL FILL PLACED ON THE SITE SHALL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DRY DENSITY. A SUFFICIENT NUMBER OF TESTS SHALL BE TAKEN AT VARIOUS LEVELS SATISFACTORY TO THE DIRECTOR OF ENGINEERING. TEST RESULTS SHALL BE SENT TO THE CITY WITH A LETTER, SIGNED AND STAMPED BY THE SOILS ENGINEER, STATING THAT A SUFFICIENT NUMBER OF TESTS HAVE BEEN TAKEN AND THE MINIMUM DEGREE OF COMPACTION HAS BEEN REACHED.

PERSPECTIVE VIEW

PLAN

SECTION A-A

NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
HEAVY-DUTY SILT FENCE BARRIER	OPSD 219.130	

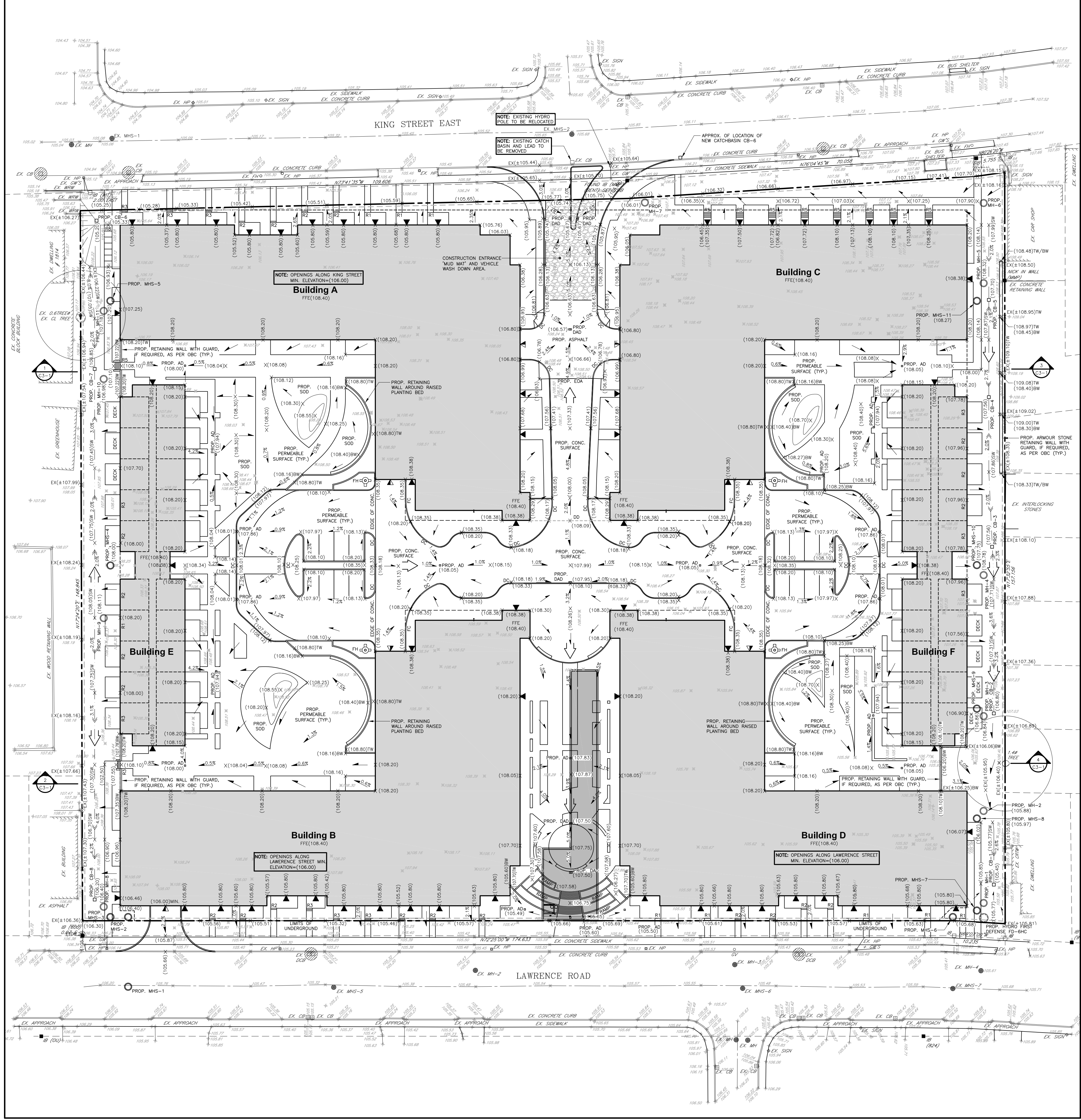
Silt Sack Sediment Control Detail

BEFORE CONSTRUCTION

NOTE: a) CONTRACTOR TO INSTALL SILT SACS ON ALL EX. CB'S WHERE SHOWN. SILT SACS ON PROPOSED INFRASTRUCTURE TO BE INSTALLED IMMEDIATELY WITH INSTALLATION OF FRAME AND GRADE.

b) SILT SACS SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND EMPTIED FOLLOWING EVERY RAINFALL EVENT, IF REQ'D.

c) CONTRACTOR SHALL REMOVE SILT SACS FOLLOWING PLACEMENT OF BASE ASPHALT ONLY.



Contractor must verify all dimensions on the Project Site and report any discrepancies before proceeding with the Work.

This drawing is a part of the Contract Documents and is to be read in conjunction with all other Contract Documents.

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SOURCE: EXISTING BOUNDARY SURVEY AND TOPOGRAPHICAL INFORMATION OBTAINED FROM A.T. MCGEHEE LTD., DWG No. 28975, DATED AUGUST 20, 2020.

THE POSITION OF THE POLE LINES, CONDUITS, WATERMANS, SEWERS, AND OTHER UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.

Revision Record

No.	Description	Date (m/d/y)
A	ISSUED AS PER CITY COMMENTS	02/11/22
No.	Description	Date (m/d/y)

Issue Record

No.	Description	Date (m/d/y)

NOT FOR CONSTRUCTION

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NHDGI Pulse Residential Development

1842 KING STREET EAST
HAMILTON, ON

Date: MARCH 2021
Drawn By: GRW
Chk'd By: SMP
Scale: AS NOTED

Preliminary Grading, Erosion and Sediment Control Plan

Project No.: 20064A Drawing No.: C1-1 Rev.: A
Plot Date: 02/11/22
442000-0004 - 1842 King St. NHDGI and 185(CM)
20064A_001 - Grading and Servicing Plan.dwg

