

<b>For Office Use Only:</b>	<b>OPNPL2022023/</b>		
File Number	<u><b>ZNPL2022024</b></u>	Public Notice Sign	
Related File Number		Application Fee	<u><b>4,480.00 (2021 fee)</b></u>
Pre-consultation Meeting	<u><b>June 4, 2021</b></u>	Conservation Authority Fee	<u><b>N/A</b></u>
Application Submitted	<u><b>January 20, 2022</b></u>	Well & Septic Info Provided	<u><b>N/A</b></u>
Complete Application	<u><b>January 25, 2022</b></u>	Planner	<u><b>N. Goodbrand</b></u>

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**Check the type of planning application(s) you are submitting.**

- ☒ Official Plan Amendment
- ☒ Zoning By-Law Amendment
- ☐ Temporary Use By-law
- ☐ Draft Plan of Subdivision/Vacant Land Condominium
- ☐ Condominium Exemption
- ☐ Site Plan Application
- ☐ Extension of a Temporary Use By-law
- ☐ Part Lot Control
- ☐ Cash-in-Lieu of Parking
- ☐ Renewable Energy Project or Radio Communication Tower

**Please summarize the desired end result of this application (for example: a special zoning provision on the subject lands to include additional use(s), changing the zone and/or official plan designation of the subject lands, creating a certain number of lots, or similar)**

The purpose of the application is to amend the current Norfolk County Official Plan and Zoning Bylaw to permit the construction of a 3 storey - 18 unit residential apartment building (without commercial use on the main floor). Subsequently, site plan approval is requested to permit the construction

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**Property Assessment Roll Number:** 3310 492 002 118



**A. Applicant Information****Name of Owner** NextJen Rental Corporation

It is the responsibility of the owner or applicant to notify the planner of any changes in ownership within 30 days of such a change.

**Address** 5 Tom Thomson Court**Town and Postal Code** Brantford ON N3R 7Z6**Phone Number** \_\_\_\_\_**Cell Number** 519 755 1547**Email** cappucci@rogers.com**Name of Applicant** As above**Address** \_\_\_\_\_**Town and Postal Code** \_\_\_\_\_**Phone Number** \_\_\_\_\_**Cell Number** \_\_\_\_\_**Email** \_\_\_\_\_**Name of Agent** J H Cohoon Engineering Limited**Address** 440 Hardy Rd, Unit 1**Town and Postal Code** Brantford, Ontario N3T 5L8**Phone Number** 519 753 2656**Cell Number** 519 732 2235**Email** rphillips@cohooneng.com

Please specify to whom all communications should be sent. Unless otherwise directed, all correspondence and notices in respect of this application will be forwarded to both owner and agent noted above.

☒ Owner☒ Agent☐ Applicant

Names and addresses of any holder of any mortgagees, charges or other encumbrances on the subject lands:

## B. Location, Legal Description and Property Information

1. Legal Description (include Geographic Township, Concession Number, Lot Number, Block Number and Urban Area or Hamlet):

Part 1 - Plan of Survey of Part of Lot 18, Block 37 Registered Plan 189 Norfolk County

Municipal Civic Address: 161 Wellington Avenue

Present Official Plan Designation(s): Downtown

Present Zoning: CBD - Central Business District

2. Is there a special provision or site specific zone on the subject lands?

☐ Yes ☒ No If yes, please specify corresponding number:

3. Present use of the subject lands:

Vacant

4. Please describe **all existing** buildings or structures on the subject lands and whether they are to be retained, demolished or removed. If retaining the buildings or structures, please describe the type of buildings or structures, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:

Vacant

5. If an addition to an existing building is being proposed, please explain what it will be used for (for example: bedroom, kitchen, or bathroom). If new fixtures are proposed, please describe.

Nil - N/A

6. Please describe **all proposed** buildings or structures/additions on the subject lands. Describe the type of buildings or structures/additions, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:

Proposed 3 storey Residential Building consisting of 18 Units

Refer to attached site plan indicating all the applicaiton site statistics

7. Are any existing buildings on the subject lands designated under the *Ontario Heritage Act* as being architecturally and/or historically significant? Yes ☐ No ☒

If yes, identify and provide details of the building:

8. If known, the length of time the existing uses have continued on the subject lands:

9. Existing use of abutting properties:

North - Grocery Store, West - Residential and Commercial, East - Residential

10. Are there any easements or restrictive covenants affecting the subject lands?

☐ Yes ☒ No If yes, describe the easement or restrictive covenant and its effect:

### C. Purpose of Development Application

**Note: Please complete all that apply.**

1. Please explain what you propose to do on the subject lands/premises which makes this development application necessary:

The current zoning on the property does not permit residential entirely on the main level. Request is to have complete residential on the main floor rather than the requirement of 50% commercial.

2. Please explain why it is not possible to comply with the provision(s) of the Zoning By-law/and or Official Plan:

Refer to above and covering letter. Owner wants to expand their residential rental operations in Delhi without adding commercial rental space. The current demand for the rental residential units in Delhi is substantial

3. Does the requested amendment alter all or any part of the boundary of an area of settlement in the municipality or implement a new area of settlement in the municipality? ☐ Yes ☒ No If yes, describe its effect:

4. Does the requested amendment remove the subject land from an area of employment? ☒ Yes ☐ No If yes, describe its effect:

The application seeks to remove the potential for approximately 202 sq.m. of commercial space from the inventory in the downtown of Delhi. Additional parking spaces in the downtown core will be provided for the development which are not required by the current zoning (16 spaces)



5. Does the requested amendment alter, replace, or delete a policy of the Official Plan?  
☐ Yes ☒ No If yes, identify the policy, and also include a proposed text of the policy amendment (if additional space is required, please attach a separate sheet):

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6. Description of land intended to be severed in metric units:

Frontage: 32.67m  
Depth: 50.40m  
Width: 32.67m  
Lot Area: 0.1643 Ha.  
Present Use: Vacant  
Proposed Use: Residential

Proposed final lot size (if boundary adjustment):

If a boundary adjustment, identify the assessment roll number and property owner of the lands to which the parcel will be added:

Description of land intended to be retained in metric units:

Frontage: N/A  
Depth:  
Width:  
Lot Area:  
Present Use:  
Proposed Use:

Buildings on retained land:

7. Description of proposed right-of-way/easement:

Frontage: N/A  
Depth:  
Width:  
Area:  
Proposed use:

8. Name of person(s), if known, to whom lands or interest in lands to be transferred, leased or charged (if known):

**9. Site Information****Zoning****Proposed**

Please indicate unit of measurement, for example: m, m<sup>2</sup> or %

Lot frontage	32.67m (Ex)	32.67m (Ex)
Lot depth	50.40m (Ex)	50.40m (Ex)
Lot width	32.67m (Ex)	32.67m (Ex)
Lot area	1643.3 sq.m. (Ex)	1643.3 sq.m. (Ex)
Lot coverage	80% max	22.8%
Front yard	0 / 3.0m max	2.0m
Rear yard	0 / 6.0m (Resid)	20.36m
Left Interior side yard	3.0m	3m
Right Interior side yard	3.0m	12.34m
Exterior side yard (corner lot)	N/A	N/A
Landscaped open space		
Entrance access width		7.3m
Exit access width		7.3m
Size of fencing or screening		See Plan
Type of fencing		Wood / Chainlink

**10. Building Size**

Number of storeys	6 max	3
Building height	N/A	10.7m +/-
Total ground floor area	N/A	456.9 sq.m.
Total gross floor area	N/A	
Total useable floor area		

**11. Off Street Parking and Loading Facilities**

Number of off street parking spaces	0	14 + 2 H/C
Number of visitor parking spaces		N/A
Number of accessible parking spaces		See above
Number of off street loading facilities	N/A	N/A

12. Residential (if applicable)

Number of buildings existing: Nil

Number of buildings proposed: 1

Is this a conversion or addition to an existing building? ☐ Yes ☒ No

If yes, describe: \_\_\_\_\_

Type	Number of Units	Floor Area per Unit in m2
Single Detached	_____	_____
Semi-Detached	_____	_____
Duplex	_____	_____
Triplex	_____	_____
Four-plex	_____	_____
Street Townhouse	_____	_____
Stacked Townhouse	_____	_____
Apartment - Bachelor	_____	_____
Apartment - One bedroom	<u>18</u>	<u>60 sq.m. (+/-)</u>
Apartment - Two bedroom	_____	_____
Apartment - Three bedroom	_____	_____

Other facilities provided (for example: play facilities, underground parking, games room, or swimming pool):

13. Commercial/Industrial Uses (if applicable)

Number of buildings existing: N/A

Number of buildings proposed: \_\_\_\_\_

Is this a conversion or addition to an existing building? ☐ Yes ☐ No

If yes, describe:

\_\_\_\_\_

Indicate the gross floor area by the type of use (for example: office, retail, or storage):

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Seating Capacity (for assembly halls or similar): \_\_\_\_\_

Total number of fixed seats: \_\_\_\_\_

Describe the type of business(es) proposed: \_\_\_\_\_

Total number of staff proposed initially: \_\_\_\_\_

Total number of staff proposed in five years: \_\_\_\_\_

Maximum number of staff on the largest shift: \_\_\_\_\_

Is open storage required: ☐ Yes ☐ No

Is a residential use proposed as part of, or accessory to commercial/industrial use?

☐ Yes ☐ No If yes please describe:

\_\_\_\_\_  
\_\_\_\_\_

**14. Institutional (if applicable)**

Describe the type of use proposed: N/A

Seating capacity (if applicable): \_\_\_\_\_

Number of beds (if applicable): \_\_\_\_\_

Total number of staff proposed initially: \_\_\_\_\_

Total number of staff proposed in five years: \_\_\_\_\_

Maximum number of staff on the largest shift: \_\_\_\_\_

Indicate the gross floor area by the type of use (for example: office, retail, or storage):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**15. Describe Recreational or Other Use(s) (if applicable)**

N/A

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### D. Previous Use of the Property

1. Has there been an industrial or commercial use on the subject lands or adjacent lands? ☐ Yes ☒ No ☐ Unknown

If yes, specify the uses (for example: gas station or petroleum storage):

2. Is there reason to believe the subject lands may have been contaminated by former uses on the site or adjacent sites? ☐ Yes ☒ No ☐ Unknown

3. Provide the information you used to determine the answers to the above questions:

Attached Environmental Reports (Englobe Inc., Phase 1 and Phase 2(Limited))

4. If you answered yes to any of the above questions in Section D, a previous use inventory showing all known former uses of the subject lands, or if appropriate, the adjacent lands, is needed. Is the previous use inventory attached? ☐ Yes ☐ No

#### E. Provincial Policy

1. Is the requested amendment consistent with the provincial policy statements issued under subsection 3(1) of the *Planning Act*, R.S.O. 1990, c. P. 13? ☒ Yes ☐ No

If no, please explain:

2. It is owner's responsibility to be aware of and comply with all relevant federal or provincial legislation, municipal by-laws or other agency approvals, including the Endangered Species Act, 2007. Have the subject lands been screened to ensure that development or site alteration will not have any impact on the habitat for endangered or threatened species further to the provincial policy statement subsection 2.1.7? ☐ Yes ☒ No

If no, please explain:

No significant features exist on the property

3. Have the subject lands been screened to ensure that development or site alteration will not have any impact on source water protection? ☒ Yes ☐ No

If no, please explain:

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Note: If in an area of source water Wellhead Protection Area (WHPA) A, B or C please attach relevant information and approved mitigation measures from the Risk Manager Official.

4. Are any of the following uses or features on the subject lands or within 500 metres of the subject lands, unless otherwise specified? Please check boxes, if applicable.

**Livestock facility or stockyard** (submit MDS Calculation with application)

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Wooded area**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Municipal Landfill**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Sewage treatment plant or waste stabilization plant**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Provincially significant wetland (class 1, 2 or 3) or other environmental feature**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Floodplain**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Rehabilitated mine site**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Non-operating mine site within one kilometre**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Active mine site within one kilometre**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Industrial or commercial use (specify the use(s))**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Active railway line**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Seasonal wetness of lands**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Erosion**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

**Abandoned gas wells**

☐ On the subject lands or ☐ within 500 meters – distance \_\_\_\_\_

## F. Servicing and Access

### 1. Indicate what services are available or proposed:

#### Water Supply

☒ Municipal piped water

☐ Individual wells

☐ Communal wells

☐ Other (describe below)

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#### Sewage Treatment

☒ Municipal sewers

☐ Septic tank and tile bed in good working order

☐ Communal system

☐ Other (describe below)

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#### Storm Drainage

☒ Storm sewers

☐ Other (describe below)

☐ Open ditches

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### 2. Existing or proposed access to subject lands:

☒ Municipal road

☐ Unopened road

☐ Provincial highway

☐ Other (describe below)

Name of road/street: Wellington St

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## G. Other Information

### 1. Does the application involve a local business? ☐ Yes ☒ No

If yes, how many people are employed on the subject lands?

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### 2. Is there any other information that you think may be useful in the review of this application? If so, explain below or attach on a separate page.

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## **H. Supporting Material to be submitted by Applicant**

In order for your application to be considered complete, **folded** hard copies (number of paper copies as directed by the planner) and an **electronic version (PDF) of the properly named site plan drawings, additional plans, studies and reports** will be required, including but not limited to the following details:

1. Concept/Layout Plan
2. All measurements in metric
3. Key map
4. Scale, legend and north arrow
5. Legal description and municipal address
6. Development name
7. Drawing title, number, original date and revision dates
8. Owner's name, address and telephone number
9. Engineer's name, address and telephone number
10. Professional engineer's stamp
11. Existing and proposed easements and right of ways
12. Zoning compliance table – required versus proposed
13. Parking space totals – required and proposed
14. All entrances to parking areas marked with directional arrows
15. Loading spaces, facilities and routes (for commercial developments)
16. All dimensions of the subject lands
17. Dimensions and setbacks of all buildings and structures
18. Location and setbacks of septic system and well from all existing and proposed lot lines, and all existing and proposed structures
19. Gross, ground and useable floor area
20. Lot coverage
21. Floor area ratio
22. Building entrances, building type, height, grades and extent of overhangs
23. Names, dimensions and location of adjacent streets including daylighting triangles
24. Driveways, curbs, drop curbs, pavement markings, widths, radii and traffic directional signs
25. All exterior stairways and ramps with dimensions and setbacks
26. Retaining walls including materials proposed
27. Fire access and routes
28. Location, dimensions and number of parking spaces (including visitor and accessible) and drive aisles
29. Location of mechanical room, and other building services (e.g. A/C, HRV)
30. Refuse disposal and storage areas including any related screening (if indoors, need notation on site plan)
31. Winter snow storage location



32. Landscape areas with dimensions
33. Natural features, watercourses and trees
34. Fire hydrants and utilities location
35. Fencing, screening and buffering – size, type and location
36. All hard surface materials
37. Light standards and wall mounted lights (plus a note on the site plan that all outdoor lighting is to be dark sky compliant)
38. Business signs (make sure they are not in sight lines)
39. Sidewalks and walkways with dimensions
40. Pedestrian access routes into site and around site
41. Bicycle parking
42. Architectural elevations of all building sides
43. All other requirements as per the pre-consultation meeting

In addition, the following additional plans, studies and reports, including but not limited to, **may** also be required as part of the complete application submission:

- ☐ Zoning Deficiency Form
- ☐ On-Site Sewage Disposal System Evaluation Form (to verify location and condition)
- ☐ Architectural Plan
- ☐ Buildings Elevation Plan
- ☐ Cut and Fill Plan
- ☐ Erosion and Sediment Control Plan
- ☐ Grading and Drainage Control Plan (around perimeter and within site) (existing and proposed)
- ☐ Landscape Plan
- ☐ Photometric (Lighting) Plan
- ☐ Plan and Profile Drawings
- ☐ Site Servicing Plan
- ☐ Storm water Management Plan
- ☐ Street Sign and Traffic Plan
- ☐ Street Tree Planting Plan
- ☐ Tree Preservation Plan
- ☐ Archaeological Assessment
- ☐ Environmental Impact Study

- ☐ Functional Servicing Report
- ☐ Geotechnical Study / Hydrogeological Review
- ☐ Minimum Distance Separation Schedule
- ☐ Noise or Vibration Study
- ☐ Record of Site Condition
- ☐ Storm water Management Report
- ☐ Traffic Impact Study – please contact the Planner to verify the scope required

Site Plan applications will require the following supporting materials:

1. Two (2) complete sets of the site plan drawings folded to 8½ x 11 and an electronic version in PDF format
2. Letter requesting that the Holding be removed (if applicable)
3. A cost estimate prepared by the applicant's engineer
4. An estimate for Parkland dedication by a certified land appraiser
5. Property Identification Number (PIN) printout

Standard condominium exemptions will require the following supporting materials:

- ☐ Plan of standard condominium (2 paper copies and 1 electronic copy)
- ☐ Draft condominium declaration
- ☐ Property Identification Number (PIN) printout

Your development approval might also be dependent on Ministry of Environment and Climate Change, Ministry of Transportation or other relevant federal or provincial legislation, municipal by-laws or other agency approvals.

**All final plans must include the owner's signature as well as the engineer's signature and seal.**

#### **I. Development Agreements**

A development agreement may be required prior to approval for site plan, subdivision and condominium applications. Should this be necessary for your development, you will be contacted by the agreement administrator with further details of the requirements including but not limited to insurance coverage, professional liability for your engineer, additional fees and securities.

## J. Transfers, Easements and Postponement of Interest


The owner acknowledges and agrees that if required it is their solicitor's responsibility on behalf of the owner for the registration of all transfer(s) of land to the County, and/or transfer(s) of easement in favour of the County and/or utilities. Also, the owner further acknowledges and agrees that it is their solicitor's responsibility on behalf of the owner for the registration of postponements of any charges in favour of the County.

## K. Permission to Enter Subject Lands

Permission is hereby granted to Norfolk County officers, employees or agents, to enter the premises subject to this application for the purposes of making inspections associated with this application, during normal and reasonable working hours.

## L. Freedom of Information

For the purposes of the *Municipal Freedom of Information and Protection of Privacy Act*, I authorize and consent to the use by or the disclosure to any person or public body any information that is collected under the authority of the *Planning Act, R.S.O. 1990, c. P. 13* for the purposes of processing this application.

  
\_\_\_\_\_  
Owner/Applicant Signature

November 21, 2021


\_\_\_\_\_  
Date

## M. Owner's Authorization

If the applicant/agent is not the registered owner of the lands that is the subject of this application, the owner(s) must complete the authorization set out below.

I/We A. Capucci, NexJen Rental Corp am/are the registered owner(s) of the lands that is the subject of this application.

I/We authorize J H Cohoon Engineering Limited to make this application on my/our behalf and to provide any of my/our personal information necessary for the processing of this application. Moreover, this shall be your good and sufficient authorization for so doing.

  
\_\_\_\_\_  
Owner

November 21, 2021

\_\_\_\_\_  
Date

November 21, 2021

\_\_\_\_\_  
Date

**N. Declaration**

I, R W Phillips of City of Brantford

solemnly declare that:

all of the above statements and the statements contained in all of the exhibits transmitted herewith are true and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of *The Canada Evidence Act*.

Declared before me at:

City of Brantford

In County of Brant

This 21st day of November

A.D., 2021



A Commissioner, etc.

  
Owner/Applicant Signature

**LINDA ELAINE CLARKSON**  
a Commissioner, etc., Province of **Ontario**  
for **J.H. Cohoon Engineering Limited.**  
Expires **June 17, 2024**



# 14591

# J.H. COHOON ENGINEERING LIMITED

## CONSULTING ENGINEERS

440 Hardy Road, Unit #1, Brantford, ON N3T 5L8  
Tel: (519) 753-2656 Fax: (519) 753-4263  
www.cohooneng.com

January 14, 2022

County of Norfolk  
Community Planning Services  
60 Colborne Street South  
Simcoe, Ontario  
N3Y 4H3

Attention: Ms. Nicole Goodbrand  
Senior Planner

Re: Proposed Apartment Building  
MN 161 Wellington Avenue  
Delhi, Ontario  
Norfolk County

Dear Ms. Goodbrand:

On behalf of our client, Mr. Angelo Cappucci of NexGen Rental Corporation, please find enclosed the following information regarding our application for Re-Zoning and Official Plan Amendment relating to the above noted site.

1. One (1) copy of the pre-consultation notes relating to the meeting held June 4, 2021.
2. Two (2) copies of the site development plan being drawing 14591-1 as prepared by our office (J H Cohoon Engineering Limited) which includes the preliminary landscaping plan for the development.
3. Five (5) copies of the survey for the property as prepared by MacAulay White and Muir (Land Surveyors) Brantford, Ontario
4. A cheque in the amount of \$ 4,480.00 from the developer of this site being the fee relating to the Official Plan Amendment and Re-Zoning Application being requested on this site.
5. Two (2) copies of the "Norfolk County Planning Department Development Application Form" as completed by our office including an authorization letter from the owner. Please note that the application will be re-used for the site plan application that will be submitted in the near future.
6. Two (2) copies of the planning justification report prepared by The Angrish Group in support of this application.



Professional Engineers  
Ontario

7. Two (2) copies of the preliminary building design as prepared by Two Row Architects relating to this development
8. Two (2) copies of the Shadow Analysis as prepared by J H Cohoon Engineering Limited as it relates to this development
9. Two (2) copies of the functional servicing report for this site as prepared by J H Cohoon Engineering Limited as it relates to this development which includes the stormwater management scheme for this site.
10. Two (2) copies of the traffic impact brief as prepared by J H Cohoon Engineering Limited as it relates to this development
11. One (1) copy of the Phase 1 - Environmental Site Assessment as completed by Englobe Inc. dated May 2021
12. One (1) copy of the Geotechnical Investigation as prepared by Englobe Inc. dated November 2021
13. Electronic / USB drive of all to the above noted information.

The proposal is to construct a 456.68 sq.m. three (3) storey – 18-unit residential apartment building on the site that are intended to be affordable for the Delhi area of Norfolk County. As we understand, the rezoning and official plan amendment are required as a result of the desire to eliminate the commercial component of the development (the documents require a 50% main floor area commercial component).

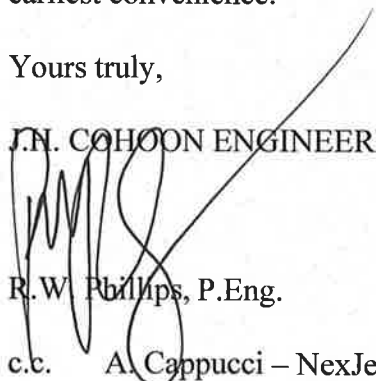
With the submission of this information, we would respectfully your prompt circulation of the application to the various departments. As noted, we anticipate that the full site plan approval package will be available in the next few weeks. We will make that submission at that time

The client is anticipating construction to begin in March / April 2022 and as such your prompt attention to this matter is appreciated. For our information, please advise as to the timing of the appropriate public meetings relating to the Official Plan Amendment and the Re-zoning.

If you require any further details please do not hesitate to contact this office, at your earliest convenience.

Yours truly,

J.H. COHOON ENGINEERING LIMITED

  
R.W. Phillips, P.Eng.

c.c. A. Cappucci – NexJen Rental Corporation.

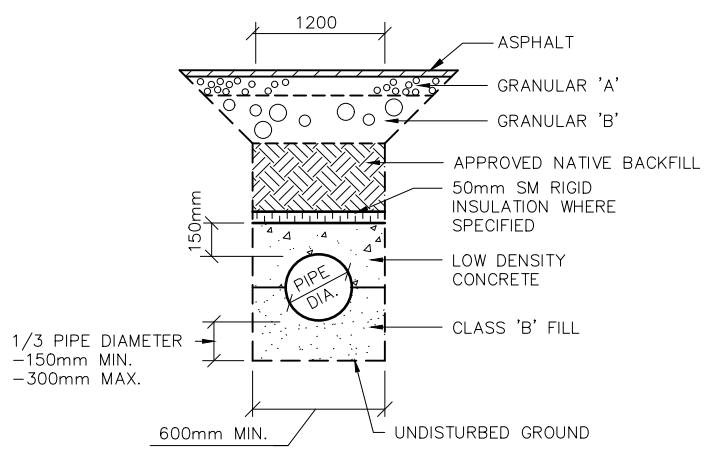


SITE STATISTICS

ITEM	PROPOSAL	ZONING BYLAW REQUIREMENTS	COMPLIANCE ✓ MEETS REQUIREMENTS X REZONING REQUIRED
ZONING CATEGORY	CBD	CBD	✓
LOT AREA (sq. m.)	1633.66	-	✓
LOT FRONTAGE (m)	32.75±	-	✓
GROUND FLOOR AREA (sq. m.)	456.86	**	✓
TOTAL GROSS FLOOR AREA (sq. m.)	1370.6±	N/A	✓
LOT COVERAGE	27.9%	80% MAX.	✓
STREET SETBACK (m)	2.00	0.00 MIN./3.0 MAX.	✓
REAR YARD (m)	20.54	0.00 6.00 MIN ABUTTING RESIDENTIAL	✓
SIDE YARD (m)	2.75	0.00 1.20m ABUTTING RESIDENTIAL	✓
NUMBER OF PARKING SPACES	16	•	✓
NUMBER OF BARRIER FREE PARKING SPACES	2	•	✓
PARKING STALL DIMENSIONS (m)	3.00 x 5.80	3.00 x 5.80	✓
BARRIER FREE PARKING STALL DIMENSIONS (m)	4.90 x 5.50	4.90 x 5.50 (TYPE 'A')	✓
BUILDING HEIGHT (m)	3 STOREYS	6 STOREYS MAX.	✓

\* 4.11.1.1 NOTWITHSTANDING SUBSECTION 4.9, NO PARKING SPACES ARE REQUIRED FOR ANY LANDS IDENTIFIED IN THE CENTRAL BUSINESS DISTRICT ZONE (CBD)

\*\*ANY DWELLING UNITS IN THE CBD ZONE SHALL NOT OCCUPY MORE THAN 50 PERCENT OF THE USABLE FLOOR AREA OF THE FIRST STOREY, AND THE FRONTAGES OF THE FIRST STOREY SHALL BE DEDICATED TO RETAIL, OFFICE OR SERVICE USES (66-Z-2018)

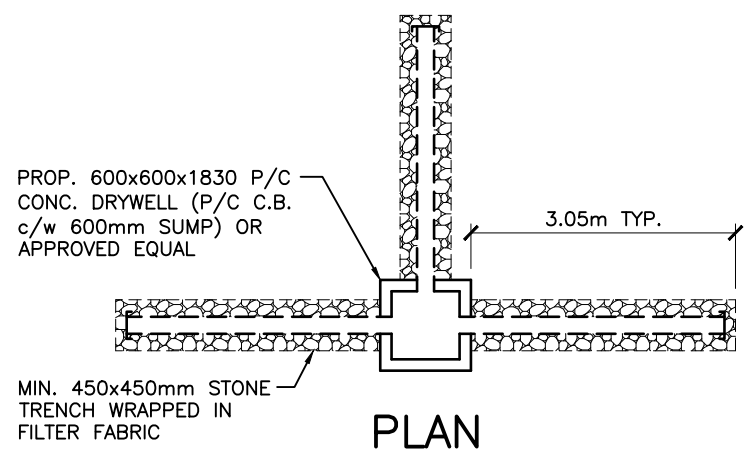


TYP. PIPE INSULATION DETAIL

N.T.S.

SANITARY SYSTEM			
MH No.	DESCRIPTION	T/G	INVERTS
S1	SANITARY INSPECTION MH	230.40	N 228.40 S 228.37

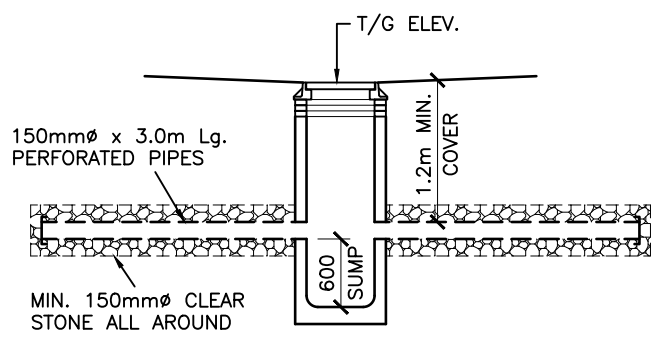
STORM SYSTEM			
MH No.	DESCRIPTION	T/G	INVERTS
ST1	0.6x0.6x1.83m P/C CB	230.20	S 229.43



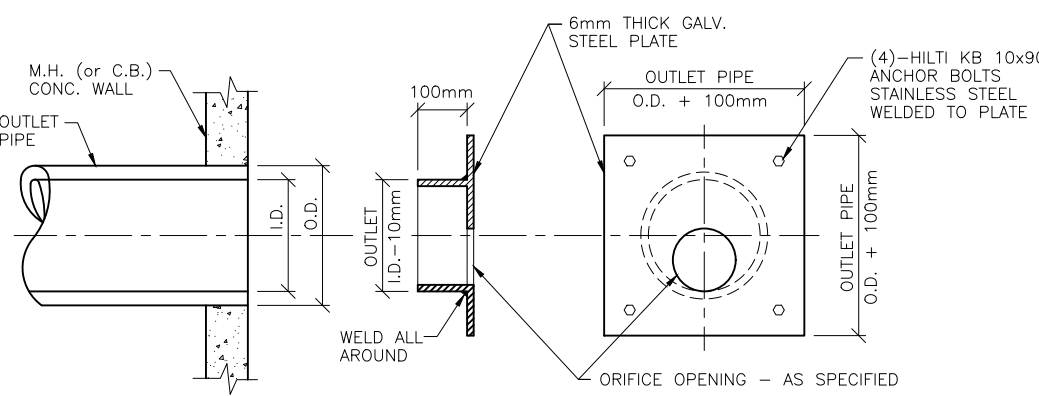
PLAN

PROPOSED DRYWELL DETAIL

N.T.S.



SECTION



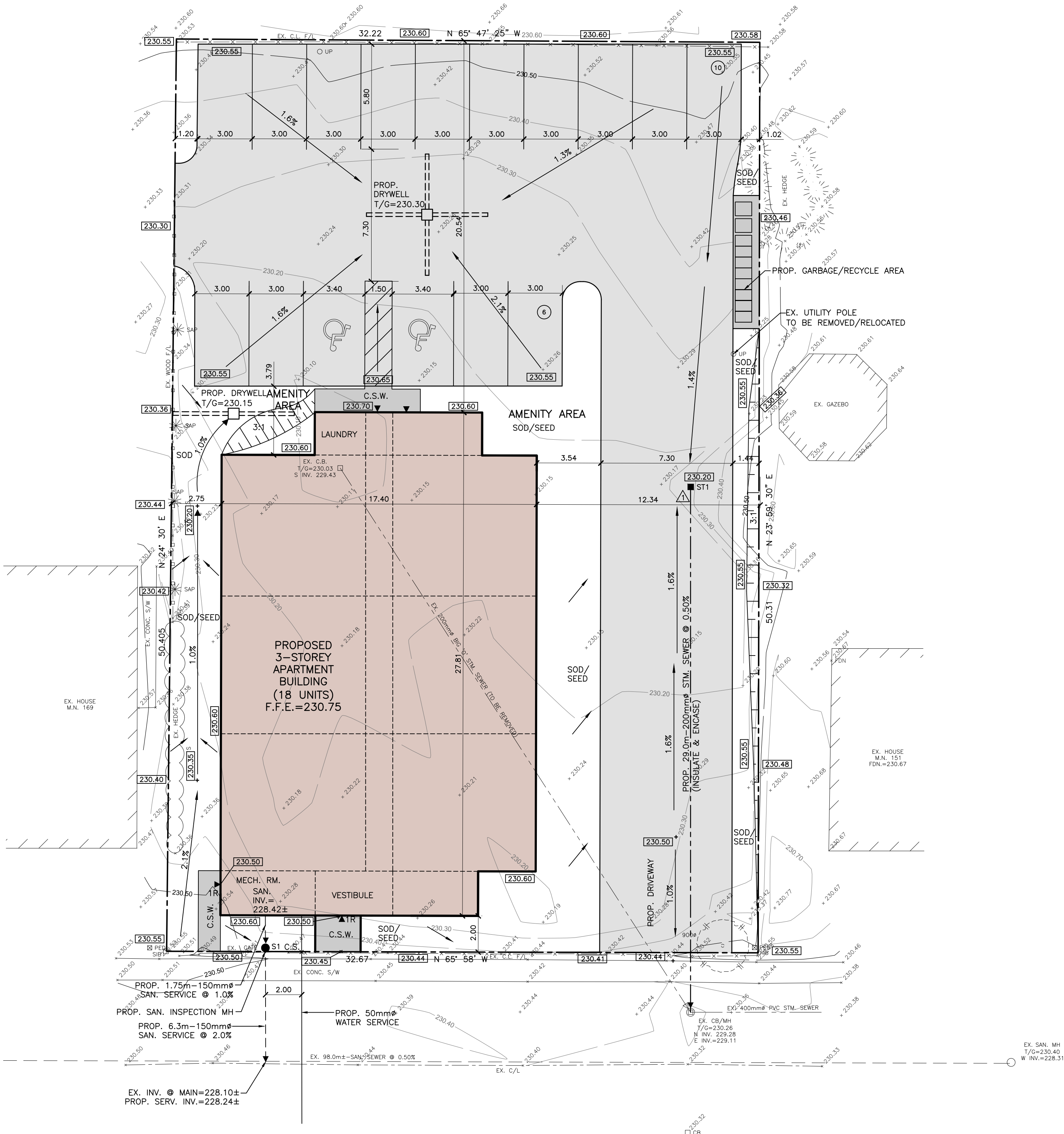
FLOW CONTROL DEVICE ORIFICE PLATE

N.T.S.

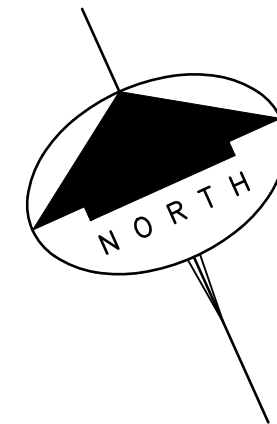
C.B. ORIFICE PLATE SIZING	
ORIFICE PLATE CONFIGURATION NUMBER	DIAMETER OF ORIFICE PLATE OPENING
1	75mm

EX. SAN. MH  
T/G=231.43  
E INV.=227.32

D=1 WV



WELLINGTON AVENUE



LEGEND:

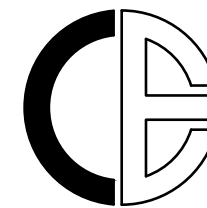
- EXISTING ELEVATIONS
- PROPOSED ELEVATIONS
- PROPOSED SWALE ELEVATIONS
- PROPOSED SWALE
- GENERAL DRAINAGE

NOTES:

- ALL ELEVATIONS SHOWN ARE METRIC.
- BUILDER/OWNER TO VERIFY COMPLIANCE WITH ZONING BYLAWS (i.e. SIDEYARDS, SETBACKS, REARYARDS ETC.)

T.B.M. No. 1 ELEV. = 231.54m (GEO)  
TOP NUT OF FIRE HYDRANT AS SHOWN.

NO.	REVISION	DATE (MM/DD/YY)	BY
2	GRADING & ORIFICE PLATE	01/18/22	S.L.M.
1	BUILDING/PARKING LAYOUT	10/20/21	S.L.M.



J.H. COHOON  
ENGINEERING  
LIMITED  
CONSULTING ENGINEERS

440 HARDY ROAD, UNIT #1, BRANTFORD - ONTARIO, N3T 5L8  
TEL. (519) 753-2656 FAX. (519) 753-4263 www.cohooneng.com

PROJECT:

PROPOSED  
APARTMENT DWELLING  
161 WELLINGTON AVENUE, DELHI  
NORFOLK COUNTY

CLIENT:

NEXJEN RENTAL CORPORATION

SITE DEVELOPMENT PLAN

DESIGN:	J.H.C.	SCALE:	1:150
DRAWN:	S.L.M.	JOB No:	14591
CHECKED:	R.W.P		
SHEET:	1 of 1	DWG. No:	14591-1
DATE:	JULY 20, 2021		



**THE ANGRISH GROUP**

156 Charing Cross Street, Brantford, ON N3R2J4

## **Planning Justification Report**

161 Wellington Avenue, Delhi, Norfolk County

Prepared For: Nextjen Rental Corporation

Prepared By: The Angrish Group

December 23, 2021



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## **1. Introduction and Background**

The Planning Justification Report (PJR) has been prepared by The Angrish Group in support of the Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBA) Applications for the property located at 161 Wellington Avenue, Delhi, Norfolk County.

The property has been recently purchased by Nextjen Rental Corporation from Norfolk County. The County Council had deemed the lands surplus and the site was purchased in 2021 by Nextjen with the intention to construct a rental apartment building to provide affordable housing options for the community.

Since the lands are located within the Downtown Designation in County's Official Plan and zoned as such, commercial uses must be located on the first floor of the buildings in these areas. Hence an OPA and ZBA application is required to waive the requirement of the commercial uses on the main floor of the building.

The PJR will provide an analysis of the provincial and municipal planning framework and provide a professional planning opinion related to the proposed OPA and ZBA Applications required for the development of lands.

## **2. Location and Description of Subject Lands**

The site is located in the north-west region of the Urban Area of Delhi. The lands are described as Part Lot 18 Block 37 Plan 189 and located at 161 Wellington Avenue, Delhi, Norfolk County.

The subject lands are rectangular in shape and approximately 1643 square meters (0.41 acres) in size with a frontage of 32.75 meters (107 feet) on Wellington Avenue.

The property is located on the north side of Wellington Avenue, east of Main Street of Delhi, west of Queen Street and south of Eagle Street.

The lands are located within the downtown core of Delhi and have been undeveloped since 1990s. The property is surrounded by a mix of commercial and residential uses. Single detached dwellings are predominantly located to the east, south and west of the site. To the north of the lands is a grocery store.

There are no natural heritage features located on or near the property.

Map 1 below shows the location of the property and the surrounding lands.

Map 1: Location of Subject Lands



### **3. Proposal**

The application proposes a three (3) storey, eighteen (18) unit apartment building to be constructed on the property along with 16 parking spaces which include 2 barrier free parking spots for the future residents.

The lands are currently designated Downtown in the Norfolk County Official Plan (2018) (the "Official Plan"). The Downtown Designation promotes residential units that are only permitted above the main floor and on the ground floor in the rear of the building, provided that the street frontage is maintained for commercial uses. A site-specific amendment to the current Official Plan designation is requested to permit residential units on the entire main floor to provide affordable housing options for the community.

The property is currently zoned Central Business District (CBD) Zone in the Norfolk County Zoning By-Law 1-Z-14. CBD zoning allows for dwelling units subject to a specific criteria which requires 50% of the usable floor area of the first storey shall only be dedicated to the commercial uses. The proposal provides 18-unit apartment building on the property including residential units on the entire main floor and hence requiring an

amendment to the Zoning By-Law. The apartment building will meet all other requirements of the By-Law. As per Section 4.11 of the Zoning By-Law, no parking spaces are required in the Central Business District (CBD) Zones, however, 16 spaces for the residents including 2 barrier free spaces are provided for the proposed development.

The site is serviced by full municipal services including water, wastewater and storm systems.

There are no natural heritage features noted on the property.

A Site Plan Control Application will also be submitted for the proposed development which will outline the details of site including fencing, lighting, parking, urban design elements, elevations, landscaping, etc.

A pre-consultation meeting with County staff and various relevant agencies was held on June 4, 2021 to discuss the proposed apartment dwelling on the property. The following items were requested by the County staff for the Official Plan Amendment and Zoning By-Law Amendment applications:

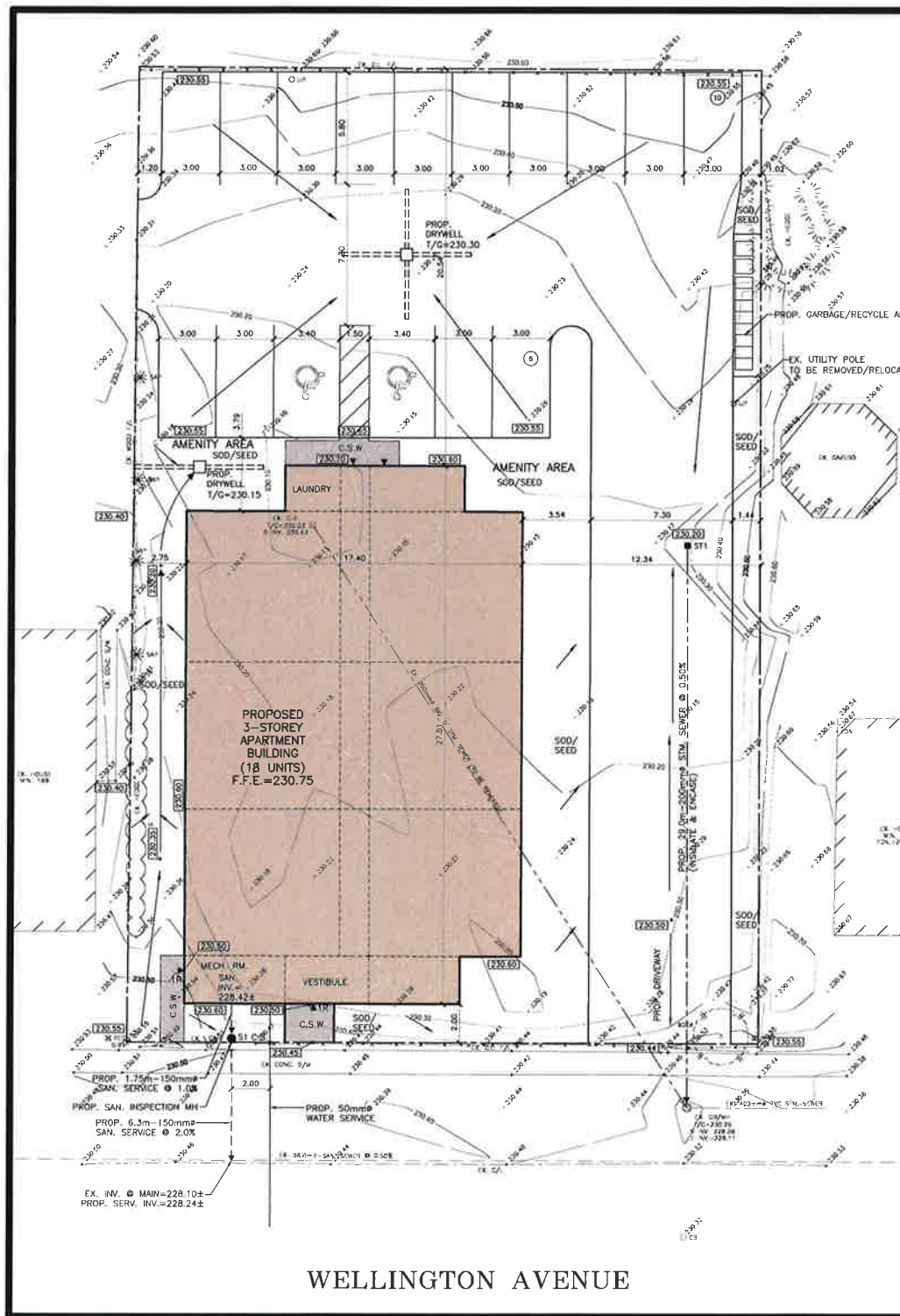
- Planning Justification Report
- Proposed Site Plan
- Landscaping Plan
- Elevation Plan
- Photometric (Lighting) Plan
- Shadow Analysis Report
- Servicing Plan
- Lot Grading and Erosion Control Plan
- Functional Servicing Report
- Water and Sanitary Modelling
- Stormwater Management Report
- Traffic Impact Study

The technical information noted above is included as part of the Complete Application Submission.

A Site Development Plan is shown as Map 2 and forms part of the application submission. A site statistics table is included on the Site Development Plan which outlines the proposed development and compliance with the CBD Zone. All requirements of the CBD zone in terms of height of the building, setbacks, etc. are met.



**Map 2: Site Development Plan**



## 4. The Policy Context

The application is subject to the provisions of the Planning Act, as amended. All Planning Act applications are evaluated to ensure that the proposal is consistent with the Provincial Policy Statement (2020) and is in conformity with the Official Plan. This section demonstrates that the proposed application is consistent with, and conform to, the applicable provincial and local planning policy framework.

### 4.1. Provincial Policy Statement (2020)

The Provincial Policy Statement, 2020 (PPS) is issued in accordance with Section 3 of the Planning Act and came into effect on May 1, 2020. Section 3 of the Planning Act requires that decisions affecting planning matters “shall be consistent with” the PPS.

The PPS provides policy direction on matters of provincial interest related to land use planning and development in Ontario and sets the policy foundation for regulating the development and use of land. The PPS encourages efficient development patterns that support sustainability by promoting strong, livable, healthy, and resilient communities, protecting the environment and public health and safety, and facilitating economic growth.

Policy 1.1.3 states that the settlement areas shall be focus of growth and development. Appropriate range and mix of housing types and densities are highlighted in Policy 1.4.

*The subject property is located within the Urban Area of Delhi, is fully serviced by municipal water and sanitary services and intensifies the existing area. The site is located within the built-up area of Delhi. The lands are designated Downtown in the Official Plan. The proposed development will provide affordable housing options for the community.*

*The proposal meets the intensification policies by utilizing the vacant lands within the downtown core of an urban area.*

*The development will contribute towards the intensification density targets of the County. The residential development will provide a compact and affordable housing option in the area while maintaining appropriate level of public health and safety.*

*Municipal water and sewage are available for the development of these lands. A Functional Servicing Report, a Water and Wastewater Modeling Report and a Stormwater Management report has been included in the complete application submission to address the servicing matters. A Traffic Impact Analysis has been completed and will address any matters related to traffic improvements.*

It is my professional opinion that the proposal is consistent with the Provincial Policy Statement (2020).

## 4.2. Official Plan (2018)

The Official Plan was adopted by County Council in 2006 with the five-year review completed in 2018. The Official Plan was approved by the Ministry of Municipal Affairs and Housing on October 5, 2018. The Official Plan provides a framework of objectives and strategies, land use designations and policies intended to guide the future growth and development in the County which will result in strong, balanced, sustainable, and complete communities.

*The subject site is located within the Urban Area Boundary of Delhi and is designated Downtown in the Official Plan. An excerpt from the Land Use Schedule-B with the location of the property is shown on Map 3 below.*

Map 3: Official Plan Excerpt



Section 2.2.3 highlights maintaining and enhancing County's cultural landscapes including protecting the unique characteristics of its Urban Areas and encourages revitalization and reuse of underutilized lands.

*The proposed development utilizes the vacant lands within the existing built-up area of Delhi. The apartment building will be designed to complement the urban design elements from the existing neighbourhood and will provide variety of housing options for the community.*



Section 5.0 provides policy direction on Maintaining Healthy Communities by providing economically strong areas, protecting natural and cultural heritage, ensuring the appropriate provision of housing, developing attractive and safe neighbourhoods and providing efficient movement of people and goods. Section 5.3 provides guidance on the Housing.

*The subject lands are vacant, situated in the downtown area and are surrounded by an existing residential neighborhood. The property is located in the Built-Up Area of Delhi. The proposed apartment building provides for affordable housing options for the community within the Downtown Area of Delhi and adds to the housing stock of the area.*

Section 5.3.1 states policies for Residential Intensification in the County. The policies recognize the need for intensification of existing areas for the efficient use of existing urban services.

Section 5.3.1.b notes that "The County shall target that a minimum 25 percent of its annual residential growth be accommodated through infill, intensification and redevelopment within the existing built-up areas in the Urban Areas with full municipal services."

*The proposed infilling development on underutilized lands within the built-up area will contribute towards the residential growth targets noted in the Official Plan.*

Section 5.3.1.f. of the Official Plan provides a criteria for infilling developments.

*The proposal is located in an Urban Area where full municipal services are available. Functional Servicing and Traffic Impact Analysis has been completed for the proposed development and has been included with the complete submission. The studies determine that the existing infrastructure is sufficient for the proposed development. The lands are surrounded by commercial uses and low density residential uses. The three storey building will be in keeping with the surrounding neighbourhood.*

Section 6.4 provides the policy framework for the Urban Areas, which function as the focal points for growth and development activity. These areas provide a full range of housing types, are on full municipal services and promote infilling and intensification of areas.

*The subject lands are located in the Delhi Urban Area and are serviced by municipal water and wastewater. No extension of municipal services will be required for the proposed development. The proposal will further intensify the existing underutilized area of the County. The location of the site in close proximity to commercial uses provides necessary amenities to the future residents.*

Section 6.4.1 of the Official Plan provides planned functions for Downtown Areas and notes them as primary activity centres for the County and the location for a wide range of uses, including retail, service commercial, cultural, recreational, entertainment, business



and professional, governmental, institutional, arts and cultural, community, employment, and residential uses. Section 6.5.3 highlights policies for Delhi Urban Area.

*The proposed development will provide affordable housing options for the community. The existing commercial area within the neighbourhood will provide amenities to the future residents.*

Section 7.8 provides policy guidance for Downtown Designation. Permitted uses include a wide variety of commercial uses and residential subject to Section 7.8.1.b:

b) Residential uses shall be permitted, provided that the uses do not negatively impact the planned function of the Downtown Designation, subject to the following provisions:

- i) in a building of commercial character, residential uses shall only be permitted above the ground floor and on the ground floor in the rear of the building, provided that the street frontage is maintained for commercial uses; and
- ii) in an existing building of residential character, residential uses (either a single detached dwelling or multiple residential dwellings), and/or commercial uses shall be permitted, provided the residential character of the building is maintained.
- iii) for the purposes of this policy, the residential or commercial character of a building may be determined in consultation with the Chief Building Official of the County.
- iv) new low density housing forms, such as single detached and semi- detached dwellings will be discouraged in the Downtown designation.
- v) rental and ownership forms of housing will be encouraged.

*The apartment building is proposed on the site within the Downtown Designation which will provide rental form of housing for the community. A special provision is requested to allow residential along the entire main floor.*

Section 7.8.2 provides land use policies for this designation.

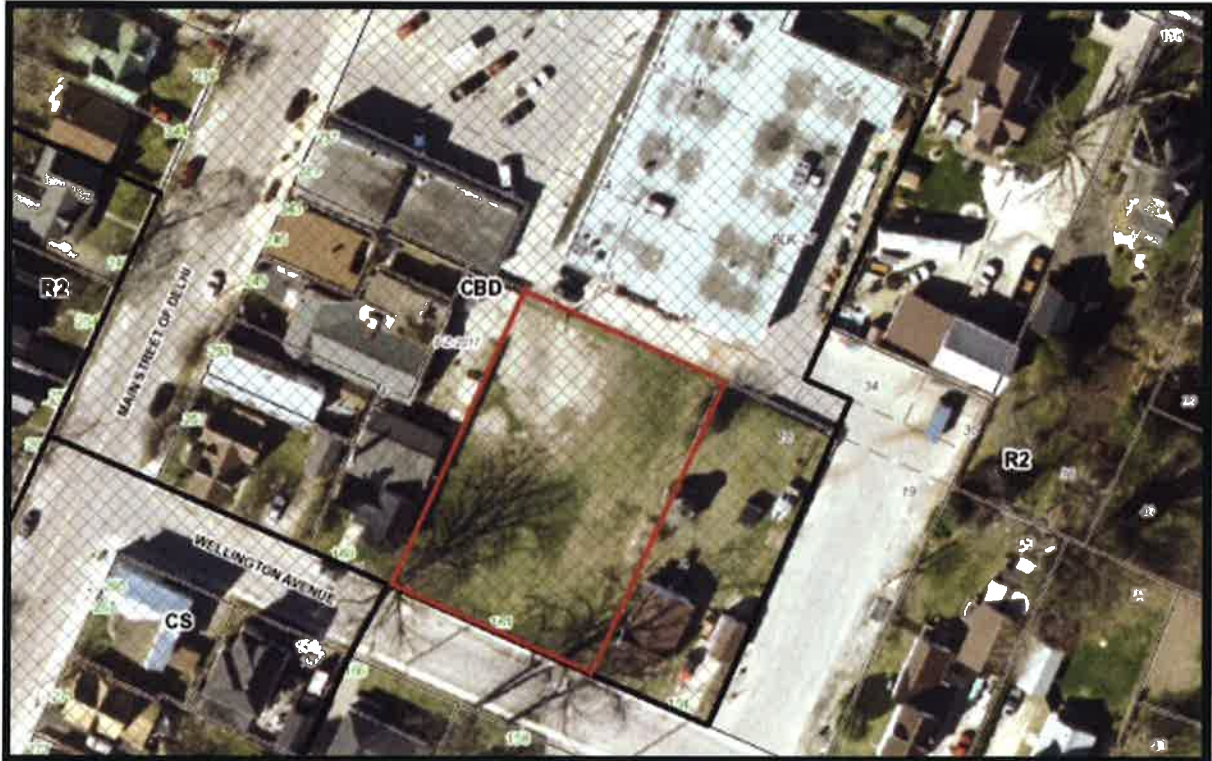
*The lands front on a public street and are fully serviced by municipal infrastructure. No extension of municipal services are required for the development of this site. The property is located within the edge of Downtown Core of Delhi providing necessary amenities to the future residents. Appropriate buffering will be provided between the existing uses and the proposed development to reduce any impact on the adjoining properties. The parking spaces for the future residents and visitors are provided at the rear of the property adjoining the grocery store to reduce any land use conflict. The site is surrounded by residential uses and the proposed main floor residential will be in keeping with the character of the area. A Site Plan Control Application will be submitted to achieve well-designed, functional and accessible built form.*

It is my professional opinion that the proposed Applications conform to the policies of the Norfolk County Official Plan.

### 4.3. Zoning By-Law

The site is zoned Central Business District (CBD) Zone on Schedules A-20 & A-21 (Map 3 below) in the Norfolk County Zoning By-Law 1-Z-2014.

Map 3: Zoning Map



As per Section 6.0 of the Zoning By-Law, apartment dwellings are permitted subject to the following criteria outlined in Section 6.1.4:

#### 6.1.4 Location and Use of First Storey

Any dwelling units in the CBD Zone shall not occupy more than 50 percent of the usable floor area of the first storey, and the frontages of the first storey shall be dedicated to retail, office or service uses. [66-Z-2018]

*It is proposed to amend the By-Law 1-Z-14 to allow the entire main floor for residential apartment units. All other provisions of the By-Law will be complied with for the proposed development.*

It is my professional opinion that the proposed amendment complies with the general intent of the Zoning By-Law.

## 5. Summary and Recommendations

The proposed Zoning By-Law Amendment and Official Plan Amendment Applications will allow for intensification of an underutilized parcel within the Urban Area of Delhi. The proposed development is designed to reflect the growth management policies as well as to meet the density requirements set out by the Province and reflected in the Norfolk County Official Plan. The apartment building will provide for affordable housing options for the community.

It is my professional opinion that the proposed applications are:

- consistent with the Provincial Policy Statement;
- conforms with the policies of the Norfolk County Official Plan; and
- complies with the regulations of the Norfolk County Zoning By-Law 1-Z-2014.

The proposed Zoning By-Law Amendment and Official Plan Amendment Applications represent good land use planning, and it is requested to the Council of the Norfolk County that the applications be approved.

Respectfully Submitted,

**TAG – The Angrish Group**

Ruchika Angrish, MPlan, B.Tech, MCIP, RPP  
Co-Founder

CC: J.H. Cohoon Engineering Ltd.  
Angelo Cappucci, owner

*I hereby certify that this Planning Justification Report was prepared by a Registered Professional Planner, within the meaning of the Ontario Professional Planners' Institute Act, 1994.*



December 23, 2021

I hereby certify that this plan/report was prepared by a Registered Professional Planner,  
within the meaning of the Ontario Professional Planners Institute Act 1994.

Dec 23, 2021

Date

Ruchika Angrish  
Registered Professional Planner



161 WELLINGTON AVE. APARTMENTS



DRAWING SHEET LIST

ARCHITECTURAL

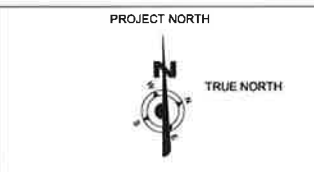
- A101 - COVER
- A102 - SITE PLAN
- A103 - FOUNDATION PLAN
- A104 - FIRST FLOOR PLAN
- A105 - SECOND FLOOR PLAN
- A106 - THIRD FLOOR PLAN
- A107 - ROOF PLAN
- A108 - ELEVATIONS
- A109 - ELEVATIONS
- A110 - BUILDING SECTIONS
- A111 - ENLARGED SUITE PLAN
- A112 - MILLWORK
- A113 - STAIR SECTIONS
- A114 - FIRST FL. KEY MAP
- A115 - SECOND FL. KEY MAP
- A116 - THIRD FL. KEY MAP
- A117 - SCHEDULES
- A118 - BASIC UNIT 3D VIEWS
- A119 - ADA UNIT 3D VIEWS



406 HENRY ST. UNIT 1  
BRANTFORD, ONTARIO, CANADA N3S 7W1  
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EMAIL: design@paulsan.com  
www.paulsan.com

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  - 2. ALL WORK SHALL COMPLY WITH THE 2012 ONTARIO BUILDING CODE AND AMENDMENTS.
  - 3. CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND SPECIFICATIONS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
  - 4. ALL CONTRACTORS AND SUB-CONTRACTORS SHALL HAVE A SET OF APPROVED CONSTRUCTION DOCUMENTS ON SITE AT ALL TIMES.
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REVISIONS	No.	DATE	BY

Project  
161 WELLINGTON AVE.  
DELHI, ON N4B 1S4  
NEW 18 UNIT APARTMENT

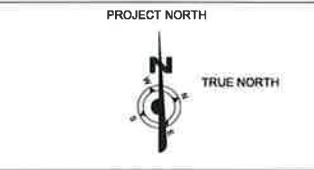
COVER

Project Number	21-005	Scale	1 : 10
Date	21-12-01	Sheet No.	
Drawn by	ZH		
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A101

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Project  
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NEW 18 UNIT APARTMENT

FOUNDATION PLAN

Project Number	21-006	Scale	1 : 50
Date	21-12-01	Sheet No.	
Drawn by	ZH		
Checked by	PM		

**A103**

1 T/O FOOTING  
1 : 50



PROJECT NORTH



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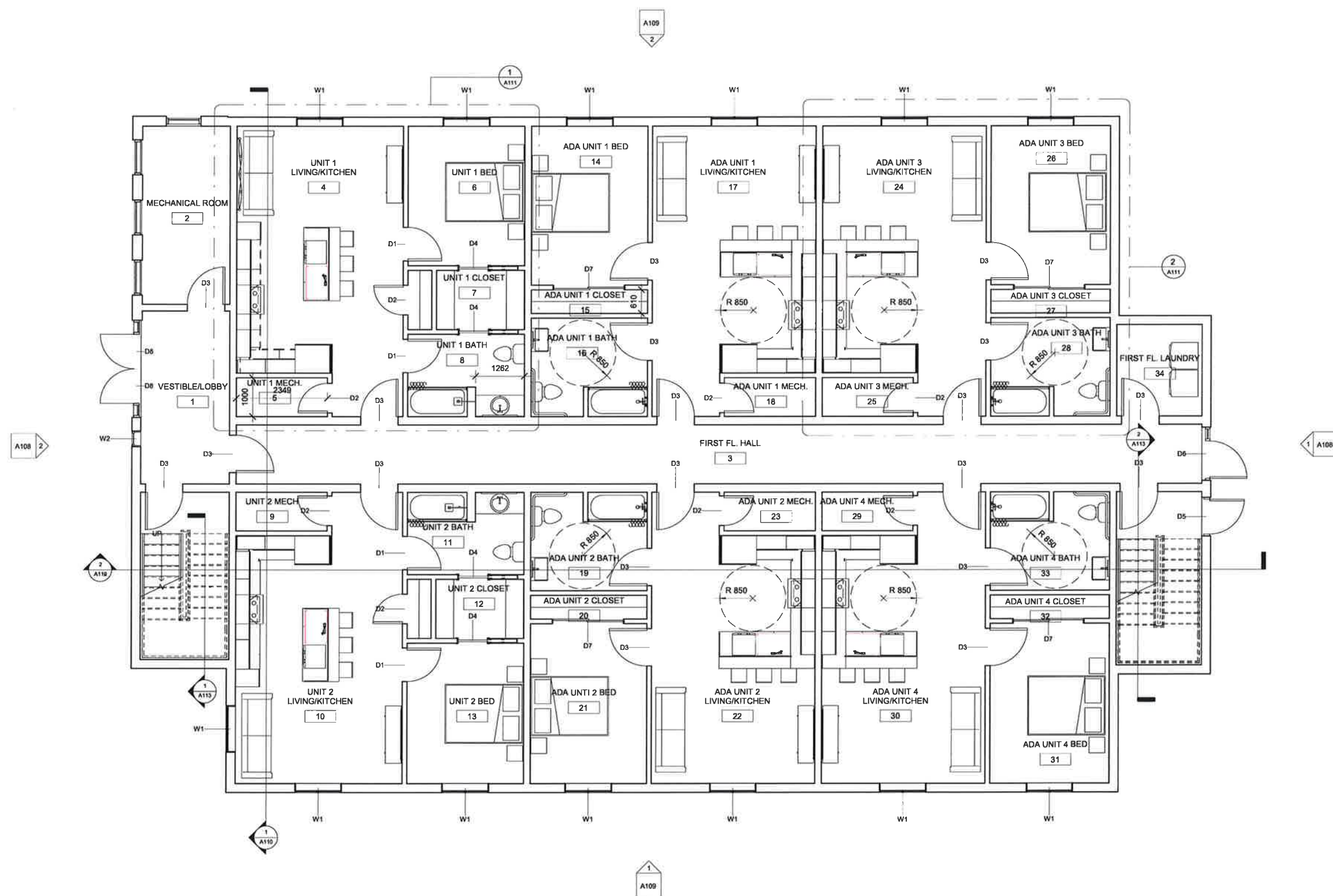
**Project**

**161 WELLINGTON AVE.  
DELHI, ON N4B 1S4**

**NEW 18 UNIT APARTMENT**

FIRST FL. PLAN

Project Number	21-005	Scale	1:50
Date	21-12-01	Sheet No.	<b>A104</b>
Drawn by	ZH		
Checked by	PM		

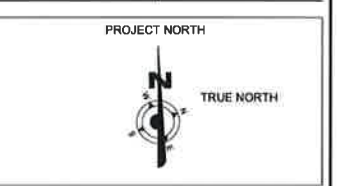


1 FIRST FL.  
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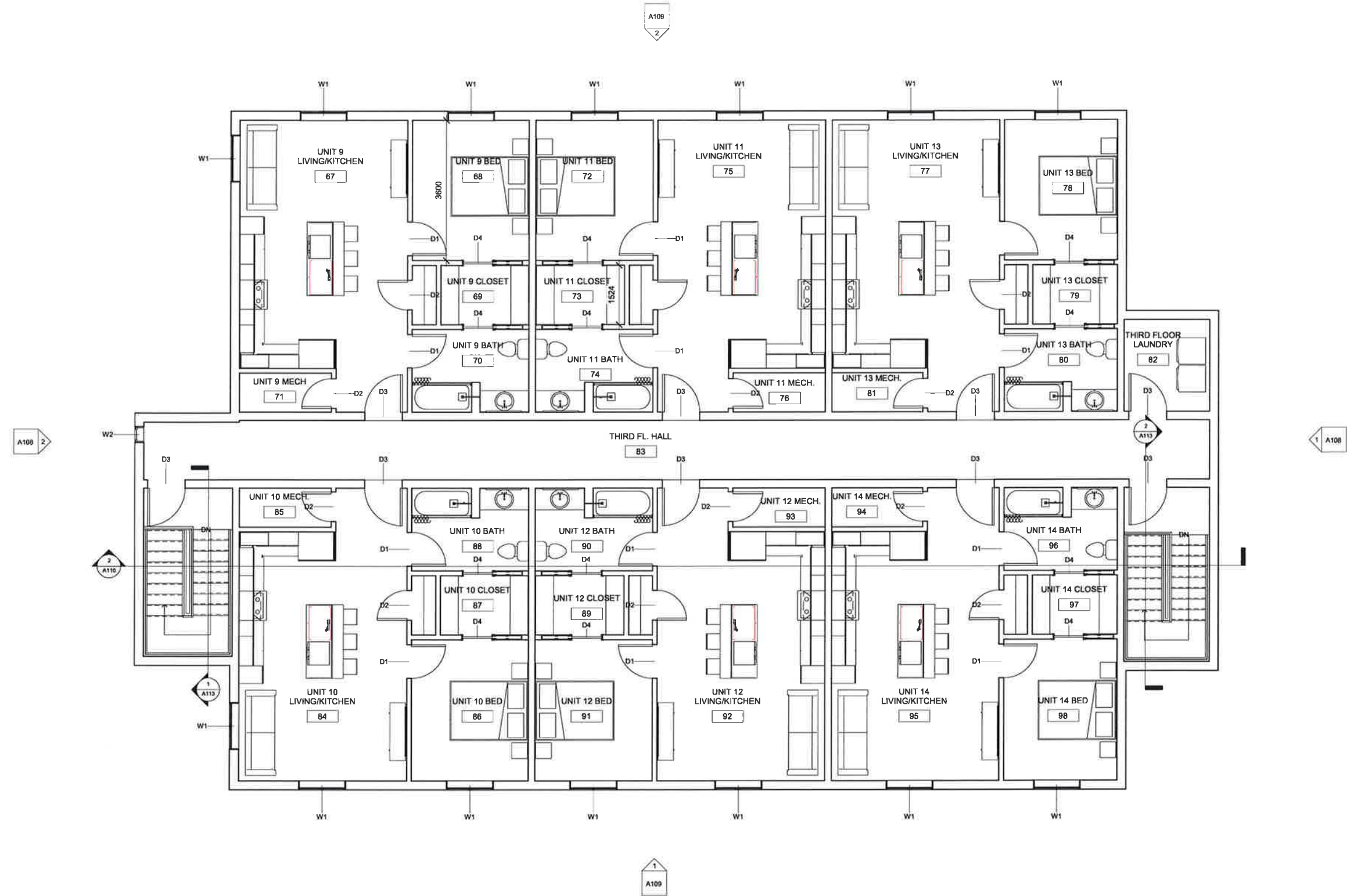
Project  
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NEW 18 UNIT APARTMENT

**THIRD FL. PLAN**

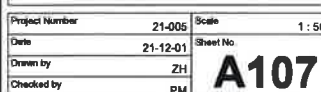
Project Number	21-005	Scale	1 : 50
Date	21-12-01	Sheet No.	
Drawn by	ZH		
Checked by	PM		

**A106**

**1 THIRD FL.**  
1 : 50







Stamp	Stamp
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PROJECT NORTH



**GENERAL NOTES**

1. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS.
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<input checked="" type="checkbox"/> PRELIMINARY FOR REVIEW	21-12-01
<input type="checkbox"/> ISSUED FOR TENDER	
<input type="checkbox"/> ISSUED FOR PERMIT	
<input type="checkbox"/> ISSUED FOR CONSTRUCTION	

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REVISIONS	No.	DATE	BY

Project  
161 WELLINGTON AVE.  
DELHI, ON N4B 1S4  
NEW 18 UNIT APARTMENT

**ELEVATIONS**

Project Number	21-005	Scale	1 : 80
Date	21-12-01	Sheet No.	
Drawn by	ZH		
Checked by	PM		

**A108**



1 BACK  
1 : 60



2 FRONT  
1 : 60

Stamp	Stamp
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PROJECT NORTH



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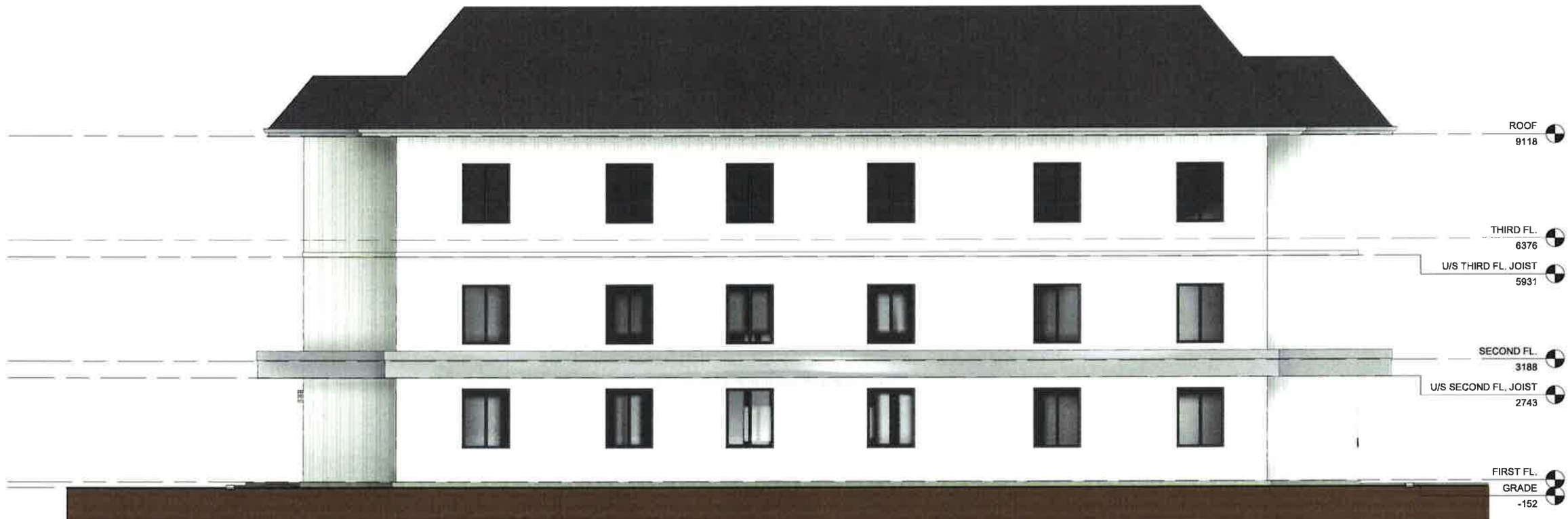
REVISIONS	No.	DATE	BY

Project  
161 WELLINGTON AVE.  
DELHI, ON N4B 1S4  
NEW 18 UNIT APARTMENT

**ELEVATIONS**

Project Number	21-005	Scale	1 : 80
Date	21-12-01	Sheet No	
Drawn by	ZH		
Checked by	PM		

**A109**



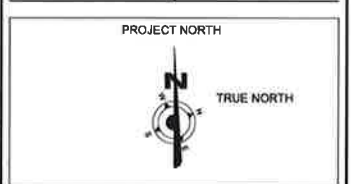
1 RIGHT  
1 : 60



2 LEFT  
1 : 60



Stamp	Stamp
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- GENERAL NOTES**
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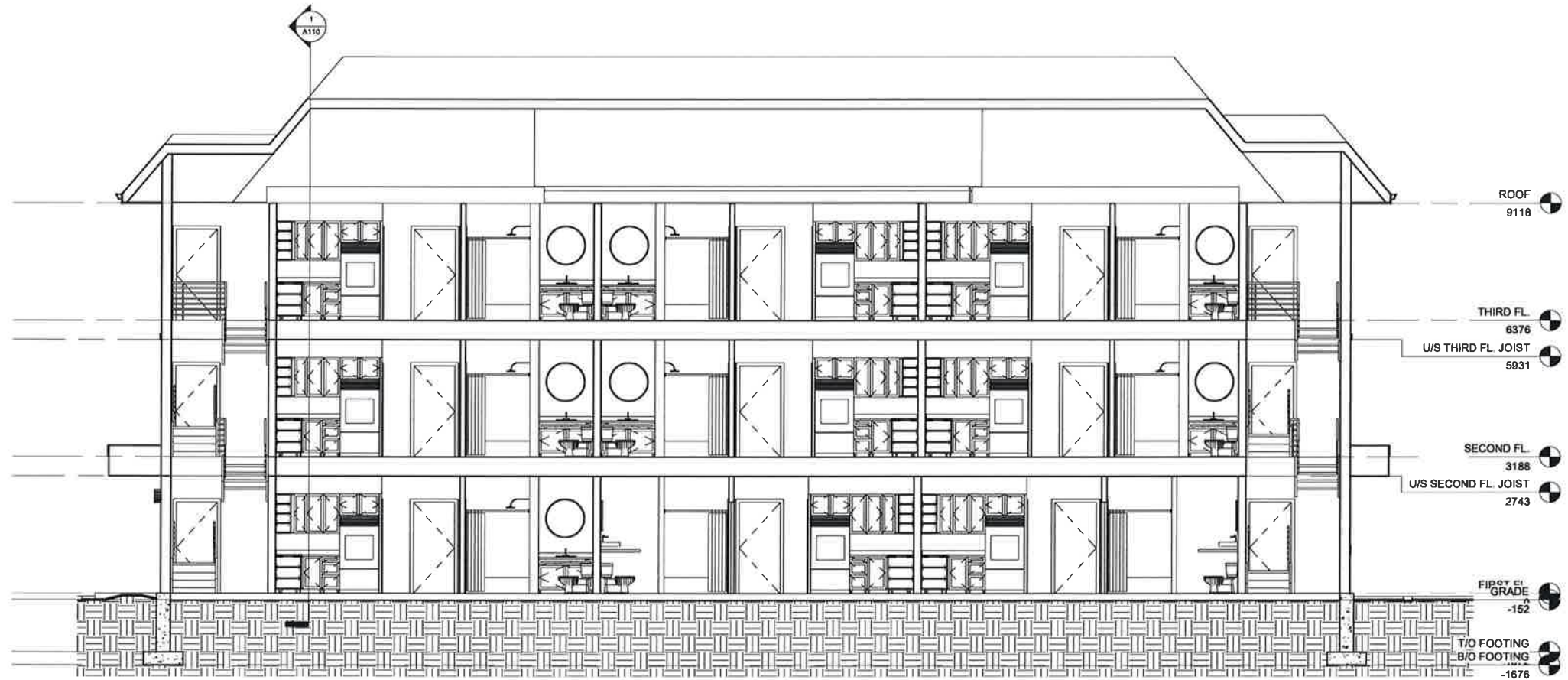
REVISIONS	No.	DATE	BY

Project  
161 WELLINGTON AVE.  
DELHI, ON N4B 1S4  
NEW 18 UNIT APARTMENT

Project Number 21-005		Scale 1 : 60
Date 21-12-01	Sheet No.	<b>A110</b>
Drawn by ZH		
Checked by PM		

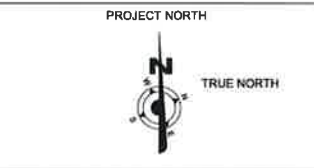


**SECTION 1**  
1 : 60



**SECTION 2**  
1 : 60

Stamp	Stamp
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- GENERAL NOTES**
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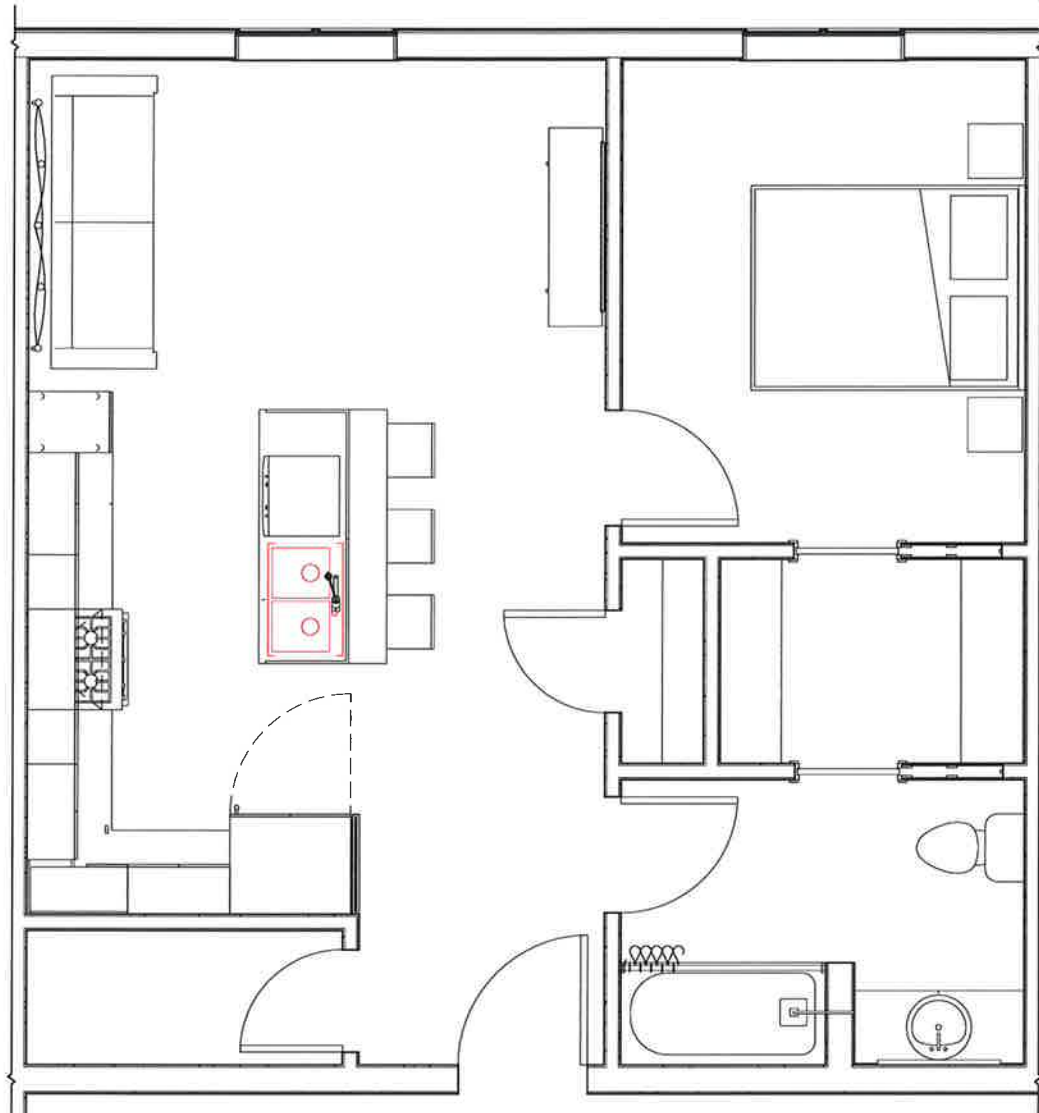
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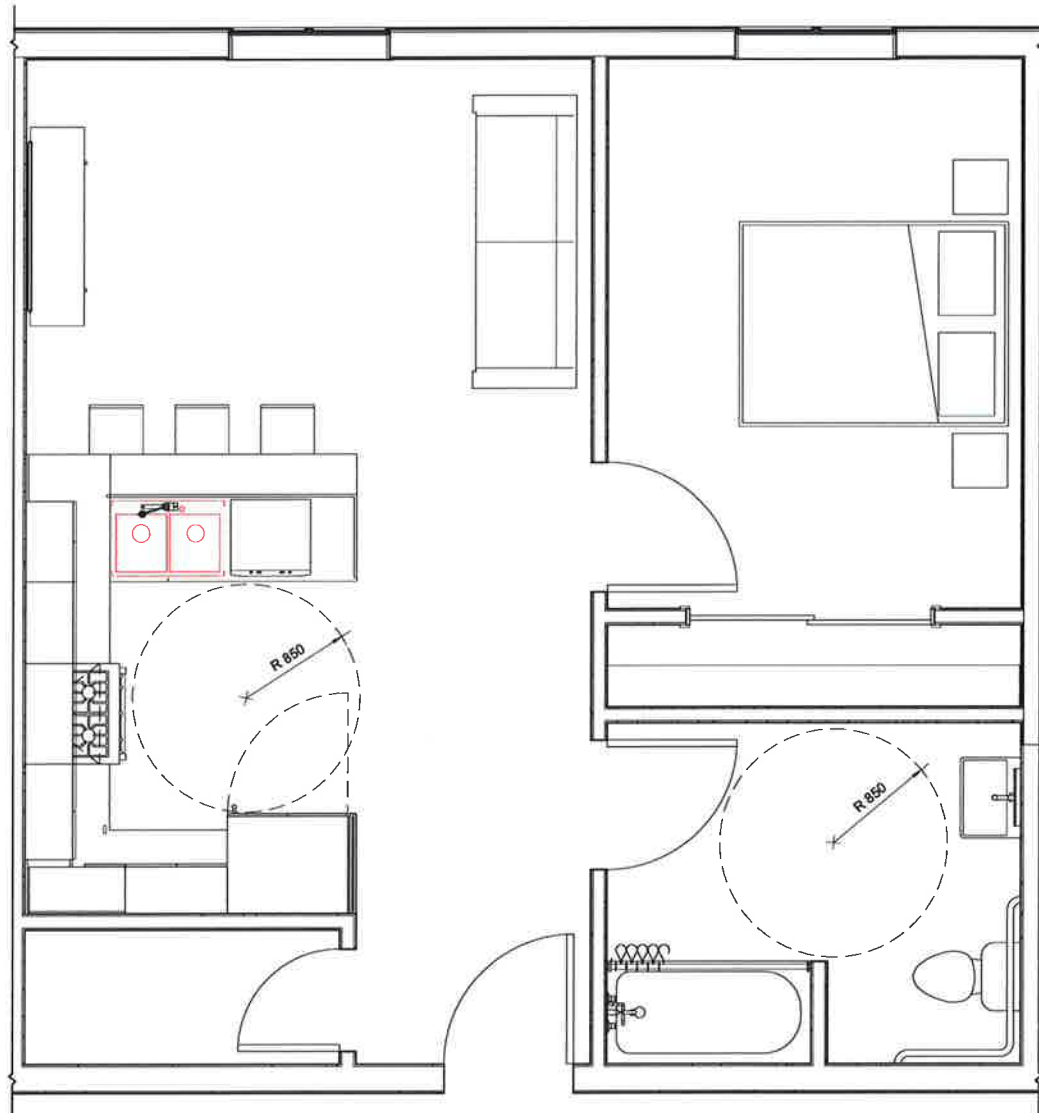
Project  
161 WELLINGTON AVE.  
DELHI, ON N4B 1S4  
NEW 18 UNIT APARTMENT

**ENLARGED SUITE PLANS**

Project Number	21-006	Scale	1:25
Date	21-12-01	Sheet No.	<b>A111</b>
Drawn by	ZH		
Checked by	PM		



1 ENLARGED SUITE PLAN  
1:25



2 ENLARGED ADA SUITE  
PLAN  
1:25



Stamp	Stamp
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PROJECT NORTH



**GENERAL NOTES**

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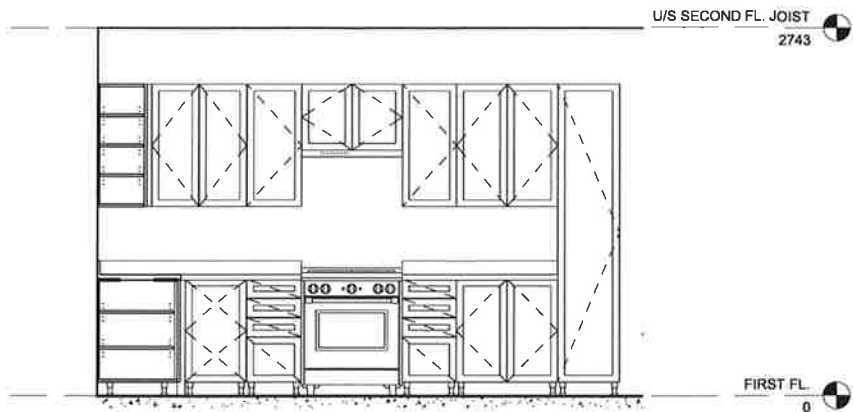
REVISIONS	No.	DATE	BY

Project  
161 WELLINGTON AVE.  
DELHI, ON N4B 1S4  
NEW 16 UNIT APARTMENT

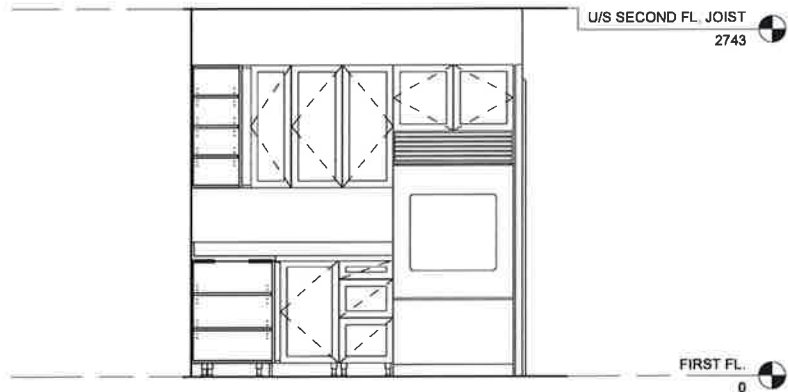
**MILLWORK**

Project Number	21-005	Scale	1 : 25
Date	21-12-01	Sheet No.	
Drawn by	ZH		
Checked by	PM		

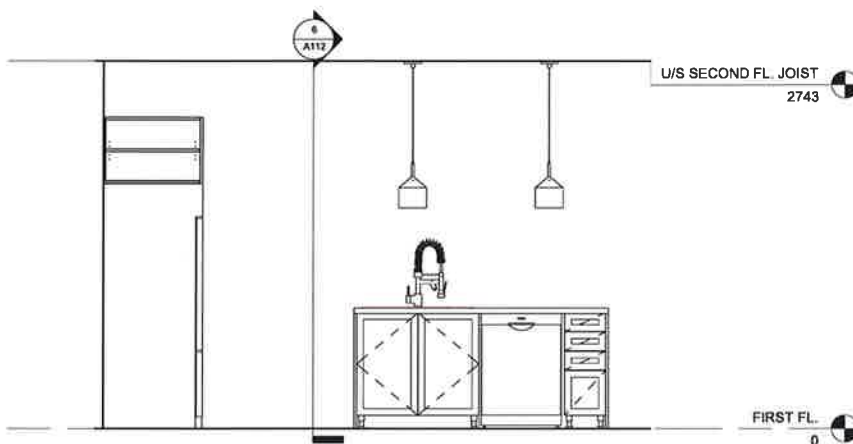
**A112**



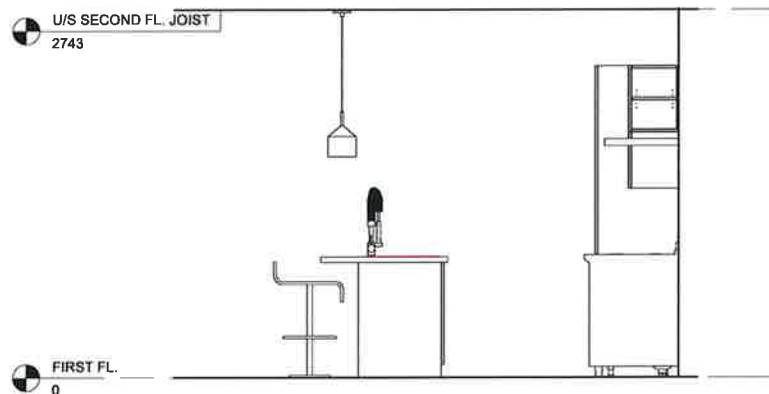
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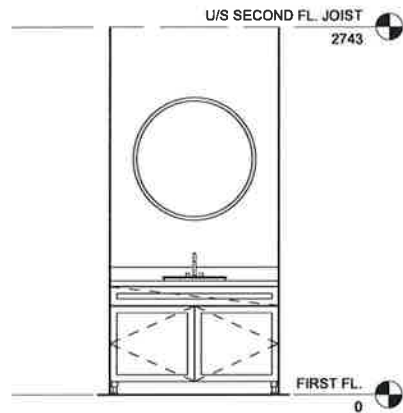
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1 : 25



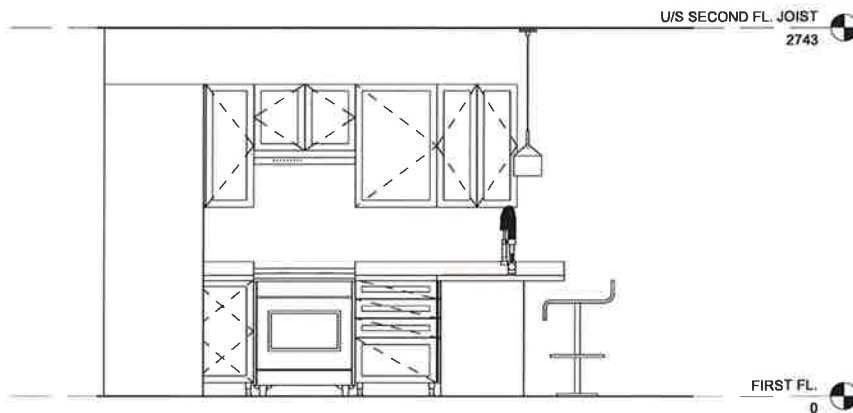
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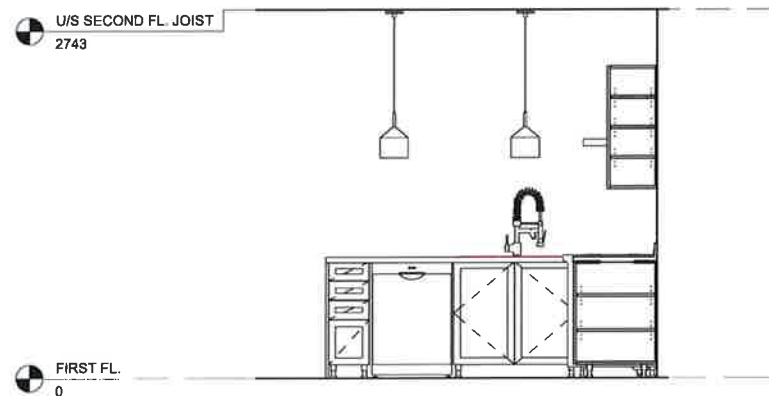
6 MILLWORK 4  
1 : 25



7 BATHROOM MILLWORK  
1 : 25



3 MILLWORK ADA 1  
1 : 25



4 MILLWORK ADA 2  
1 : 25

Stamp	Stamp
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<input type="checkbox"/> ISSUED FOR CONSTRUCTION	

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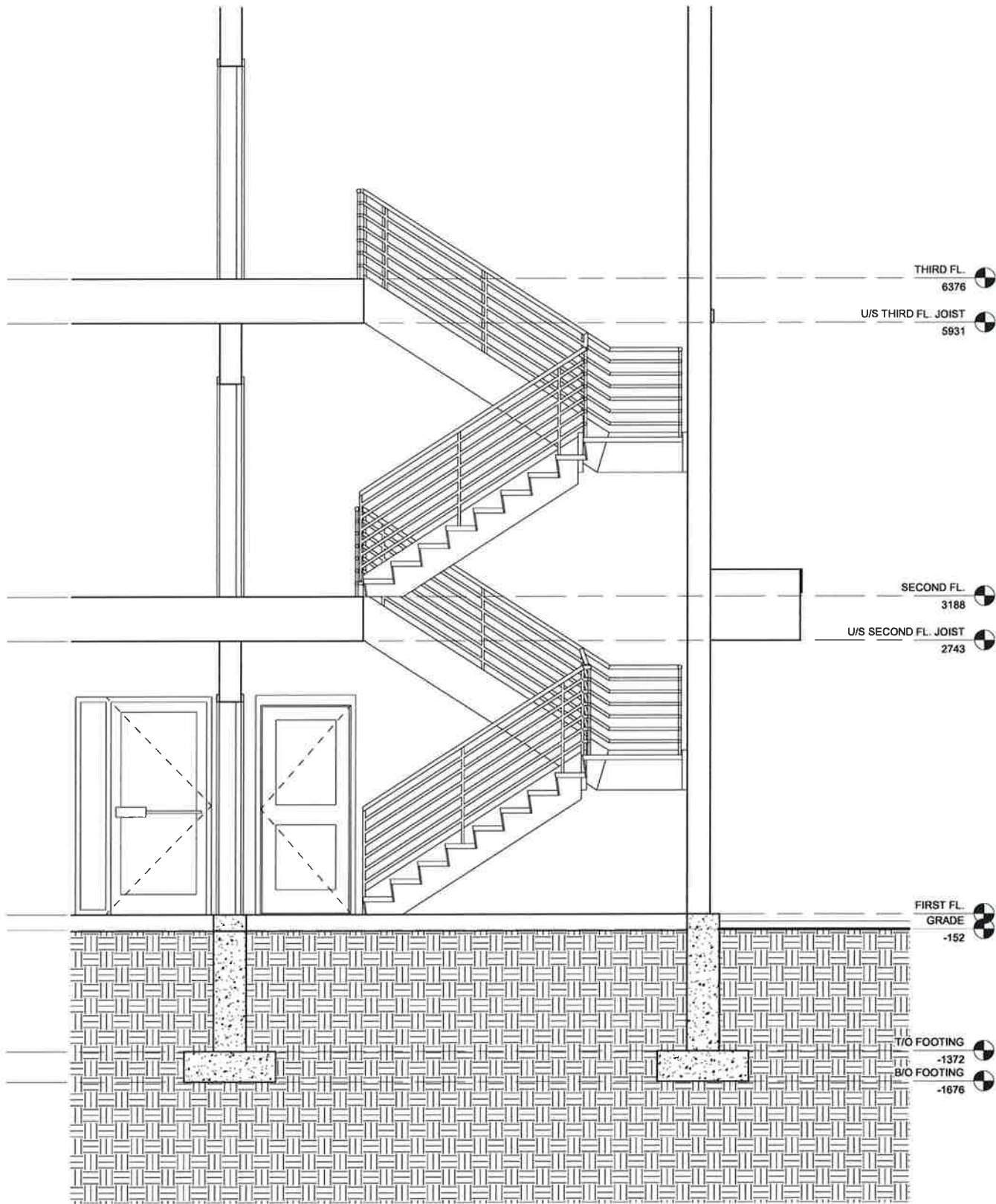
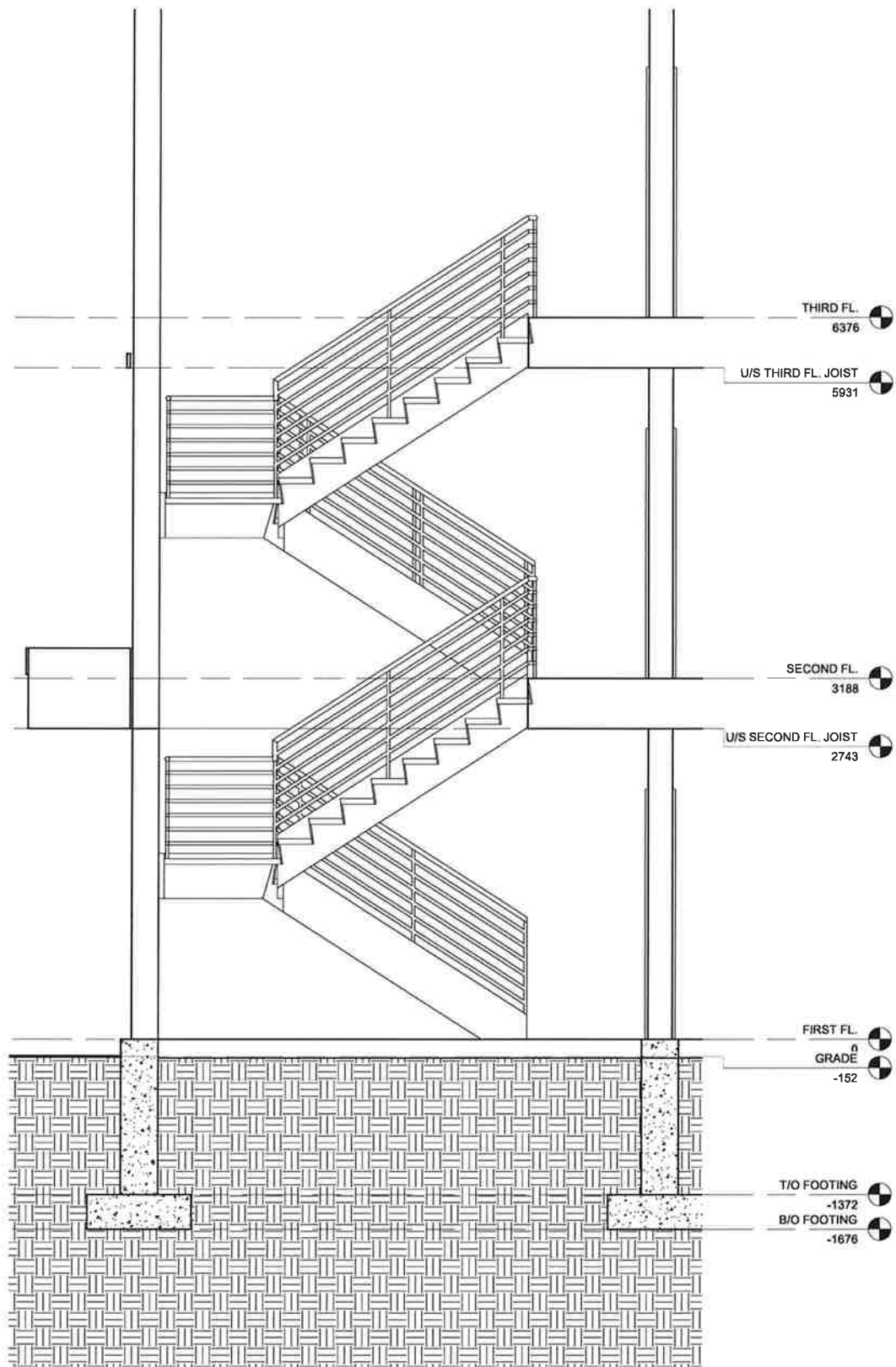
REVISIONS	No.	DATE	BY

Project  
161 WELLINGTON AVE.  
DELHI, ON N4B 1S4  
NEW 18 UNIT APARTMENT

**STAIR SECTIONS**

Project Number	21-005	Scale	1 : 25
Date	21-12-01	Sheet No.	
Drawn by	ZH		
Checked by	PM		

**A113**





DRAWINGS ARE NOT TO BE SCALED  
ORIGINAL SHEET SIZE - 24" x 36"

Stamp Stamp

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REVISIONS	No.	DATE	BY

Project  
161 WELLINGTON AVE.  
DELHI, ON N4B 1S4  
NEW 18 UNIT APARTMENT

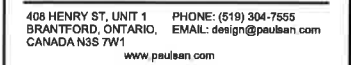
**FIRST FL. KEY MAP**

Project Number	21-006	Scale	1 : 80
Date	21-12-01	Sheet No.	A114
Drawn by	ZH		
Checked by	PM		



**1 FIRST FL. UNIT KEY MAP**  
1 : 60





DRAWINGS ARE NOT TO BE SCALED  
ORIGINAL SHEET SIZE - 24" x 36"

Stamp	Stamp
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PRELIMINARY FOR REVIEW 21-12-01

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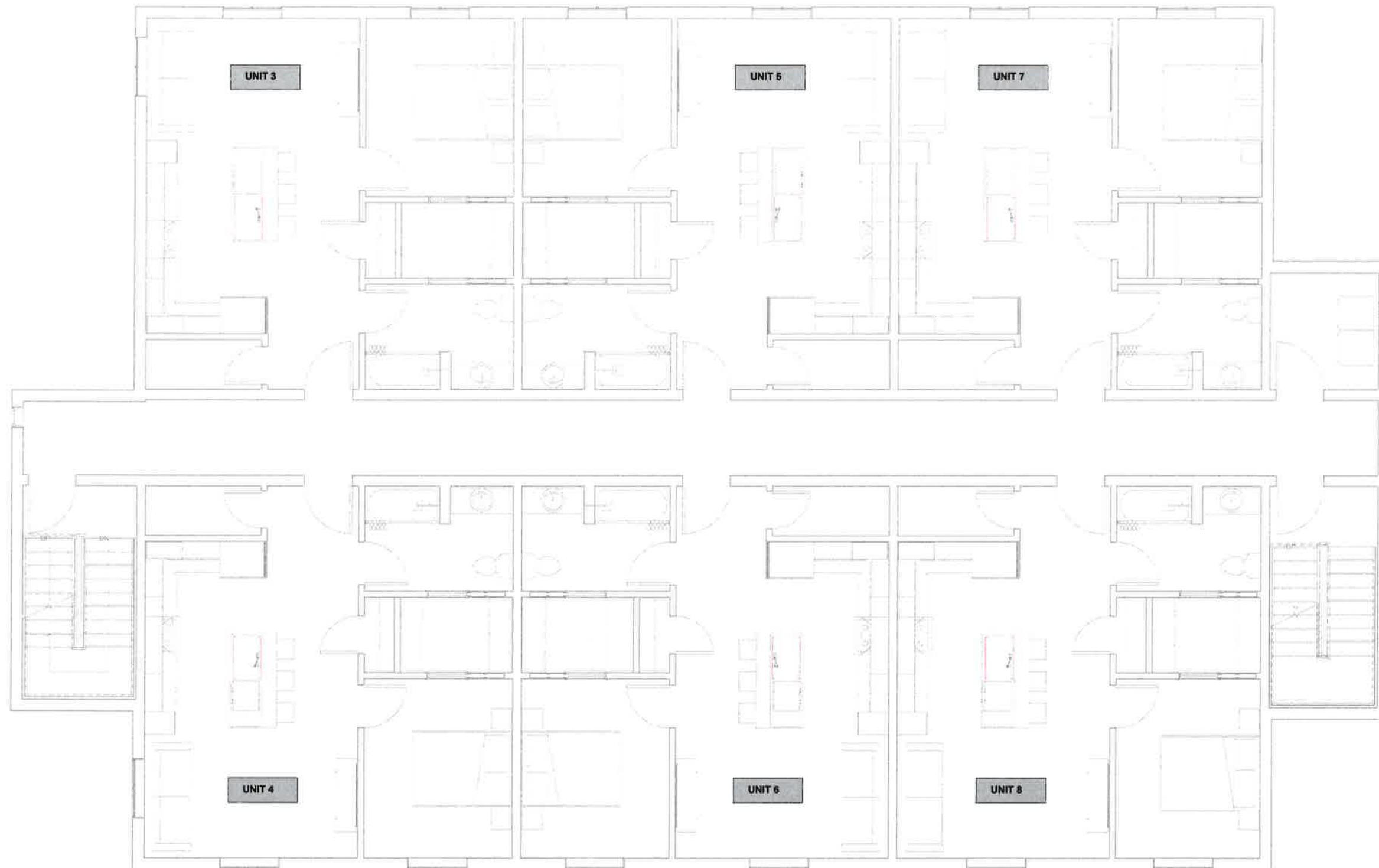
Project

161 WELLINGTON AVE.  
DELHI, ON N4B 1S4

NEW 18 UNIT APARTMENT

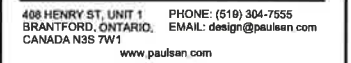
### SECOND FL. KEY MAP

Project Number	21-005	Scale	1 : 40
Date	21-12-01	Sheet No	<b>A115</b>
Drawn by	ZH		
Checked by	PM		



**SECOND FL. UNIT KEY**

1 MAP  
1:40



DRAWINGS ARE NOT TO BE SCALED  
ORIGINAL SHEET SIZE - 24" x 36"

Stamp	Stamp
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Project

161 WELLINGTON AVE.  
DELHI, ON N4B 1S4

NEW 18 UNIT APARTMENT

THIRD FL. KEY MAP

Project Number	21-005	Scale	1:40
Date	21-12-01	Sheet No	<b>A116</b>
Drawn by	ZH		
Checked by	PM		



**1 THIRD FL. UNIT KEY MAP**  
1 : 40



ROOM SCHEDULE						
Num ber	Name	Level	Area	Ceiling Finish	Floor Finish	Wall Finish
4	UNIT 1 LIVING/KITCHEN	FIRST FL.	29 m²	PAINTED GWB	LVT	PAINTED GWB
6	UNIT 1 BED	FIRST FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
7	UNIT 1 CLOSET	FIRST FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
8	UNIT 1 BATH	FIRST FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
5	UNIT 1 MECH.	FIRST FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
14	ADA UNIT 1 BED	FIRST FL.	12 m²	PAINTED GWB	LVT	PAINTED GWB
17	ADA UNIT 1 LIVING/KITCHEN	FIRST FL.	29 m²	PAINTED GWB	LVT	PAINTED GWB
15	ADA UNIT 1 CLOSET	FIRST FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
16	ADA UNIT 1 BATH	FIRST FL.	8 m²	PAINTED GWB	LVT	PAINTED GWB
18	ADA UNIT 1 MECH.	FIRST FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
24	ADA UNIT 3 LIVING/KITCHEN	FIRST FL.	29 m²	PAINTED GWB	LVT	PAINTED GWB
26	ADA UNIT 3 BED	FIRST FL.	13 m²	PAINTED GWB	LVT	PAINTED GWB
25	ADA UNIT 3 MECH.	FIRST FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
27	ADA UNIT 3 CLOSET	FIRST FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
28	ADA UNIT 3 BATH	FIRST FL.	8 m²	PAINTED GWB	LVT	PAINTED GWB
34	FIRST FL. LAUNDRY	FIRST FL.	5 m²	PAINTED GWB	LVT	PAINTED GWB
1	VESTIBLE/LOBBY	FIRST FL.	10 m²	PAINTED GWB	TILE	PAINTED GWB
3	FIRST FL. HALL	FIRST FL.	38 m²	PAINTED GWB	CARPET TILE	PAINTED GWB
10	UNIT 2 LIVING/KITCHEN	FIRST FL.	30 m²	PAINTED GWB	LVT	PAINTED GWB
9	UNIT 2 MECH	FIRST FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
13	UNIT 2 BED	FIRST FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
12	UNIT 2 CLOSET	FIRST FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
11	UNIT 2 BATH	FIRST FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
21	ADA UNIT 2 BED	FIRST FL.	12 m²	PAINTED GWB	LVT	PAINTED GWB
22	ADA UNIT 2 LIVING/KITCHEN	FIRST FL.	29 m²	PAINTED GWB	LVT	PAINTED GWB
20	ADA UNIT 2 CLOSET	FIRST FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
19	ADA UNIT 2 BATH	FIRST FL.	8 m²	PAINTED GWB	LVT	PAINTED GWB
23	ADA UNIT 2 MECH.	FIRST FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
29	ADA UNIT 4 MECH.	FIRST FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
30	ADA UNIT 4 LIVING/KITCHEN	FIRST FL.	29 m²	PAINTED GWB	LVT	PAINTED GWB
31	ADA UNIT 4 BED	FIRST FL.	13 m²	PAINTED GWB	LVT	PAINTED GWB
32	ADA UNIT 4 CLOSET	FIRST FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
33	ADA UNIT 4 BATH	FIRST FL.	8 m²	PAINTED GWB	LVT	PAINTED GWB
2	MECHANICAL ROOM	FIRST FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
35	UNIT 3 LIVING/KITCHEN	SECOND FL.	29 m²	PAINTED GWB	LVT	PAINTED GWB
36	UNIT 3 MECH.	SECOND FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
37	UNIT 3 BATH	SECOND FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
38	UNIT 3 CLOSET	SECOND FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
39	UNIT 3 BED	SECOND FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
47	UNIT 5 BED	SECOND FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
46	UNIT 5 CLOSET	SECOND FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
45	UNIT 5 BATH	SECOND FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
48	UNIT 5 LIVING/KITCHEN	SECOND FL.	29 m²	PAINTED GWB	LVT	PAINTED GWB
49	UNIT 5 MECH.	SECOND FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
56	UNIT 7 LIBING/KITCHEN	SECOND FL.	29 m²	PAINTED GWB	LVT	PAINTED GWB
55	UNIT 7 MECH.	SECOND FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
57	UNIT 7 BED	SECOND FL.	10 m²	PAINTED GWB	LVT	PAINTED GWB
58	UNIT 7 CLOSET	SECOND FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB

Door Schedule						
Count	Type Mark	Type	Width	Height	Finish	Frame Material
28	D1	863.6 mm x 2133.6 mm INTERIOR	864	2134	PAINTED	WOOD
32	D2	0762 mm x 2134 mm INTERIOR	762	2134	PAINTED	WOOD
37	D3	965 mm x 2134 mm INTERIOR	965	2134	PAINTED	WOOD
28	D4	762 mm x 2133.6 mm INTERIOR POCKET	762	2134	PAINTED	WOOD
1	D5	900 mm x 2100 mm EXTERIOR ALUMINUM	900	2100	PAINTED	STEEL
1	D6	965.2 mm x 2133.6 mm EXTERIOR ALUMINUM w/ SIDE LIGHT	965	2134	PAINTED	STEEL
4	D7	1800 mm x 2100 mm DOUBLE SLIDING POCKET	1800	2100	PAINTED	STEEL
2	D8	889.4 mm x 2108.6 mm CURTAIN WALL DOOR	889	2108	PAINTED	ALUMINUM

Window Schedule					
Count	Type Mark	Type	Width	Height	Sill Height
41	W1	40mm Fixed Window 1200 x 600	1200	1524	915
3	W2	0406 x 0610mm	406	1524	915

ROOM SCHEDULE						
Num ber	Name	Level	Area	Ceiling Finish	Floor Finish	Wall Finish
59	UNIT 7 BATH	SECOND FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
65	SECOND FL. LAUNDRY	SECOND FL.	5 m²	PAINTED GWB	CARPET TILE	PAINTED GWB
66	SECOND FL. HALL	SECOND FL.	42 m²	PAINTED GWB	CARPET TILE	PAINTED GWB
40	UNIT 4 MECH	SECOND FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
41	UNIT 4 LIVING/KITCHEN	SECOND FL.	30 m²	PAINTED GWB	LVT	PAINTED GWB
42	UNIT 4 BED	SECOND FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
43	UNIT 4 CLOSET	SECOND FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
44	UNIT 4 BATH	SECOND FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
50	UNIT 6 BATH	SECOND FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
51	UNIT 6 CLOSET	SECOND FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
52	UNIT 6 BED	SECOND FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
53	UNIT 6 LIVING/KITCHEN	SECOND FL.	30 m²	PAINTED GWB	LVT	PAINTED GWB
54	UNIT 6 MECH.	SECOND FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
61	UNIT 8 LIVING/KITCHEN	SECOND FL.	30 m²	PAINTED GWB	LVT	PAINTED GWB
60	UNIT 8 MECH.	SECOND FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
64	UNIT 8 BATH	SECOND FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
63	UNIT 8 CLOSET	SECOND FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
62	UNIT 8 BED	SECOND FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
67	UNIT 9 LIVING/KITCHEN	THIRD FL.	29 m²	PAINTED GWB	LVT	PAINTED GWB
68	UNIT 9 BED	THIRD FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
69	UNIT 9 CLOSET	THIRD FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
70	UNIT 9 BATH	THIRD FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
71	UNIT 9 MECH	THIRD FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
72	UNIT 11 BED	THIRD FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
73	UNIT 11 CLOSET	THIRD FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
74	UNIT 11 BATH	THIRD FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
75	UNIT 11 LIVING/KITCHEN	THIRD FL.	29 m²	PAINTED GWB	LVT	PAINTED GWB
76	UNIT 11 MECH.	THIRD FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
77	UNIT 13 LIVING/KITCHEN	THIRD FL.	29 m²	PAINTED GWB	LVT	PAINTED GWB
78	UNIT 13 BED	THIRD FL.	10 m²	PAINTED GWB	LVT	PAINTED GWB
79	UNIT 13 CLOSET	THIRD FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
80	UNIT 13 BATH	THIRD FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
81	UNIT 13 MECH.	THIRD FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
82	THIRD FLOOR LAUNDRY	THIRD FL.	5 m²	PAINTED GWB	CARPET TILE	PAINTED GWB
83	THIRD FL. HALL	THIRD FL.	42 m²	PAINTED GWB	CARPET TILE	PAINTED GWB
64	UNIT 10 LIVING/KITCHEN	THIRD FL.	30 m²	PAINTED GWB	LVT	PAINTED GWB
85	UNIT 10 MECH.	THIRD FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
86	UNIT 10 BED	THIRD FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
87	UNIT 10 CLOSET	THIRD FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
88	UNIT 10 BATH	THIRD FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
89	UNIT 12 CLOSET	THIRD FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
90	UNIT 12 BATH	THIRD FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
91	UNIT 12 BED	THIRD FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB
92	UNIT 12 LIVING/KITCHEN	THIRD FL.	30 m²	PAINTED GWB	LVT	PAINTED GWB
93	UNIT 12 MECH.	THIRD FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
94	UNIT 14 MECH.	THIRD FL.	2 m²	PAINTED GWB	LVT	PAINTED GWB
95	UNIT 14 LIVING/KITCHEN	THIRD FL.	30 m²	PAINTED GWB	LVT	PAINTED GWB
96	UNIT 14 BATH	THIRD FL.	6 m²	PAINTED GWB	LVT	PAINTED GWB
97	UNIT 14 CLOSET	THIRD FL.	3 m²	PAINTED GWB	LVT	PAINTED GWB
98	UNIT 14 BED	THIRD FL.	11 m²	PAINTED GWB	LVT	PAINTED GWB



408 HENRY ST. UNIT 1      PHONE: (519) 304-7555  
BRANTFORD, ONTARIO,      EMAIL: design@paulsan.com  
CANADA N3S 7W1  
www.paulsan.com

DRAWINGS ARE NOT TO BE SCALED  
ORIGINAL SHEET SIZE - 24" x 36"

Stamp

Stamp

#### GENERAL NOTES

1. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS.
2. ALL WORK SHALL COMPLY WITH THE 2012 ONTARIO BUILDING CODE AND AMENDMENTS.
3. CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND SPECIFICATIONS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
4. ALL CONTRACTORS AND SUB-CONTRACTORS SHALL HAVE A SET OF APPROVED CONSTRUCTION DOCUMENTS ON SITE AT ALL TIMES.
5. ALL DOCUMENTS REMAIN THE PROPERTY OF THE ARCHITECT. UNAUTHORIZED USE, MODIFICATION, AND/OR REPRODUCTION OF THESE DOCUMENTS IS PROHIBITED WITHOUT WRITTEN PERMISSION. THE CONTRACT DOCUMENTS WERE PREPARED BY THE CONSULTANT FOR THE ACCOUNT OF THE OWNER.
6. THE MATERIAL CONTAINED HEREIN REFLECTS THE CONSULTANTS BEST JUDGEMENT IN LIGHT OF THE INFORMATION AVAILABLE TO HIM AT THE TIME OF PREPARATION. ANY USE WHICH A THIRD PARTY MAKES OF THE CONTRACT DOCUMENTS, OR ANY RELIANCE ON/OR DECISION TO BE MADE BASED ON THEM ARE THE RESPONSIBILITY OF SUCH THIRD PARTIES.
7. THE CONSULTANT ACCEPTS NO RESPONSIBILITY FOR DAMAGES, IF ANY, SUFFERED BY ANY THIRD PARTY AS A RESULT OF DECISIONS MADE OR ACTIONS BASED ON THE CONTRACT DOCUMENTS.

☒ PRELIMINARY FOR REVIEW \_\_\_\_\_ 21-12-01

☐ ISSUED FOR TENDER \_\_\_\_\_

☐ ISSUED FOR PERMIT \_\_\_\_\_

☐ ISSUED FOR CONSTRUCTION \_\_\_\_\_

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REVISIONS	No.	DATE	BY

Project  
161 WELLINGTON AVE.  
DELHI, ON N4B 1S4  
NEW 18 UNIT APARTMENT

#### SCHEDULES

Project Number	21-005	Scale
Date	21-12-01	Sheet No
Drawn by	Author	A117
Checked by	Checker	





1 3D View 2



2 3D View 3

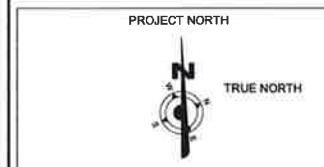


3 3D View 4



5 3D View 6

Stamp	Stamp
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#### GENERAL NOTES

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<input checked="" type="checkbox"/> PRELIMINARY FOR REVIEW	21-12-01
<input type="checkbox"/> ISSUED FOR TENDER	
<input type="checkbox"/> ISSUED FOR PERMIT	
<input type="checkbox"/> ISSUED FOR CONSTRUCTION	

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REVISIONS	No.	DATE	BY

Project 161 WELLINGTON AVE.  
DELHI, ON N4B 1S4  
NEW 18 UNIT APARTMENT

#### BASIC UNIT 3D VIEWS

Project Number	21-005	Scale	
Date	21-12-01	Sheet No.	
Drawn by	ZH		
Checked by	PM		

**A118**





1 ADA 3D VIEW 1



2 ADA 3D VIEW 2



3 ADA 3D VIEW 3



4 ADA 3D VIEW 4

Stamp	Stamp
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**GENERAL NOTES**

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☒ PRELIMINARY FOR REVIEW 21-12-01

☐ ISSUED FOR TENDER

☐ ISSUED FOR PERMIT

☐ ISSUED FOR CONSTRUCTION

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REVISIONS	No.	DATE	BY

Project  
161 WELLINGTON AVE.  
DELHI, ON N4B 1S4  
NEW 18 UNIT APARTMENT

**ADA UNIT 3D VIEWS**

Project Number	21-005	Scale	<b>A119</b>
Date	21-12-01	Sheet No.	
Drawn by	ZH		
Checked by	PM		



# J.H. COHOON ENGINEERING LIMITED

## CONSULTING ENGINEERS

440 Hardy Road, Unit #1, Brantford, ON N3T 5L8  
Tel: (519) 753-2656 Fax: (519) 753-4263  
www.cohooneng.com

# 14591

January 14, 2022

County of Norfolk  
Community Planning Services  
60 Colborne Street South  
Simcoe, Ontario  
N3Y 4H3

Attention: Ms. Nicole Goodbrand  
Senior Planner

Re: Proposed Apartment Building  
MN 161 Wellington Avenue  
Delhi, Ontario  
Norfolk County  
Shadow Analysis

Dear Ms. Goodbrand

In accordance with the requirements of the pre-consultation meeting held in June of 2021, our firm has carried out a preliminary analysis of the effects of the sun shadows as created by a proposed residential apartment building that consists of three storeys in height on the above noted site.

### PURPOSE

The purpose of this analysis is to address a Municipal and community requirement and obligation to illustrate the impact that sun shadows created by a proposed residential apartment building on the abutting low density residential uses. We note that the purpose of this application is to remove a proposed use being the 50% commercial use on the ground floor of the building whereas the size and scale of the development is permitted under the provisions of the zoning bylaw.

The proposed development is made up of a three (3) story residential apartment building to be located on the site as detailed on our drawing 14591-1 enclosed within this report.

The site was previously used for various purposes with the most recent being an overflow parking area for the legion that is located adjacent to the property. The site abuts low density residential to the west and east on Wellington Avenue in downtown Delhi, in Norfolk County.

Please find attached the sketches prepared by our office outlining the extent of shadows that will occur on the abutting lands. This study highlights the impact of sun shadow on these houses.



Professional Engineers  
Ontario

### SUN SHADOW FORECAST

The length of a sun shadow is directly representative of the overall height of a building and its relationship with the altitude of the sun at various times of the year and our analysis is based on a horizontal plane.

Because the location of the sun differs during various periods of the year it is a generally accepted industry standard that shadow forecasts for 4 different days of the year would represent the mean and extremes of impacts shadows occurring during the year. The accepted 4-day intervals are the spring equinox (March 20), the summer solstice (June 21), autumn equinox (September 23) and the winter solstice (December 22).

Using the shadow length calculations for the site, we have calculated and attached the sun shadow impacts for these 4 days on the low-density development on the abutting residential land uses which are in close proximity of the proposed development.

#### MARCH 20

Generally, there is little impact off site except for a short duration in the early morning. Internally there is shadow cast on the neighbour to the west of the site for approximately 2 or 3 hours in the morning. The site to the east is not generally impacted by the proposed development.

#### JUNE 21

Because the sun is already high in the sky there is little impact off site and generally only the immediate ground level around the apartment building is being impacted on site.

#### SEPTEMBER 23

The sun is again going lower in the sky and the impact, both externally and internally is similar to the spring equinox (March).

#### DECEMBER 21

This is the period of the shortest daylight with the sun being lowest in the sky. This is reflected in the sun shadows length, where at 9am, the time of sunrise where the shadow is extreme at approximately 60 metres in length for proposed in building height. Only during the early morning period (sunrise) are the residents on the west side of the site impacted by a shadow and it would be for a short duration (2 to 4 hours). Internally the development is being impacted by shadows as illustrated but this impact is lessened as the spring equinox approaches.



### CONCLUSION

The application specifically requests permission to amend the Official Plan and Zoning Bylaw to permit the establishment of residential use on the main floor of the proposed building rather than the 50% requirement for the site. The proposed apartment building nearest the existing low density residential area on Wellington Avenue is the only area impacted by any sun shadow interference. The analysis illustrates that there is only a limited and short-term impact on dwellings on Wellington Avenue west of the site and only during the most extreme period (sunrise on December 21<sup>st</sup>). The remainder of the impacts to residential properties will be limited. There will be no internal impacts and interference at the most extreme periods.

We therefore conclude that as expected only during a short period of winter months are there any lasting sun shadow impacts either internally or externally and that because of the surrounding land use patterns there are only limited and short-term impacts on neighbouring residential properties. It is important to note that the form, size and intensity of the development is permitted without any planning approvals (zoning and official plan amendments) on this site.

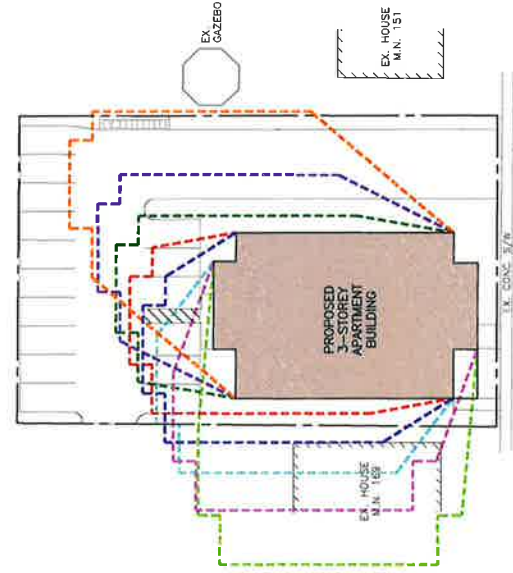
I trust this analysis and plans are satisfactory to Norfolk County for processing the necessary approvals for this project. If you require any further details, please do not hesitate to contact this office, at your earliest convenience.

Yours truly,

J.H. COHOON ENGINEERING LIMITED

R.W. Phillips, P.Eng.

c.c. A. Cappucci – NexGen Rental Corporation.



**LEGEND**

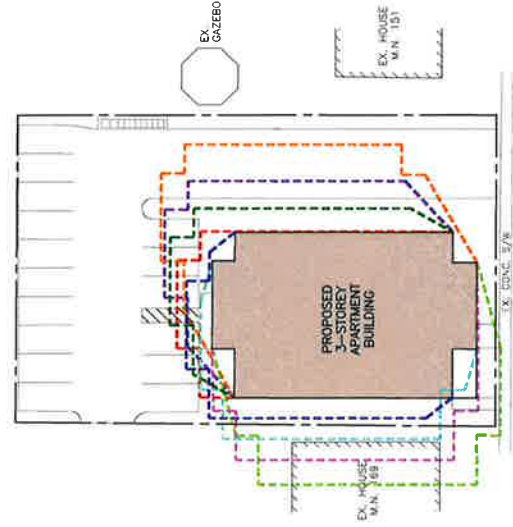
- DENOTES 9 A.M.
- DENOTES 10 A.M.
- DENOTES 11 A.M.
- DENOTES NOON
- DENOTES 1 P.M.
- DENOTES 2 P.M.
- DENOTES 3 P.M.
- DENOTES 4 P.M.

WELLINGTON AVENUE

**SUN SHADOW STUDY**  
**(MARCH 20)**

PROPOSED APARTMENT DWELLING  
161 WELLINGTON AVENUE, DELHI

SCALE: 1:500



**LEGEND**

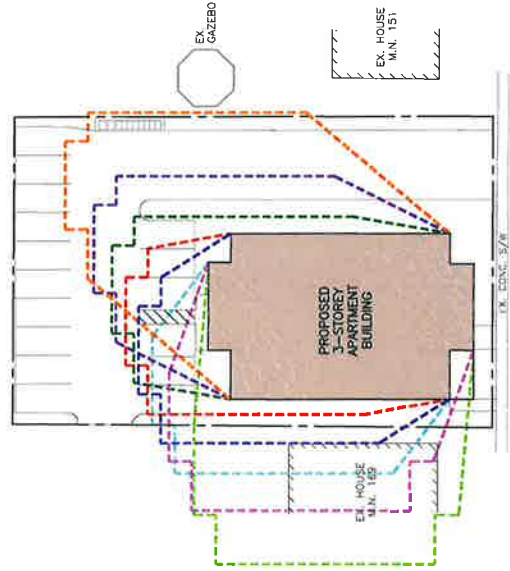
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- DENOTES 10 A.M.
- DENOTES 11 A.M.
- DENOTES NOON
- DENOTES 1 P.M.
- DENOTES 2 P.M.
- DENOTES 3 P.M.
- DENOTES 4 P.M.

WELLINGTON AVENUE

**SUN SHADOW STUDY**  
**(JUNE 21)**

PROPOSED APARTMENT DWELLING  
161 WELLINGTON AVENUE, DELHI

SCALE: 1:500



WELLINGTON AVENUE



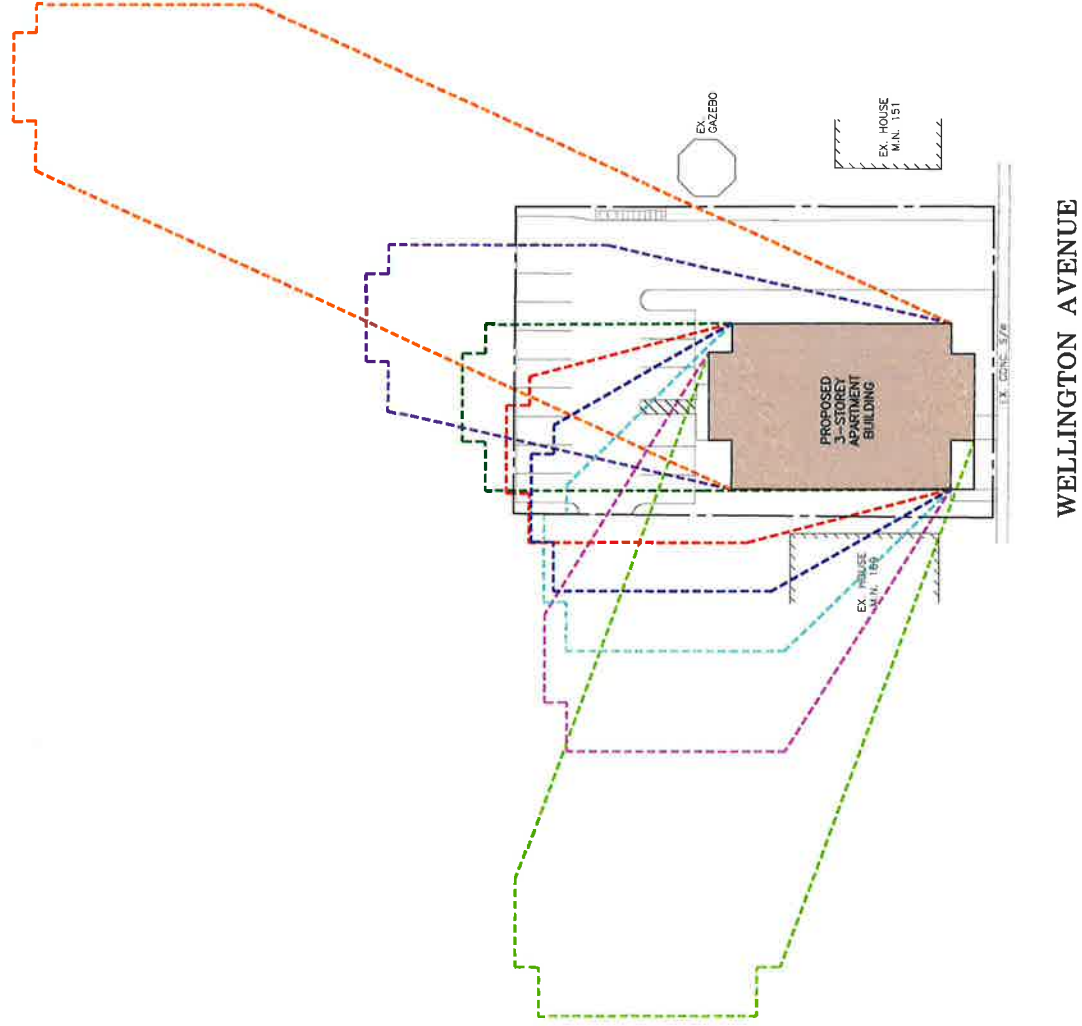
LEGEND

- DENOTES 9 A.M.
- DENOTES 10 A.M.
- DENOTES 11 A.M.
- DENOTES NOON
- DENOTES 1 P.M.
- DENOTES 2 P.M.
- DENOTES 3 P.M.
- DENOTES 4 P.M.

SUN SHADOW STUDY  
(SEPTEMBER 23)

PROPOSED APARTMENT DWELLING  
161 WELLINGTON AVENUE, DELHI

SCALE: 1:500



**LEGEND**

- DENOTES 9 A.M.
- DENOTES 10 A.M.
- DENOTES 11 A.M.
- DENOTES NOON
- DENOTES 1 P.M.
- DENOTES 2 P.M.
- DENOTES 3 P.M.
- DENOTES 4 P.M.

**SUN SHADOW STUDY  
(DECEMBER 21)**

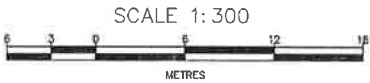
PROPOSED APARTMENT DWELLING  
161 WELLINGTON AVENUE, DELHI

SCALE: 1:500

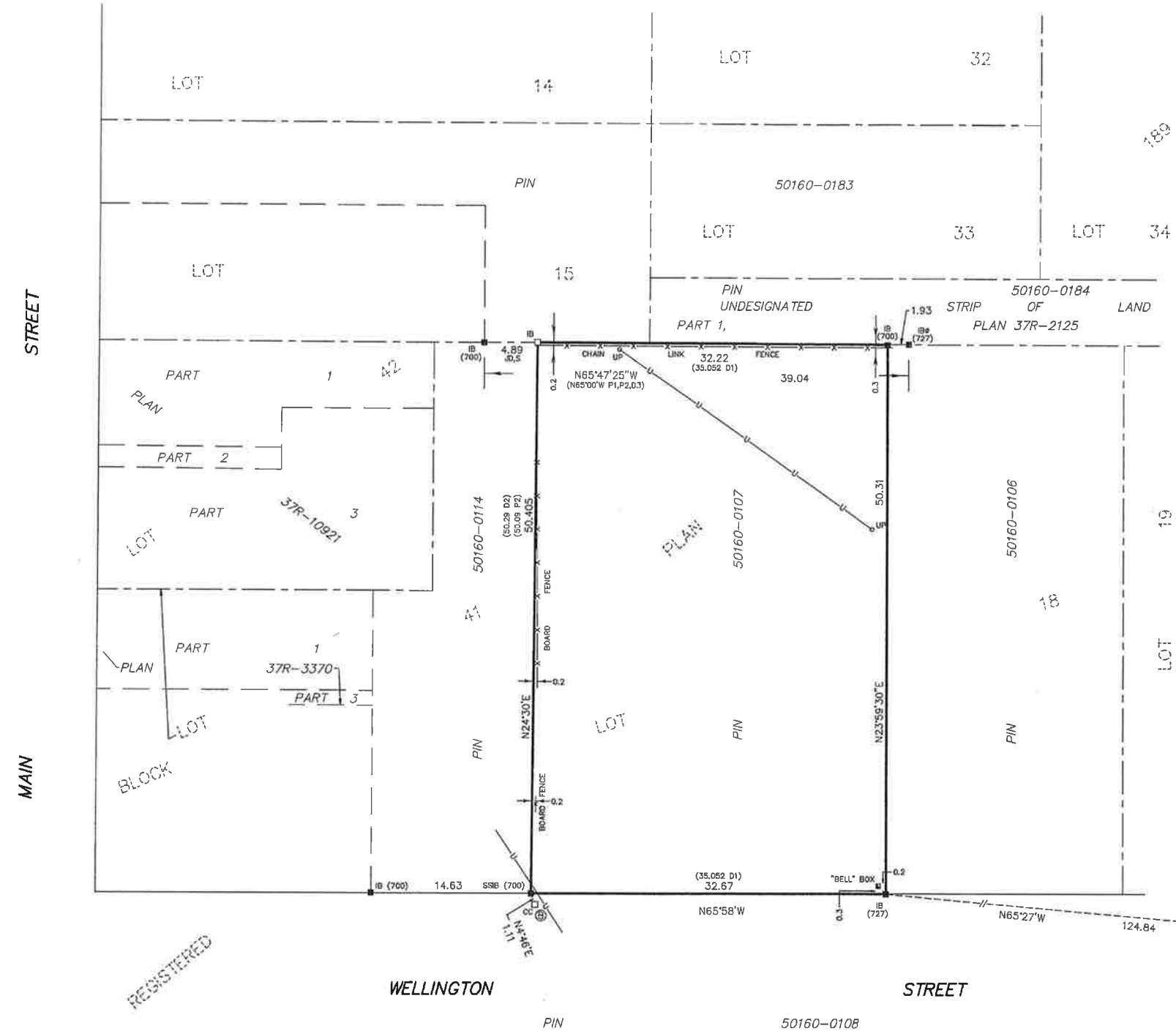
METRIC  
DISTANCES AND CO-ORDINATES SHOWN ON  
THIS PLAN ARE IN METRES AND CAN BE  
CONVERTED TO FEET BY DIVIDING BY 0.3048.

SURVEYOR'S REAL PROPERTY REPORT

PART 1 - PLAN OF SURVEY OF  
PART OF LOT 18  
BLOCK 37  
REGISTERED PLAN 189  
NORFOLK COUNTY



MacAULAY, WHITE & MUIR LTD.  
© COPYRIGHT 2021



LEGEND

- SIB - STANDARD IRON BAR  
SSIB - SHORT STANDARD IRON BAR  
IB - IRON BAR  
CC - CUT CROSS  
CP - CONCRETE PIN  
P - PLANTED  
F - FOUND  
R - ROUND  
WT - WITNESS  
S - SET  
P1 - PLAN 37R-2125  
P2 - REGISTERED PLAN 189  
D1 - PIN 50160-0107 (INST. NR188498)  
D2 - PIN 50160-0114 (INST. NR560000)  
D3 - PIN 50160-0183 (INST. NR519033)  
JD - RECORD OF JEWITT & DIXON LTD. (PROJECT No. 16-1154)  
-U- OVERHEAD UTILITY LINE  
UP - UTILITY POLE

NOTES:

PART 2 - WRITTEN REPORT		
AN OVERHEAD UTILITY LINE SERVING ADJOINING LAND, CROSSES SUBJECT LAND.		
THIS PLAN HAS BEEN PREPARED FOR ANGELO CAPPUCCI AND THE UNDERSIGNED ACCEPTS NO RESPONSIBILITY FOR USE BY ANY OTHERS. BEARINGS ARE GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B BY REAL TIME NETWORK OBSERVATION, UTM ZONE 17, NAD83 (CSRS) (2010). DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999590. ALL DIMENSIONS ARE MEASURED UNLESS QUALIFIED. ALL FENCES ARE "ON LINE" UNLESS TIES TO THE PROPERTY LINE ARE SHOWN.		
OBSERVED REFERENCE POINTS (ORP): UTM ZONE 17, NAD83 (CSRS) (2010) CO-ORDINATES TO URBAN ACCURACY PER SEC. 14(2) OF O. REG 216/10.		
POINT ID	NORTHING	EASTING
A	4744481.55	541064.73
B	4744545.65	540921.38
CO-ORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.		

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

- THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT AND THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
- THE SURVEY WAS COMPLETED ON THE 27th DAY OF MAY, 2021.

MAY 28, 2021

JOHN W. MUIR  
ONTARIO LAND SURVEYOR



MacAULAY, WHITE & MUIR LTD.  
ONTARIO LAND SURVEYORS - CANADA LANDS SURVEYORS  
440 HARDY ROAD, UNIT 2, BRANTFORD, ONTARIO, N3T 5L8  
TEL 519-752-0040 FAX 519-752-0087 mwmurvey@bellnet.ca

**FUNCTIONAL SERVICING REPORT  
PROPOSED RESIDENTIAL DEVELOPMENT**

**MN 161 Wellington Avenue  
Delhi, Ontario  
Norfolk County**

**Prepared By:**

**J.H. Cohoon Engineering Limited  
440 Hardy Road, Unit 1  
Brantford, Ontario  
N3T 5L8  
Phone (519) 753-2656  
Fax (519) 753-4263**

**Job: 14591**

**January 2022**



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Figure No. 1 – Key Plan

Appendix 'A' - Development Proposal as prepared by J H Cohoon Engineering Drawing 14591-2

Appendix 'B' - Plan of Survey – Prepared by MacAulay White and Muir Ltd (Brantford)

## **INTRODUCTION**

The following Functional Servicing Report was prepared by J.H. Cohoon Engineering Limited for Mr. A. Capuccini of NexGen Rental Corporation in support of a proposed residential development of the site on the north side of Wellington Avenue in the downtown core of the Town of Delhi, in Norfolk County. The site is located at MN 161 Wellington Avenue in Delhi, Ontario. The proposal is to construct a 456.86 sq.m. residential building that consists of three (3) stories and 18 one-bedroom residential units on the property. The proposal includes the provision of some off-street parking on the property without a zoning bylaw requirement for that parking. The entire property is some 0.1643 ha. in size. The preliminary layout of the development is illustrated within Appendix 'A' of this report on drawings prepared by J H Cohoon Engineering Limited being drawing 14591-1

The objective of this report is to document the servicing strategy to be utilized for the site. The property is currently serviced with all municipal services including sanitary and water services. The owner will assume full responsibility for the installation and maintenance of the services on the property and any associated upgrades.

## **PROPOSED DEVELOPMENT CONCEPT**

The proposed development is to be constructed on the on the subject lands which is located on the north side of Wellington Avenue in downtown Delhi, Ontario in Norfolk County. The site proposed for the development as a residential development is 0.1643 hectares in size. A key map illustrating the site location is provided in Figure 1.

The development is intended to construct a three (3) story – 18-unit residential apartment style building including the associated servicing, and improvements to the undeveloped site to include some off-street parking. The overall development is illustrated on the plans prepared by the J H Cohoon Engineering Limited being drawing 14591-1 which has been included within Appendix 'A' of this report



KEY PLAN

**Site Location – Key Plan  
Figure No. 1**

## **SANITARY SEWERS & APPURTENANCES**

### **3.1 Design Flows**

This site is proposed to be fully connected to the municipal sanitary sewer system located on Wellington Avenue in the vicinity of the site. The proposed development is illustrated on the attached site plan being drawing that is located within Appendix 'A' of this report (being J H Cohoon Engineering Limited 14591-1) which indicates the location of the proposed sanitary servicing into this site.

In accordance with the current Norfolk County design criteria, the design flows are being submitted to the County for the review of the conveyance systems within the Town of Delhi, Norfolk County. The following information is being provided to the Norfolk County for their use and consideration.

#### **Sanitary Design Flows**

##### Residential Component

18 Residential Apartment Units (single Bedroom Unit)

January 2022

1.29 people per unit  
As per the requirements of the Norfolk County, the average daily flow is based upon 300 litres per person per day  
 $1.29 \times 18 \times 450 = 10,449$  liters per day  
 $= 0.121$  liters per second  
Total Average Design Flow  $= 0.121$  liters per second.

Therefore, the total sanitary effluent from this site results in the following estimation of the sanitary flows:

#### Summary of Results

Average Flow Rate  
Residential Component  $= 0.121$  liters per sec  
  
Infiltration Allowance  
Site Area  $= 0.1643$  hectares  
Infiltration Rate  $= 0.26$  liters per second per hectare  
Infiltration Allowance  $= 0.043$  liters per second  
  
Total Average Flow Rate  $= 0.164$  liters per sec

On the basis of the Harmon Peaking Factor, and a total population for this site being 23.22 persons (24), the peaking factor of 4.369 (Max 4) was applied resulting in a peak design flow for this building being 0.484 liters per second.

Peak Flow Rate  
Residential Component  $= 0.484$  liters per sec  
  
Infiltration Allowance  $= 0.043$  liters per second  
  
Total Peak Flow Rate  $= 0.527$  liters per sec

The proposed sanitary connection is proposed to be located into the existing sanitary main on Wellington Avenue adjacent to the property.

#### Sanitary Outlet

The sanitary sewer system for the subject development will be connected into the existing sanitary sewer that are located on Wellington Avenue in the Town of Delhi, Norfolk County. The analysis relating to the overall impact of this development on the receiving sanitary sewer system will be reviewed by the Norfolk County as part of this submission.

## **WATERMAINS & APPURTENANCES**

### **Design Flows**

The peak design flow rate from the proposed development using current Norfolk County Standards. As with the wastewater, the estimated average flows have been detailed with the Sanitary Sewer Section of this report. (Section 3.1 above). However, in this case the peaking factor of 2 has been utilized and a demand of 450 liters per person per day.

The summary of the water system demands can be summarized as follows:

	Average Daily Flow Rate (Liters per second)	Peak Daily Flow Rate* (Litres per second)
Residential Component	0.121	0.242

The proposed fire protection to this development will be handled by the existing fire hydrants located adjacent to the property.

Utilizing the requirements of the Fire Underwriters Survey 1999, the following outlines the water demand for the overall building area:

This building is approximately 456.86 sq. m. in size (multi - storey residential building). In accordance with the requirements of the Fire Underwriters Survey, the area is to include 25% of the floor areas above and below the main level. In this case, the area of 685.29 sq. m. was utilized. Utilizing the Fire Underwriters Survey Document, our estimation of the required fire demand is as follows:

$$\begin{aligned} \text{Estimate of Fire Flow Required} &= 220 * C * \text{SQRT}(A) \\ \text{Where } C &= \text{Coefficient related to type of Construction} \\ &\text{In this case, ordinary construction is proposed.} \\ &\text{Ordinary Construction} = 1.0 \\ A &= \text{Total Area of the Building (As outlined above)} \\ &685.29 \text{ sq. m.} \end{aligned}$$



January 2022

	=	220 x 1.0 x SQRT (685.29)	
	=	5,759.2 litres per min	
	Rounded		
	=	6,000 litres per min	
Modifications			
Occupancy	=	Low Hazard Occupancy =	-25%
	Reduction	=	1,500 litres per min
Net Fire Demand	=	4.500 litres per min	
Further Modifications			
	Automatic Sprinkler System	=	0%
	Reduction	=	0 litres per min
	Spatial Exposure (Estimated)		
	North	> 45m	+ 0 %
	East	4.5m +/-	+ 20 %
	West	16.2m	+ 15 %
	South	Street	+ 0 %
	Total		+ 35 %
	Increase	=	1,575 litres per min
Total Fire Demand		6,075 litres per min	
		6,000 litres per min (Rounded)	
		100.0 litres per sec.	

## STORM SEWERS & APPURTENANCES

### Storm Sewers

The site is intended to be serviced with municipal storm sewers which are to be designed to handle the 5-year storm event where possible. The overall stormwater management system is to be consistent with the current policies of the County of Norfolk which require reduction in the post development flows to below the pre-development rates for all storm events up to and including the 100-year event. In this case, the existing storm sewer that is located within the Wellington Avenue right-of-way is at a very shallow depth and therefore, can not be extended into the rear of the property to collect the runoff. In this case, a series of drywells which are supported by the Geotechnical Investigation carried out on this site will be utilized.

The proposed development is significant greater impervious areas and as such, conventional stormwater management techniques are required to be implemented.

We note that the property has previously been utilized as a parking area with some gravel areas existing but the site is being considered as a greenfield type of development.

### **Pre-Development Hydrologic Modeling Parameters**

MIDUSS modeling software was used to establish pre-development runoff rates for the site. The site is approximately 0.16 hectares in size with the flow direction being extremely flat but is directed towards the Wellington Avenue right-of-way. The existing topography slope is approximately 01.5+/-%.

### **Post Development Conditions**

The proposed concept plan includes the following:

- A proposed eighteen (18) unit apartment building with the required parking (although not required by the zoning bylaw) and loading areas, resulting in an overall % impervious on the site being increased from the 0% impervious surfaces in the pre-development condition to a 79.7% impervious condition.

For the purposes of this report, 79.7% has been utilized in the hydrologic modeling for the overall development to represent the proposed development.

### **Modelling Results – Quantity Control**

Stormwater flows were calculated using MIDUSS modeling software. Norfolk County IDF parameters were used to generate rainfall for sizing of the SWM facility in accordance with Norfolk County Development Engineering Standards.

Peak flow reduction will be achieved through on-site detention in an effort minimize the potential for downstream flooding and erosion. Post development surface water runoff will be controlled to existing pre-development levels for the 2, 5, 10, 25, 50- and 100-year storm events (as possible). The results of the Miduss modeling have been included within Appendix 'D' of this report and can be summarized as follows:

**Table 1 – Peak Flow Rates**

Storm Event	Pre-Development Peak Flow (m <sup>3</sup> /sec)	Post Development Peak Flow No SWM (m <sup>3</sup> /sec)	Post Development Peak Flow with SWM
2 Year	0.005	0.025	0.007
5 Year	0.015	0.037	0.010
10 Year	0.023	0.046	0.012
25 Year	0.031	0.055	0.014
50 Year	0.037	0.063	0.016
100 Year	0.045	0.071	0.018

**Table 2 – Post Development Storage Volumes**

Storm Event	Required Discharge Rate (cms)	Required Storage (m)
2 Year	0.007	8.376
5 Year	0.010	11.806
10 Year	0.012	14.148
25 Year	0.014	32.473
50 Year	0.016	41.143
100 Year	0.018	48.403

Peak flow reduction will be achieved by designing an outlet structure that restricts the runoff into the storm sewer system that is existing on Wellington Avenue.

The storage that is being proposed will be surface storage within the site with an overland flow towards Wellington Avenue. We have illustrated on the enclosed preliminary grading and servicing plan. (Included within Appendix 'C' of this report).

The proposed stormwater management system includes the provision for a minor system designed to accommodate the 5-year storm event.

January 2022

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## **GRADING**

Preliminary site grades are illustrated on the attached grading plan prepared by J H Cohoon Engineering Limited being drawing 14591-1 included with this report.

## **UTILITIES**

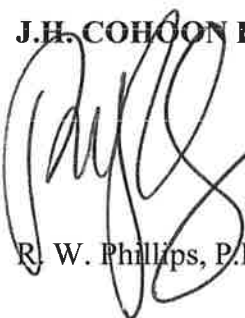
Gas, hydro, Bell, and cable utilities are available to service the proposed development. Coordination of these services will be required with Union Gas, Brantford Power, Bell, and Rogers.

## **CONCLUSIONS**

The preceding sections of this report outline the preliminary servicing and grading requirements for the proposed residential development on this site. Based on the work completed to date, it may be concluded that the proposed development may be developed with full municipal services.

Report Prepared By:

**J.H. COHOON ENGINEERING LIMITED**

  
R. W. Phillips, P.Eng.



**Appendix 'A'**  
**Development Proposal as prepared by**  
**J H Cohoon Engineering Drawing 14591-2**

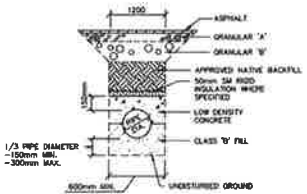


SITE STATISTICS

ITEM	PROPOSAL	ZONING BYLAW REQUIREMENTS	COMPLIANCE
ZONING CATEGORY	CBD	CBD	✓
LOT AREA (sq. m.)	1833.86	—	✓
LOT FRONTAGE (m)	32.754	—	✓
GROUND FLOOR AREA (sq. m.)	456.86	—	✓
TOTAL GROSS FLOOR AREA (sq. m.)	1370.64	N/A	✓
LOT COVERAGE	27.05	80% MAX.	✓
STREET SETBACK (m)	2.00	0.00 MIN./3.0 MAX.	✓
REAR YARD (m)	20.54	0.00	✓
SIDE YARD (m)	2.75	0.00	✓
NUMBER OF PARKING SPACES	16	*	✓
NUMBER OF BARRIER FREE PARKING SPACES	2	*	✓
PARKING STALL DIMENSIONS (m)	3.00 x 5.80	3.00 x 5.80	✓
BARRIER FREE PARKING STALL DIMENSIONS (m)	4.90 x 5.50	4.90 x 5.50 (TYPE 'A')	✓
BUILDING HEIGHT (m)	3 STOREYS	8 STOREYS MAX.	✓

\* 4.11.1 NOTWITHSTANDING SUBSECTION 4.8, NO PARKING SPACES ARE REQUIRED FOR ANY LANDS IDENTIFIED IN THE CENTRAL BUSINESS DISTRICT ZONE (CBD)

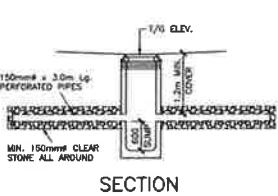
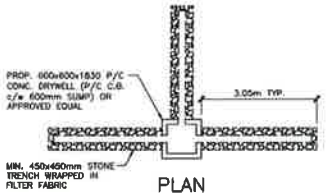
\* ANY DWELLING UNITS IN THE CBD ZONE SHALL NOT OCCUPY MORE THAN 50 PERCENT OF THE USABLE FLOOR AREA OF THE FIRST STOREY, AND THE FRONTAGES OF THE FIRST STOREY SHALL BE DEDICATED TO RETAIL, OFFICE OR SERVICE USES (66-2-2016)



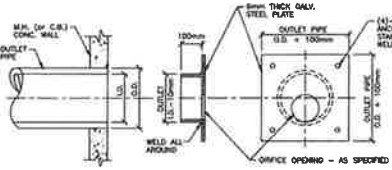
TYP. PIPE INSULATION DETAIL  
N.T.S.

SANITARY SYSTEM				
M/H No.	DESCRIPTION	T/G	INVERTS	
S1	SANITARY INSPECTION M/H	230.40	N 228.40	S 228.37

STORM SYSTEM				
M/H No.	DESCRIPTION	T/G	INVERTS	
ST1	0.6x0.6x1.83m P/C CB	230.20	N 229.43	S 229.43

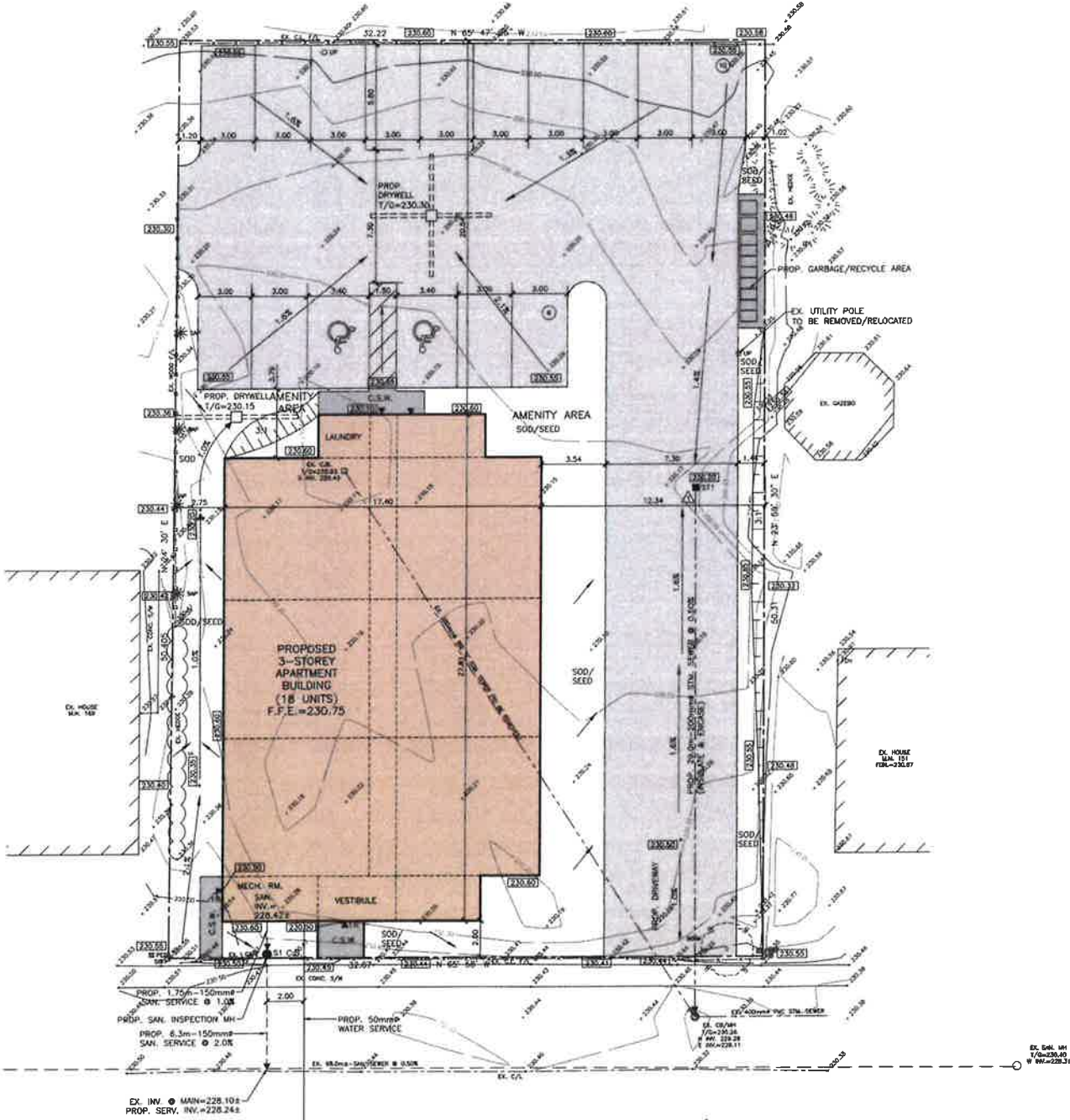


PROPOSED DRYWELL DETAIL  
N.T.S.



FLOW CONTROL DEVICE  
ORIFICE PLATE  
N.T.S.

C.B. ORIFICE PLATE SIZING	
ORIFICE PLATE CONFIGURATION NUMBER	DIAMETER OF ORIFICE PLATE OPENING
1	75mm



WELLINGTON AVENUE

LEGEND:

- EXISTING ELEVATIONS
- PROPOSED ELEVATIONS
- PROPOSED SWALE ELEVATIONS
- PROPOSED SWALE
- GENERAL DRAINAGE

NOTES:

- ALL ELEVATIONS SHOWN ARE METRIC.
- BUILDER/OWNER TO VERIFY COMPLIANCE WITH ZONING BYLAWS (i.e. SIDEYARDS, SETBACKS, REARYARDS ETC.)

T.B.M. No. 1 ELEV. = 231.54m (GEO)  
TOP HUT OF FIRE HYDRANT AS SHOWN

NO.	REVISION	DATE (MM/DD/YY)	BY
2	GRADING & ORIFICE PLATE	01/18/22	S.L.M.
1	BUILDING/PARKING LAYOUT	10/20/21	S.L.M.

**J.H. COHOON ENGINEERING LIMITED**  
CONSULTING ENGINEERS  
440 HARDY ROAD, UNIT #1, BRANTFORD - ONTARIO, N3T 5L8  
TEL. (519) 753-2655 FAX. (519) 753-4263 www.cohooneng.com

PROJECT:  
**PROPOSED APARTMENT DWELLING**  
161 WELLINGTON AVENUE, DELHI  
NORFOLK COUNTY

CLIENT:  
NEXJEN RENTAL CORPORATION

SITE DEVELOPMENT PLAN

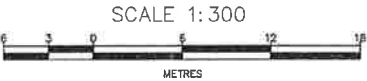
DESIGN: J.H.C.	SCALE: 1:150
DRAWN: S.L.M.	JOB No: 14591
CHECKED: R.W.P.	
SHEET: 1 of 1	DWG. No: 14591-1
DATE: JULY 20, 2021	

**Appendix 'B'**  
**Plan of Survey – Prepared by MacAulay White and Muir Ltd (Brantford)**

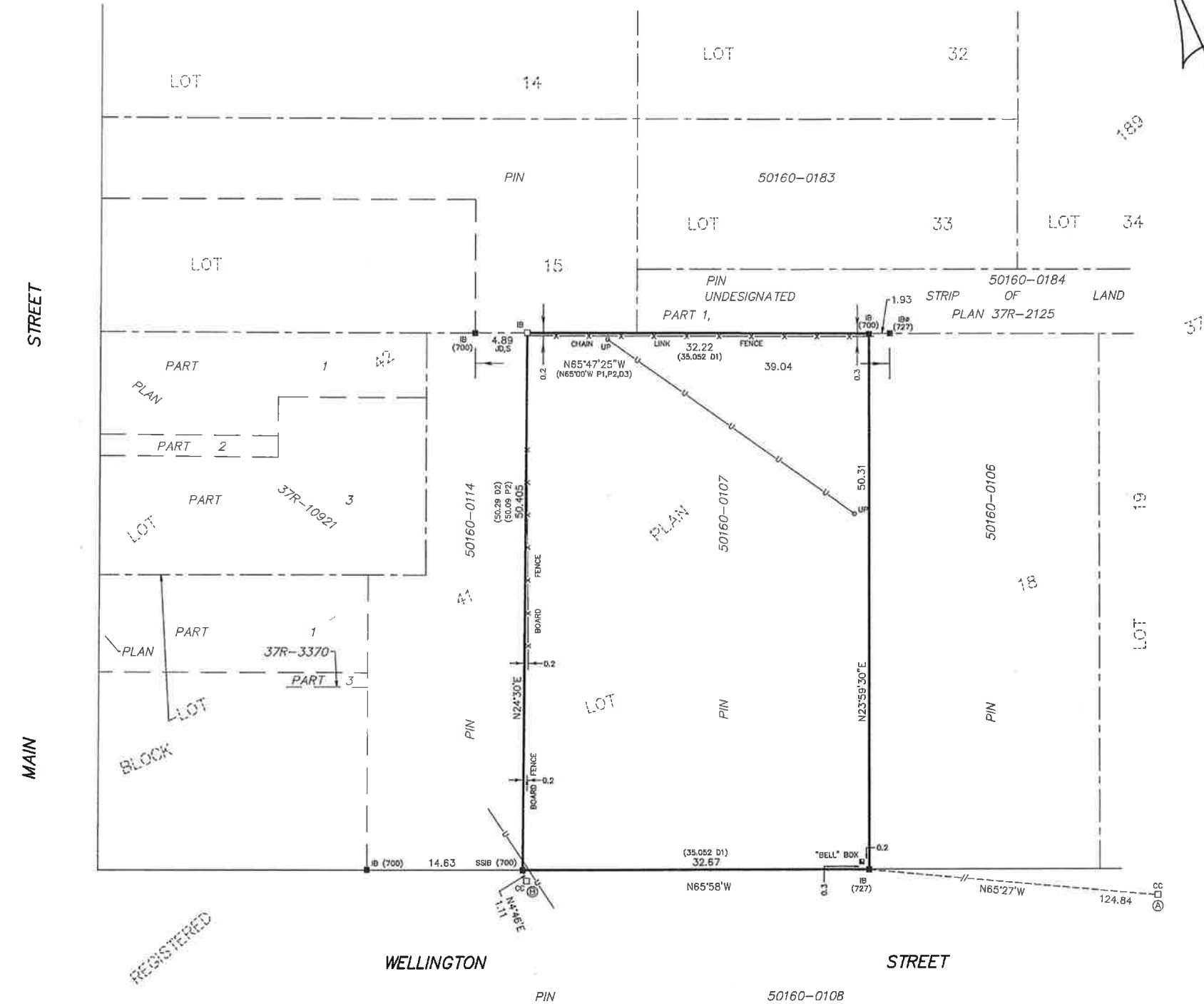
METRIC  
DISTANCES AND CO-ORDINATES SHOWN ON  
THIS PLAN ARE IN METRES AND CAN BE  
CONVERTED TO FEET BY DIVIDING BY 0.3048.

SURVEYOR'S REAL PROPERTY REPORT

PART 1 - PLAN OF SURVEY OF  
PART OF LOT 18  
BLOCK 37  
REGISTERED PLAN 189  
NORFOLK COUNTY



MacAULAY, WHITE & MUIR LTD.  
© COPYRIGHT 2021



LEGEND

- SIB - STANDARD IRON BAR
- SSIB - SHORT STANDARD IRON BAR
- IB - IRON BAR
- CC - CUT CROSS
- CP - CONCRETE PIN
- - PLANTED
- - FOUND
- - ROUND
- WT - WITNESS
- S - SET
- P1 - PLAN 37R-2125
- P2 - REGISTERED PLAN 189
- D1 - PIN 50160-0107 (INST. NR188498)
- D2 - PIN 50160-0114 (INST. NR560000)
- D3 - PIN 50160-0183 (INST. NR519033)
- JD - RECORD OF JEWITT & DIXON LTD. (PROJECT No. 16-1154)
- U- OVERHEAD UTILITY LINE
- UP - UTILITY POLE

NOTES:

PART 2 - WRITTEN REPORT

AN OVERHEAD UTILITY LINE SERVING ADJOINING LAND, CROSSES SUBJECT LAND.

THIS PLAN HAS BEEN PREPARED FOR ANGELO CAPPUCCI AND THE UNDERSIGNED ACCEPTS NO RESPONSIBILITY FOR USE BY ANY OTHERS. BEARINGS ARE GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B BY REAL TIME NETWORK OBSERVATION, UTM ZONE 17, NAD83 (CSRS) (2010). DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999590. ALL DIMENSIONS ARE MEASURED UNLESS QUALIFIED. ALL FENCES ARE "ON LINE" UNLESS TIES TO THE PROPERTY LINE ARE SHOWN.

OBSERVED REFERENCE POINTS (ORP): UTM ZONE 17, NAD83 (CSRS) (2010)  
CO-ORDINATES TO URBAN ACCURACY PER SEC. 14(2) OF O. REG 216/10.

POINT ID	NORTHING	EASTING
A	4744481.55	541064.73
B	4744545.65	540921.38

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

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

- THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT AND THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
- THE SURVEY WAS COMPLETED ON THE 27th DAY OF MAY, 2021.

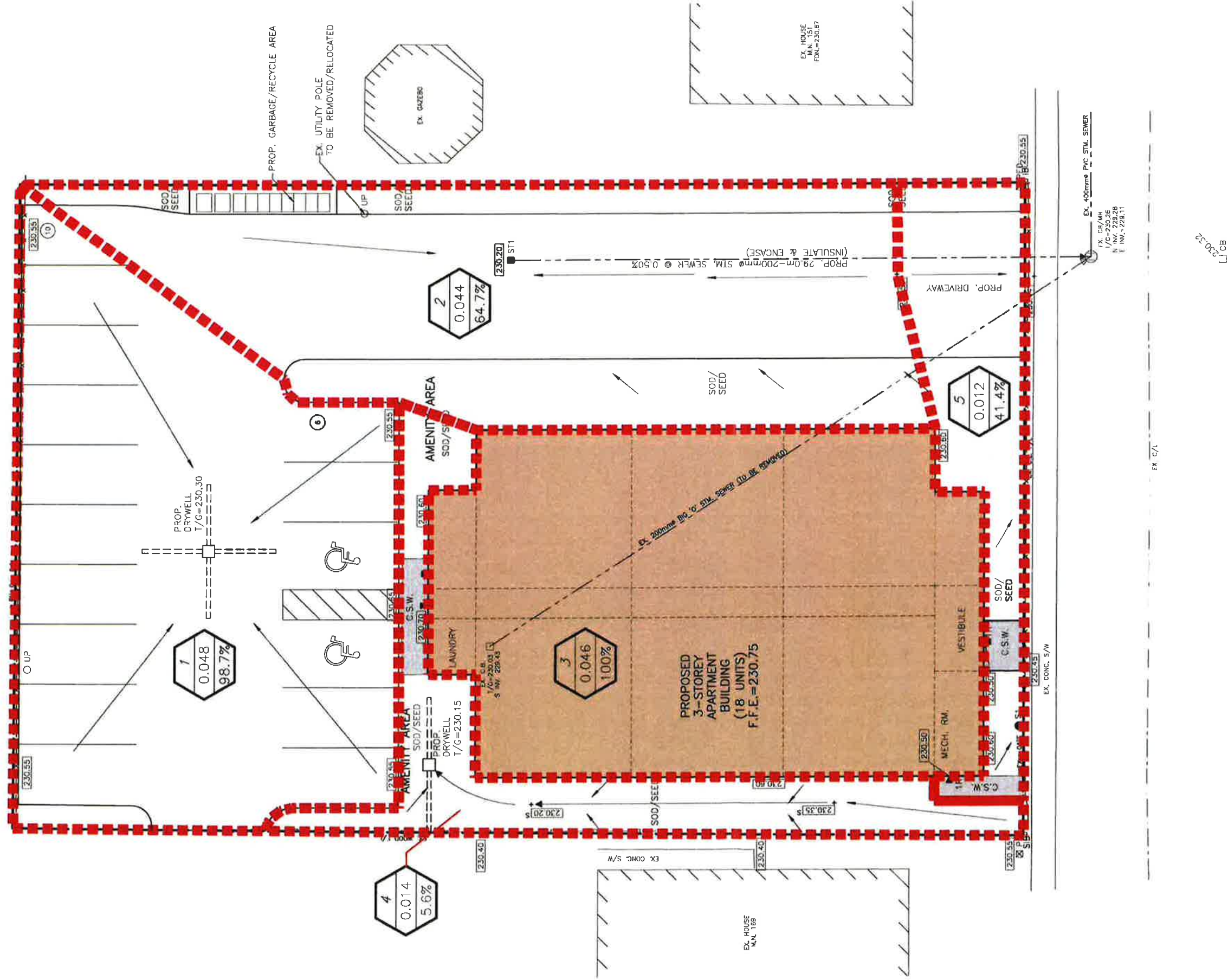
MAY 28, 2021

*John W. Muir*  
JOHN W. MUIR  
ONTARIO LAND SURVEYOR



MacAULAY, WHITE & MUIR LTD.  
ONTARIO LAND SURVEYORS - CANADA LANDS SURVEYORS  
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TEL 519-752-0040 FAX 519-752-0087 mwmurvey@bellnet.ca





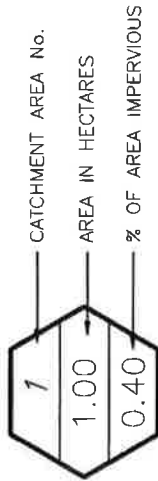
WELLINGTON AVENUE

POST DEVELOPMENT  
STORM DRAINAGE AREAS

PROPOSED APARTMENT DWELLING  
WELLINGTON AVENUE NORFOLK COUNTY

LEGEND

STORM DRAINAGE BOUNDARY



J.H. COHOON ENGINEERING LIMITED  
CONSULTING ENGINEERS  
BRANTFORD

CLIENT: NEXJEN RENTAL CORPORATION  
SCALE: 1:200  
JOB: 14591





Orifice Plate Calculations  
Proposed Residential Development  
MN 161 Wellington Avenue  
Delhi, Ontario Norfolk County

14591

Jan-22

POND NO. 1 ST1

Stage (m)	Depth (m)	Storage (cu.m.)	Discharge (cms)	h (m)	2gh	$= (2gh)^{0.5}$	C
230.20	0.00	0.76	0.0164	1.76	34.58025	5.8805	0.63
230.35	0.15	21.38	0.0170	1.91	37.52325	6.1256	0.63
230.50	0.30	83.26	0.0177	2.06	40.46625	6.3613	0.63

Invert of Outlet/Orifice Plate  
Orifice Plate Diameter  
Centreline of Orifice Plate

228.40  
75 mm  
228.44

Area of Orifice  
Structure Storage

0.0044 sq.m.  
0.756 cu.m.

```

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"          Runoff coefficient  0.232  0.000  0.232  "

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"	4 Add Runoff "				
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"	Total Catchment area			0.160	hectare"
"	Total Impervious area			0.000	hectare"
"	Total % impervious			0.000"	
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"      MIDUSS created                      February-07-10"
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"      Company                            "
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"      10.000  Time Step"
"      180.000  Max. Storm length"
"      1500.000  Max. Hydrograph"
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"      Total depth                44.904  mm"
"      6  005hyd  Hydrograph extension used in this file"
" 33      CATCHMENT 101"
"      2  Rectangular"
"      1  Equal length"
"      2  Horton equation"
"      101  No description"
"      0.000  % Impervious"
"      0.160  Total Area"
"      32.653  Flow length"
"      0.500  Overland Slope"
"      0.160  Pervious Area"
"      32.653  Pervious length"
"      0.500  Pervious slope"
"      0.000  Impervious Area"
"      32.653  Impervious length"
"      0.500  Impervious slope"
"      0.250  Pervious Manning 'n'"
"      35.000  Pervious Max.infiltration"
"      5.000  Pervious Min.infiltration"
"      0.250  Pervious Lag constant (hours)"
"      7.500  Pervious Depression storage"
"      0.015  Impervious Manning 'n'"
"      0.000  Impervious Max.infiltration"
"      0.000  Impervious Min.infiltration"
"      0.050  Impervious Lag constant (hours)"
"      2.000  Impervious Depression storage"
"      0.015  0.000  0.000  0.000 c.m/sec"
"      Catchment 101  Pervious  Impervious  Total Area  "
"      Surface Area  0.160  0.000  0.160  hectare"
"      Time of concentration  22.910  3.651  22.910  minutes"
"      Time to Centroid  103.562  89.611  103.562  minutes"
"      Rainfall depth  44.904  44.904  44.904  mm"
"      Rainfall volume  71.85  0.00  71.85  c.m"
"      Rainfall losses  26.944  2.000  26.944  mm"
"      Runoff depth  17.960  42.904  17.960  mm"
"      Runoff volume  28.74  0.00  28.74  c.m"
"      Runoff coefficient  0.400  0.000  0.400  "

```



"	Maximum flow	0.015	0.000	0.015	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.015 0.015 0.000 0.000"				
" 38	START/RE-START TOTALS 101"				
"	3 Runoff Totals on EXIT"				
"	Total Catchment area		0.160	hectare"	
"	Total Impervious area		0.000	hectare"	
"	Total % impervious		0.000"		
" 19	EXIT"				

```

"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25  rev. 473"
"          MIDUSS created                      February-07-10"
"          10  Units used:                      ie METRIC"
"          Job folder:                        C:\swm\MIDUSS\14591"
"          Output filename:                    pre10.out"
"          Licensee name:                      Bob"
"          Company                            "
"          Date & Time last used:              23/05/2021 at 10:11:04 AM"
" 31      TIME PARAMETERS"
"          10.000  Time Step"
"          180.000  Max. Storm length"
"          1500.000  Max. Hydrograph"
" 32      STORM Chicago storm"
"          1  Chicago storm"
"          670.324  Coefficient A"
"          3.007  Constant B"
"          0.698  Exponent C"
"          0.400  Fraction R"
"          180.000  Duration"
"          1.000  Time step multiplier"
"          Maximum intensity          107.682  mm/hr"
"          Total depth                52.991  mm"
"          6  005hyd  Hydrograph extension used in this file"
" 33      CATCHMENT 101"
"          2  Rectangular"
"          1  Equal length"
"          2  Horton equation"
"          101  No description"
"          0.000  % Impervious"
"          0.160  Total Area"
"          32.653  Flow length"
"          0.500  Overland Slope"
"          0.160  Pervious Area"
"          32.653  Pervious length"
"          0.500  Pervious slope"
"          0.000  Impervious Area"
"          32.653  Impervious length"
"          0.500  Impervious slope"
"          0.250  Pervious Manning 'n'"
"          35.000  Pervious Max.infiltration"
"          5.000  Pervious Min.infiltration"
"          0.250  Pervious Lag constant (hours)"
"          7.500  Pervious Depression storage"
"          0.015  Impervious Manning 'n'"
"          0.000  Impervious Max.infiltration"
"          0.000  Impervious Min.infiltration"
"          0.050  Impervious Lag constant (hours)"
"          2.000  Impervious Depression storage"
"          0.023  0.000  0.000  0.000 c.m/sec"
"          Catchment 101  Pervious  Impervious  Total Area  "
"          Surface Area  0.160  0.000  0.160  hectare"
"          Time of concentration  19.847  3.435  19.847  minutes"
"          Time to Centroid  103.465  89.198  103.465  minutes"
"          Rainfall depth  52.991  52.991  52.991  mm"
"          Rainfall volume  84.79  0.00  84.79  c.m"
"          Rainfall losses  27.338  2.000  27.338  mm"
"          Runoff depth  25.653  50.991  25.653  mm"
"          Runoff volume  41.05  0.00  41.05  c.m"
"          Runoff coefficient  0.484  0.000  0.484  "

```

"	Maximum flow	0.023	0.000	0.023	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.023 0.023	0.000	0.000"		
" 38	START/RE-START TOTALS 101"				
"	3 Runoff Totals on EXIT"				
"	Total Catchment area		0.160	hectare"	
"	Total Impervious area		0.000	hectare"	
"	Total % impervious		0.000"		
" 19	EXIT"				

```

"      MIDUSS Output ----->"
"      MIDUSS version                      Version 2.25  rev. 473"
"      MIDUSS created                      February-07-10"
"      10  Units used:                      ie METRIC"
"      Job folder:                        C:\swm\MIDUSS\14591"
"      Output filename:                    pre25.out"
"      Licensee name:                      Bob"
"      Company                            "
"      Date & Time last used:              23/05/2021 at 10:12:06 AM"
31  TIME PARAMETERS"
"      10.000  Time Step"
"      180.000  Max. Storm length"
"      1500.000  Max. Hydrograph"
32  STORM Chicago storm"
"      1  Chicago storm"
"      721.533  Coefficient A"
"      2.253  Constant B"
"      0.679  Exponent C"
"      0.400  Fraction R"
"      180.000  Duration"
"      1.000  Time step multiplier"
"      Maximum intensity          127.011  mm/hr"
"      Total depth                63.151  mm"
"      6  005hyd  Hydrograph extension used in this file"
33  CATCHMENT 101"
"      2  Rectangular"
"      1  Equal length"
"      2  Horton equation"
"      101  No description"
"      0.000  % Impervious"
"      0.160  Total Area"
"      32.653  Flow length"
"      0.500  Overland Slope"
"      0.160  Pervious Area"
"      32.653  Pervious length"
"      0.500  Pervious slope"
"      0.000  Impervious Area"
"      32.653  Impervious length"
"      0.500  Impervious slope"
"      0.250  Pervious Manning 'n'"
"      35.000  Pervious Max.infiltration"
"      5.000  Pervious Min.infiltration"
"      0.250  Pervious Lag constant (hours)"
"      7.500  Pervious Depression storage"
"      0.015  Impervious Manning 'n'"
"      0.000  Impervious Max.infiltration"
"      0.000  Impervious Min.infiltration"
"      0.050  Impervious Lag constant (hours)"
"      2.000  Impervious Depression storage"
"      0.031  0.000  0.000  0.000 c.m/sec"
"      Catchment 101  Pervious  Impervious Total Area "
"      Surface Area  0.160  0.000  0.160  hectare"
"      Time of concentration  17.735  3.215  17.735  minutes"
"      Time to Centroid  104.252  89.000  104.252  minutes"
"      Rainfall depth  63.151  63.151  63.151  mm"
"      Rainfall volume  101.04  0.00  101.04  c.m"
"      Rainfall losses  27.917  2.000  27.917  mm"
"      Runoff depth  35.234  61.151  35.234  mm"
"      Runoff volume  56.37  0.00  56.37  c.m"
"      Runoff coefficient  0.558  0.000  0.558  "

```

"	Maximum flow	0.031	0.000	0.031	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.031 0.031 0.000 0.000"				
" 38	START/RE-START TOTALS 101"				
"	3 Runoff Totals on EXIT"				
"	Total Catchment area		0.160	hectare"	
"	Total Impervious area		0.000	hectare"	
"	Total % impervious		0.000"		
" 19	EXIT"				



```

"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25  rev. 473"
"          MIDUSS created                      February-07-10"
"          10  Units used:                      ie METRIC"
"          Job folder:                      C:\swm\MIDUSS\14591"
"          Output filename:                      pre50.out"
"          Licensee name:                      Bob"
"          Company
"          Date & Time last used:                23/05/2021 at 10:13:12 AM"
" 31      TIME PARAMETERS"
"          10.000  Time Step"
"          180.000  Max. Storm length"
"          1500.000  Max. Hydrograph"
" 32      STORM Chicago storm"
"          1  Chicago storm"
"          766.038  Coefficient A"
"          1.898  Constant B"
"          0.668  Exponent C"
"          0.400  Fraction R"
"          180.000  Duration"
"          1.000  Time step multiplier"
"          Maximum intensity                141.545  mm/hr"
"          Total depth                    71.090  mm"
"          6  005hyd  Hydrograph extension used in this file"
" 33      CATCHMENT 101"
"          2  Rectangular"
"          1  Equal length"
"          2  Horton equation"
"          101  No description"
"          0.000  % Impervious"
"          0.160  Total Area"
"          32.653  Flow length"
"          0.500  Overland Slope"
"          0.160  Pervious Area"
"          32.653  Pervious length"
"          0.500  Pervious slope"
"          0.000  Impervious Area"
"          32.653  Impervious length"
"          0.500  Impervious slope"
"          0.250  Pervious Manning 'n'"
"          35.000  Pervious Max.infiltration"
"          5.000  Pervious Min.infiltration"
"          0.250  Pervious Lag constant (hours)"
"          7.500  Pervious Depression storage"
"          0.015  Impervious Manning 'n'"
"          0.000  Impervious Max.infiltration"
"          0.000  Impervious Min.infiltration"
"          0.050  Impervious Lag constant (hours)"
"          2.000  Impervious Depression storage"
"          0.037  0.000  0.000  0.000 c.m/sec"
"          Catchment 101  Pervious  Impervious Total Area "
"          Surface Area  0.160  0.000  0.160  hectare"
"          Time of concentration  16.936  3.079  16.936  minutes"
"          Time to Centroid  104.044  88.897  104.044  minutes"
"          Rainfall depth  71.090  71.090  71.090  mm"
"          Rainfall volume  113.74  0.00  113.74  c.m"
"          Rainfall losses  28.224  2.000  28.224  mm"
"          Runoff depth  42.866  69.090  42.866  mm"
"          Runoff volume  68.59  0.00  68.59  c.m"
"          Runoff coefficient  0.603  0.000  0.603  "

```

"	Maximum flow	0.037	0.000	0.037	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.037 0.037 0.000 0.000"				
" 38	START/RE-START TOTALS 101"				
"	3 Runoff Totals on EXIT"				
"	Total Catchment area			0.160	hectare"
"	Total Impervious area			0.000	hectare"
"	Total % impervious			0.000"	
" 19	EXIT"				

```

"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25  rev. 473"
"          MIDUSS created                      February-07-10"
"          10  Units used:                      ie METRIC"
"          Job folder:                        C:\swm\MIDUSS\14591"
"          Output filename:                    pre100.out"
"          Licensee name:                      Bob"
"          Company                            "
"          Date & Time last used:              23/05/2021 at 10:14:16 AM"
" 31      TIME PARAMETERS"
"          10.000  Time Step"
"          180.000  Max. Storm length"
"          1500.000  Max. Hydrograph"
" 32      STORM Chicago storm"
"          1  Chicago storm"
"          801.041  Coefficient A"
"          1.501  Constant B"
"          0.657  Exponent C"
"          0.400  Fraction R"
"          180.000  Duration"
"          1.000  Time step multiplier"
"          Maximum intensity          155.782  mm/hr"
"          Total depth                78.830  mm"
"          6  005hyd  Hydrograph extension used in this file"
" 33      CATCHMENT 101"
"          2  Rectangular"
"          1  Equal length"
"          2  Horton equation"
"          101  No description"
"          0.000  % Impervious"
"          0.160  Total Area"
"          32.653  Flow length"
"          0.500  Overland Slope"
"          0.160  Pervious Area"
"          32.653  Pervious length"
"          0.500  Pervious slope"
"          0.000  Impervious Area"
"          32.653  Impervious length"
"          0.500  Impervious slope"
"          0.250  Pervious Manning 'n'"
"          35.000  Pervious Max.infiltration"
"          5.000  Pervious Min.infiltration"
"          0.250  Pervious Lag constant (hours)"
"          7.500  Pervious Depression storage"
"          0.015  Impervious Manning 'n'"
"          0.000  Impervious Max.infiltration"
"          0.000  Impervious Min.infiltration"
"          0.050  Impervious Lag constant (hours)"
"          2.000  Impervious Depression storage"
"          0.045  0.000  0.000  0.000 c.m/sec"
"          Catchment 101  Pervious  Impervious Total Area "
"          Surface Area  0.160  0.000  0.160  hectare"
"          Time of concentration  16.265  2.963  16.265  minutes"
"          Time to Centroid  103.789  88.849  103.789  minutes"
"          Rainfall depth  78.830  78.830  78.830  mm"
"          Rainfall volume  126.13  0.00  126.13  c.m"
"          Rainfall losses  28.581  2.000  28.581  mm"
"          Runoff depth  50.249  76.830  50.249  mm"
"          Runoff volume  80.40  0.00  80.40  c.m"
"          Runoff coefficient  0.637  0.000  0.637  "

```

"	Maximum flow	0.045	0.000	0.045	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.045 0.045	0.000	0.000"		
" 38	START/RE-START TOTALS 101"				
"	3 Runoff Totals on EXIT"				
"	Total Catchment area		0.160	hectare"	
"	Total Impervious area		0.000	hectare"	
"	Total % impervious		0.000"		
" 19	EXIT"				

```

"      MIDUSS Output ----->"
"      MIDUSS version                      Version 2.25  rev. 473"
"      MIDUSS created                      February-07-10"
"      10  Units used:                      ie METRIC"
"      Job folder:                        C:\swm\MIDUSS\14591"
"      Output filename:                    pst2.out"
"      Licensee name:                      Bob"
"      Company
"      Date & Time last used:              23/05/2021 at 10:57:30 AM"
31      TIME PARAMETERS"
"      10.000  Time Step"
"      180.000  Max. Storm length"
"      1500.000  Max. Hydrograph"
32      STORM Chicago storm"
"      1  Chicago storm"
"      529.711  Coefficient A"
"      4.501  Constant B"
"      0.745  Exponent C"
"      0.400  Fraction R"
"      180.000  Duration"
"      1.000  Time step multiplier"
"      Maximum intensity                    69.337  mm/hr"
"      Total depth                        32.583  mm"
"      6  005hyd  Hydrograph extension used in this file"
33      CATCHMENT 101"
"      2  Rectangular"
"      1  Equal length"
"      2  Horton equation"
"      101  No description"
"      98.700  % Impervious"
"      0.048  Total Area"
"      9.600  Flow length"
"      2.000  Overland Slope"
"      0.001  Pervious Area"
"      9.600  Pervious length"
"      2.000  Pervious slope"
"      0.047  Impervious Area"
"      9.600  Impervious length"
"      2.000  Impervious slope"
"      0.250  Pervious Manning 'n'"
"      35.000  Pervious Max.infiltration"
"      5.000  Pervious Min.infiltration"
"      0.500  Pervious Lag constant (hours)"
"      7.500  Pervious Depression storage"
"      0.015  Impervious Manning 'n'"
"      0.000  Impervious Max.infiltration"
"      0.000  Impervious Min.infiltration"
"      0.050  Impervious Lag constant (hours)"
"      2.000  Impervious Depression storage"
"      0.009  0.000  0.000  0.000 c.m/sec"
"      Catchment 101  Pervious  Impervious  Total Area  "
"      Surface Area  0.001  0.047  0.048  hectare"
"      Time of concentration  15.535  1.296  1.311  minutes"
"      Time to Centroid  87.461  89.815  89.813  minutes"
"      Rainfall depth  32.583  32.583  32.583  mm"
"      Rainfall volume  0.20  15.44  15.64  c.m"
"      Rainfall losses  30.249  2.000  2.367  mm"
"      Runoff depth  2.334  30.583  30.216  mm"
"      Runoff volume  0.01  14.49  14.50  c.m"
"      Runoff coefficient  0.072  0.939  0.927  "

```



"	Maximum flow	0.000	0.009	0.009	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.009	0.009	0.000	0.000"	
" 51	PIPE DESIGN"				
"	0.009 Current peak flow	c.m/sec"			
"	0.013 Manning 'n'"				
"	1.000 Diameter	metre"			
"	1.000 Gradient	%"			
"	Depth of flow	0.045	metre"		
"	Velocity	0.731	m/sec"		
"	Pipe capacity	2.398	c.m/sec"		
"	Critical depth	0.052	metre"		
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length	( metre)"			
"	0.009	0.009	0.009	0.000 c.m/sec"	
" 40	HYDROGRAPH Combine	1"			
"	6 Combine "				
"	1 Node #"				
"	"				
"	Maximum flow	0.009	c.m/sec"		
"	Hydrograph volume	14.504	c.m"		
"	0.009	0.009	0.009	0.009"	
" 40	HYDROGRAPH Start - New Tributary"				
"	2 Start - New Tributary"				
"	0.009	0.000	0.009	0.009"	
" 33	CATCHMENT 102"				
"	2 Rectangular"				
"	1 Equal length"				
"	2 Horton equation"				
"	102 No description"				
"	64.700 % Impervious"				
"	0.044 Total Area"				
"	5.800 Flow length"				
"	2.000 Overland Slope"				
"	0.016 Pervious Area"				
"	5.800 Pervious length"				
"	2.000 Pervious slope"				
"	0.028 Impervious Area"				
"	5.800 Impervious length"				
"	2.000 Impervious slope"				
"	0.250 Pervious Manning 'n'"				
"	35.000 Pervious Max.infiltration"				
"	5.000 Pervious Min.infiltration"				
"	0.500 Pervious Lag constant (hours)"				
"	7.500 Pervious Depression storage"				
"	0.015 Impervious Manning 'n'"				
"	0.000 Impervious Max.infiltration"				
"	0.000 Impervious Min.infiltration"				
"	0.050 Impervious Lag constant (hours)"				
"	2.000 Impervious Depression storage"				
"	0.006	0.000	0.009	0.009 c.m/sec"	
"	Catchment 102	Pervious	Impervious	Total Area	"
"	Surface Area	0.016	0.028	0.044	hectare"
"	Time of concentration	11.482	0.958	1.379	minutes"
"	Time to Centroid	85.236	89.815	89.632	minutes"
"	Rainfall depth	32.583	32.583	32.583	mm"
"	Rainfall volume	5.06	9.28	14.34	c.m"
"	Rainfall losses	30.249	2.000	11.972	mm"
"	Runoff depth	2.334	30.583	20.611	mm"

"	Runoff volume	0.36	8.71	9.07	c.m"
"	Runoff coefficient	0.072	0.939	0.633	"
"	Maximum flow	0.000	0.005	0.006	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.006	0.006	0.009	0.009"	
" 51	PIPE DESIGN"				
"	0.006 Current peak flow	c.m/sec"			
"	0.013 Manning 'n'"				
"	1.000 Diameter	metre"			
"	1.000 Gradient	%"			
"	Depth of flow	0.036	metre"		
"	Velocity	0.637	m/sec"		
"	Pipe capacity	2.398	c.m/sec"		
"	Critical depth	0.042	metre"		
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length	( metre)"			
"	0.006	0.006	0.006	0.009 c.m/sec"	
" 40	HYDROGRAPH Combine	2"			
"	6 Combine "				
"	2 Node #"				
"	"				
"	Maximum flow	0.006	c.m/sec"		
"	Hydrograph volume	9.069	c.m"		
"	0.006	0.006	0.006	0.006"	
" 40	HYDROGRAPH Start - New Tributary"				
"	2 Start - New Tributary"				
"	0.006	0.000	0.006	0.006"	
" 33	CATCHMENT 103"				
"	2 Rectangular"				
"	1 Equal length"				
"	2 Horton equation"				
"	103 No description"				
"	100.000 % Impervious"				
"	0.046 Total Area"				
"	13.529 Flow length"				
"	2.000 Overland Slope"				
"	0.000 Pervious Area"				
"	13.529 Pervious length"				
"	2.000 Pervious slope"				
"	0.046 Impervious Area"				
"	13.529 Impervious length"				
"	2.000 Impervious slope"				
"	0.250 Pervious Manning 'n'"				
"	35.000 Pervious Max.infiltration"				
"	5.000 Pervious Min.infiltration"				
"	0.500 Pervious Lag constant (hours)"				
"	7.500 Pervious Depression storage"				
"	0.015 Impervious Manning 'n'"				
"	0.000 Impervious Max.infiltration"				
"	0.000 Impervious Min.infiltration"				
"	0.050 Impervious Lag constant (hours)"				
"	2.000 Impervious Depression storage"				
"	0.009	0.000	0.006	0.006 c.m/sec"	
"	Catchment 103	Pervious	Impervious	Total Area "	
"	Surface Area	0.000	0.046	0.046	hectare"
"	Time of concentration	19.086	1.593	1.593	minutes"
"	Time to Centroid	89.132	89.815	89.815	minutes"
"	Rainfall depth	32.583	32.583	32.583	mm"
"	Rainfall volume	0.00	14.99	14.99	c.m"

"		Rainfall losses	30.249	2.000	2.000	mm"
"		Runoff depth	2.334	30.583	30.583	mm"
"		Runoff volume	0.00	14.07	14.07	c.m"
"		Runoff coefficient	0.000	0.939	0.939	"
"		Maximum flow	0.000	0.009	0.009	c.m/sec"
" 40		HYDROGRAPH Add Runoff "				
"	4	Add Runoff "				
"		0.009	0.009	0.006	0.006"	
" 51		PIPE DESIGN"				
"	0.009	Current peak flow	c.m/sec"			
"	0.013	Manning 'n'"				
"	1.000	Diameter	metre"			
"	1.000	Gradient	%"			
"		Depth of flow	0.044	metre"		
"		Velocity	0.724	m/sec"		
"		Pipe capacity	2.398	c.m/sec"		
"		Critical depth	0.051	metre"		
" 53		ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"			
"		0.009	0.009	0.009	0.006 c.m/sec"	
" 40		HYDROGRAPH Combine 3"				
"	6	Combine "				
"	3	Node #"				
"		"				
"		Maximum flow	0.009	c.m/sec"		
"		Hydrograph volume	14.068	c.m"		
"		0.009	0.009	0.009	0.009"	
" 40		HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"				
"		0.009	0.000	0.009	0.009"	
" 33		CATCHMENT 104"				
"	2	Rectangular"				
"	1	Equal length"				
"	2	Horton equation"				
"	104	No description"				
"	5.600	% Impervious"				
"	0.014	Total Area"				
"	4.590	Flow length"				
"	2.000	Overland Slope"				
"	0.013	Pervious Area"				
"	4.590	Pervious length"				
"	2.000	Pervious slope"				
"	0.001	Impervious Area"				
"	4.590	Impervious length"				
"	2.000	Impervious slope"				
"	0.250	Pervious Manning 'n'"				
"	35.000	Pervious Max.infiltration"				
"	5.000	Pervious Min.infiltration"				
"	0.500	Pervious Lag constant (hours)"				
"	7.500	Pervious Depression storage"				
"	0.015	Impervious Manning 'n'"				
"	0.000	Impervious Max.infiltration"				
"	0.000	Impervious Min.infiltration"				
"	0.050	Impervious Lag constant (hours)"				
"	2.000	Impervious Depression storage"				
"		0.000	0.000	0.009	0.009 c.m/sec"	
"		Catchment 104	Pervious	Impervious	Total Area "	
"		Surface Area	0.013	0.001	0.014	hectare"
"		Time of concentration	9.978	0.833	5.978	minutes"
"		Time to Centroid	84.047	89.815	86.570	minutes"

"		Rainfall depth	32.583	32.583	32.583	mm"
"		Rainfall volume	4.31	0.26	4.56	c.m"
"		Rainfall losses	30.249	2.000	28.667	mm"
"		Runoff depth	2.334	30.583	3.916	mm"
"		Runoff volume	0.31	0.24	0.55	c.m"
"		Runoff coefficient	0.072	0.939	0.120	"
"		Maximum flow	0.000	0.000	0.000	c.m/sec"
" 40		HYDROGRAPH Add Runoff "				
"	4	Add Runoff "				
"		0.000	0.000	0.009	0.009"	
" 51		PIPE DESIGN"				
"	0.000	Current peak flow	c.m/sec"			
"	0.013	Manning 'n'"				
"	1.000	Diameter	metre"			
"	1.000	Gradient	%"			
"		Depth of flow	0.012	metre"		
"		Velocity	0.300	m/sec"		
"		Pipe capacity	2.398	c.m/sec"		
"		Critical depth	0.012	metre"		
" 53		ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"			
"		0.000	0.000	0.000	0.009 c.m/sec"	
" 40		HYDROGRAPH Combine	4"			
"	6	Combine "				
"	4	Node #"				
"		"				
"		Maximum flow	0.000	c.m/sec"		
"		Hydrograph volume	0.548	c.m"		
"		0.000	0.000	0.000	0.000"	
" 40		HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"				
"		0.000	0.000	0.000	0.000"	
" 33		CATCHMENT 105"				
"	2	Rectangular"				
"	1	Equal length"				
"	2	Horton equation"				
"	105	No description"				
"	41.400	% Impervious"				
"	0.012	Total Area"				
"	3.960	Flow length"				
"	2.000	Overland Slope"				
"	0.007	Pervious Area"				
"	3.960	Pervious length"				
"	2.000	Pervious slope"				
"	0.005	Impervious Area"				
"	3.960	Impervious length"				
"	2.000	Impervious slope"				
"	0.250	Pervious Manning 'n'"				
"	35.000	Pervious Max.infiltration"				
"	5.000	Pervious Min.infiltration"				
"	0.500	Pervious Lag constant (hours)"				
"	7.500	Pervious Depression storage"				
"	0.015	Impervious Manning 'n'"				
"	0.000	Impervious Max.infiltration"				
"	0.000	Impervious Min.infiltration"				
"	0.050	Impervious Lag constant (hours)"				
"	2.000	Impervious Depression storage"				
"		0.001	0.000	0.000	0.000 c.m/sec"	
"		Catchment 105	Pervious	Impervious	Total Area "	
"		Surface Area	0.007	0.005	0.012	hectare"

"	Time of concentration	9.132	0.762	1.578	minutes"
"	Time to Centroid	83.825	89.815	89.231	minutes"
"	Rainfall depth	32.583	32.583	32.583	mm"
"	Rainfall volume	2.29	1.62	3.91	c.m"
"	Rainfall losses	30.249	2.000	18.554	mm"
"	Runoff depth	2.334	30.583	14.029	mm"
"	Runoff volume	0.16	1.52	1.68	c.m"
"	Runoff coefficient	0.072	0.939	0.431	"
"	Maximum flow	0.000	0.001	0.001	c.m/sec"
40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.001 0.001 0.000 0.000"				
51	PIPE DESIGN"				
"	0.001 Current peak flow c.m/sec"				
"	0.013 Manning 'n'"				
"	1.000 Diameter metre"				
"	1.000 Gradient %"				
"	Depth of flow 0.017 metre"				
"	Velocity 0.387 m/sec"				
"	Pipe capacity 2.398 c.m/sec"				
"	Critical depth 0.018 metre"				
53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length ( metre)"				
"	0.001 0.001 0.001 0.000 c.m/sec"				
40	HYDROGRAPH Combine 5"				
"	6 Combine "				
"	5 Node #"				
"	"				
"	Maximum flow 0.001 c.m/sec"				
"	Hydrograph volume 1.684 c.m"				
"	0.001 0.001 0.001 0.001"				
40	HYDROGRAPH Confluence 5"				
"	7 Confluence "				
"	5 Node #"				
"	"				
"	Maximum flow 0.001 c.m/sec"				
"	Hydrograph volume 1.684 c.m"				
"	0.001 0.001 0.001 0.000"				
51	PIPE DESIGN"				
"	0.001 Current peak flow c.m/sec"				
"	0.013 Manning 'n'"				
"	1.000 Diameter metre"				
"	1.000 Gradient %"				
"	Depth of flow 0.017 metre"				
"	Velocity 0.387 m/sec"				
"	Pipe capacity 2.398 c.m/sec"				
"	Critical depth 0.018 metre"				
53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length ( metre)"				
"	0.001 0.001 0.001 0.000 c.m/sec"				
40	HYDROGRAPH Combine 999"				
"	6 Combine "				
"	999 Node #"				
"	"				
"	Maximum flow 0.001 c.m/sec"				
"	Hydrograph volume 1.684 c.m"				
"	0.001 0.001 0.001 0.001"				
40	HYDROGRAPH Confluence 4"				
"	7 Confluence "				
"	4 Node #"				



```

"
"
"      Maximum flow                0.000      c.m/sec"
"      Hydrograph volume            0.548      c.m"
"      0.001      0.000      0.001      0.000"
56  DIVERSION"
"      4      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow        0.000      c.m/sec"
"      Volume of diverted flow      0.548      c.m"
"      DIV00004.005hyd"
"      Divert to Infiltration Drywell 0.015 cms"
"      0.001      0.000      0.000      0.000 c.m/sec"
40  HYDROGRAPH Next link "
"      5      Next link "
"      0.001      0.000      0.000      0.000"
40  HYDROGRAPH Start - New Tributary"
"      2      Start - New Tributary"
"      0.001      0.000      0.000      0.000"
40  HYDROGRAPH Undo"
"      1      Undo"
"      0.001      0.000      0.000      0.000"
40  HYDROGRAPH Confluence 1"
"      7      Confluence "
"      1      Node #"
"      "
"      Maximum flow                0.009      c.m/sec"
"      Hydrograph volume            14.504      c.m"
"      0.001      0.009      0.000      0.000"
56  DIVERSION"
"      1      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow        0.009      c.m/sec"
"      Volume of diverted flow      14.504      c.m"
"      DIV00001.005hyd"
"      Divert to Infiltration Drywell 0.015 cms"
"      0.001      0.009      0.000      0.000 c.m/sec"
40  HYDROGRAPH Next link "
"      5      Next link "
"      0.001      0.000      0.000      0.000"
56  DIVERSION"
"      5      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow        0.000      c.m/sec"
"      Volume of diverted flow      0.000      c.m"
"      DIV00005.005hyd"
"      Divert to Surface Storage 27.2 cu.m. (35.8 available)"
"      0.001      0.000      0.000      0.000 c.m/sec"
40  HYDROGRAPH Combine 999"
"      6      Combine "
"      999      Node #"
"      "
"      Maximum flow                0.001      c.m/sec"
"      Hydrograph volume            1.684      c.m"
"      0.001      0.000      0.000      0.001"

```

```

" 40      HYDROGRAPH   Confluence   3"
"          7   Confluence  "
"          3   Node #"
"          "
"          Maximum flow           0.009   c.m/sec"
"          Hydrograph volume      14.068   c.m"
"          0.001   0.009   0.000   0.000"
" 51      PIPE DESIGN"
"          0.009   Current peak flow   c.m/sec"
"          0.013   Manning 'n'"
"          1.000   Diameter   metre"
"          1.000   Gradient   %"
"          Depth of flow           0.044   metre"
"          Velocity                 0.724   m/sec"
"          Pipe capacity            2.398   c.m/sec"
"          Critical depth           0.051   metre"
" 53      ROUTE Zero Route"
"          0.00   Zero Route Reach length   ( metre)"
"          0.001   0.009   0.009   0.000 c.m/sec"
" 40      HYDROGRAPH   Combine     2"
"          6   Combine  "
"          2   Node #"
"          "
"          Maximum flow           0.015   c.m/sec"
"          Hydrograph volume      23.137   c.m"
"          0.001   0.009   0.009   0.015"
" 40      HYDROGRAPH   Confluence   2"
"          7   Confluence  "
"          2   Node #"
"          "
"          Maximum flow           0.015   c.m/sec"
"          Hydrograph volume      23.137   c.m"
"          0.001   0.015   0.009   0.000"
" 54      POND DESIGN"
"          0.015   Current peak flow   c.m/sec"
"          0.019   Target outflow   c.m/sec"
"          23.1   Hydrograph volume   c.m"
"          3.   Number of stages"
"          230.200   Minimum water level   metre"
"          230.500   Maximum water level   metre"
"          230.200   Starting water level   metre"
"          0   Keep Design Data: 1 = True; 0 = False"
"          Level Discharge   Volume"
"          230.200   0.01640   0.7600"
"          230.350   0.01700   21.380"
"          230.500   0.01770   83.260"
"          Peak outflow           0.007   c.m/sec"
"          Maximum level          230.255   metre"
"          Maximum storage        8.376   c.m"
"          Centroidal lag         1.845   hours"
"          0.001   0.015   0.007   0.000 c.m/sec"
" 40      HYDROGRAPH Next link  "
"          5   Next link  "
"          0.001   0.007   0.007   0.000"
" 51      PIPE DESIGN"
"          0.007   Current peak flow   c.m/sec"
"          0.013   Manning 'n'"
"          0.200   Diameter   metre"
"          0.500   Gradient   %"
"          Depth of flow           0.073   metre"

```

"	Velocity	0.638	m/sec"
"	Pipe capacity	0.023	c.m/sec"
"	Critical depth	0.068	metre"
" 53	ROUTE Pipe Route 29"		
"	29.00 Pipe Route 29 Reach length ( metre)"		
"	0.360 X-factor <= 0.5"		
"	34.111 K-lag ( seconds)"		
"	0.000 Default(0) or user spec.(1) values used"		
"	0.500 X-factor <= 0.5"		
"	30.000 K-lag ( seconds)"		
"	0.500 Beta weighting factor"		
"	42.857 Routing time step ( seconds)"		
"	1 No. of sub-reaches"		
"	Peak outflow	0.007	c.m/sec"
"	0.001 0.007 0.007	0.000	c.m/sec"
" 40	HYDROGRAPH Combine 999"		
"	6 Combine "		
"	999 Node #"		
"	"		
"	Maximum flow	0.007	c.m/sec"
"	Hydrograph volume	24.821	c.m"
"	0.001 0.007 0.007	0.007	0.007"
" 40	HYDROGRAPH Confluence 999"		
"	7 Confluence "		
"	999 Node #"		
"	"		
"	Maximum flow	0.007	c.m/sec"
"	Hydrograph volume	24.821	c.m"
"	0.001 0.007 0.007	0.007	0.000"
" 38	START/RE-START TOTALS 999"		
"	3 Runoff Totals on EXIT"		
"	Total Catchment area	0.164	hectare"
"	Total Impervious area	0.128	hectare"
"	Total % impervious	77.802	
" 19	EXIT"		

```

"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25 rev. 473"
"          MIDUSS created                      February-07-10"
"          10 Units used:                      ie METRIC"
"          Job folder:                        C:\swm\MIDUSS\14591"
"          Output filename:                    pst5.out"
"          Licensee name:                      Bob"
"          Company                            "
"          Date & Time last used:              23/05/2021 at 10:55:22 AM"
" 31      TIME PARAMETERS"
"          10.000 Time Step"
"          180.000 Max. Storm length"
"          1500.000 Max. Hydrograph"
" 32      STORM Chicago storm"
"          1 Chicago storm"
"          583.017 Coefficient A"
"          3.007 Constant B"
"          0.703 Exponent C"
"          0.400 Fraction R"
"          180.000 Duration"
"          1.000 Time step multiplier"
"          Maximum intensity          92.454 mm/hr"
"          Total depth                44.904 mm"
"          6 005hyd Hydrograph extension used in this file"
" 33      CATCHMENT 101"
"          2 Rectangular"
"          1 Equal length"
"          2 Horton equation"
"          101 No description"
"          98.700 % Impervious"
"          0.048 Total Area"
"          9.600 Flow length"
"          2.000 Overland Slope"
"          0.001 Pervious Area"
"          9.600 Pervious length"
"          2.000 Pervious slope"
"          0.047 Impervious Area"
"          9.600 Impervious length"
"          2.000 Impervious slope"
"          0.250 Pervious Manning 'n'"
"          35.000 Pervious Max.infiltration"
"          5.000 Pervious Min.infiltration"
"          0.500 Pervious Lag constant (hours)"
"          7.500 Pervious Depression storage"
"          0.015 Impervious Manning 'n'"
"          0.000 Impervious Max.infiltration"
"          0.000 Impervious Min.infiltration"
"          0.050 Impervious Lag constant (hours)"
"          2.000 Impervious Depression storage"
"          0.012 0.000 0.000 0.000 c.m/sec"
"          Catchment 101 Pervious Impervious Total Area "
"          Surface Area 0.001 0.047 0.048 hectare"
"          Time of concentration 8.289 1.155 1.180 minutes"
"          Time to Centroid 88.244 89.474 89.469 minutes"
"          Rainfall depth 44.904 44.904 44.904 mm"
"          Rainfall volume 0.28 21.27 21.55 c.m"
"          Rainfall losses 33.604 2.000 2.411 mm"
"          Runoff depth 11.301 42.904 42.493 mm"
"          Runoff volume 0.07 20.33 20.40 c.m"
"          Runoff coefficient 0.252 0.955 0.946 "

```

"		Maximum flow	0.000	0.012	0.012	c.m/sec"
" 40		HYDROGRAPH Add Runoff "				
"	4	Add Runoff "				
"		0.012 0.012 0.000 0.000"				
" 51		PIPE DESIGN"				
"	0.012	Current peak flow	c.m/sec"			
"	0.013	Manning 'n'"				
"	1.000	Diameter	metre"			
"	1.000	Gradient	%"			
"		Depth of flow	0.051	metre"		
"		Velocity	0.799	m/sec"		
"		Pipe capacity	2.398	c.m/sec"		
"		Critical depth	0.060	metre"		
" 53		ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"			
"		0.012 0.012 0.012 0.000 c.m/sec"				
" 40		HYDROGRAPH Combine 1"				
"	6	Combine "				
"	1	Node #"				
"		"				
"		Maximum flow	0.012	c.m/sec"		
"		Hydrograph volume	20.397	c.m"		
"		0.012 0.012 0.012 0.012"				
" 40		HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"				
"		0.012 0.000 0.012 0.012"				
" 33		CATCHMENT 102"				
"	2	Rectangular"				
"	1	Equal length"				
"	2	Horton equation"				
"	102	No description"				
"	64.700	% Impervious"				
"	0.044	Total Area"				
"	5.800	Flow length"				
"	2.000	Overland Slope"				
"	0.016	Pervious Area"				
"	5.800	Pervious length"				
"	2.000	Pervious slope"				
"	0.028	Impervious Area"				
"	5.800	Impervious length"				
"	2.000	Impervious slope"				
"	0.250	Pervious Manning 'n'"				
"	35.000	Pervious Max.infiltration"				
"	5.000	Pervious Min.infiltration"				
"	0.500	Pervious Lag constant (hours)"				
"	7.500	Pervious Depression storage"				
"	0.015	Impervious Manning 'n'"				
"	0.000	Impervious Max.infiltration"				
"	0.000	Impervious Min.infiltration"				
"	0.050	Impervious Lag constant (hours)"				
"	2.000	Impervious Depression storage"				
"		0.009 0.000 0.012 0.012 c.m/sec"				
"		Catchment 102	Pervious	Impervious	Total Area	"
"		Surface Area	0.016	0.028	0.044	hectare"
"		Time of concentration	6.126	0.854	1.516	minutes"
"		Time to Centroid	87.298	89.474	89.200	minutes"
"		Rainfall depth	44.904	44.904	44.904	mm"
"		Rainfall volume	6.97	12.78	19.76	c.m"
"		Rainfall losses	33.604	2.000	13.156	mm"
"		Runoff depth	11.301	42.904	31.748	mm"

"	Runoff volume	1.76	12.21	13.97	c.m"
"	Runoff coefficient	0.252	0.955	0.707	"
"	Maximum flow	0.002	0.007	0.009	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"		0.009	0.009	0.012	0.012"
" 51	PIPE DESIGN"				
"	0.009 Current peak flow	c.m/sec"			
"	0.013 Manning 'n'"				
"	1.000 Diameter	metre"			
"	1.000 Gradient	%"			
"	Depth of flow	0.045	metre"		
"	Velocity	0.734	m/sec"		
"	Pipe capacity	2.398	c.m/sec"		
"	Critical depth	0.052	metre"		
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length	( metre)"			
"		0.009	0.009	0.009	0.012 c.m/sec"
" 40	HYDROGRAPH Combine 2"				
"	6 Combine "				
"	2 Node #"				
"	"				
"	Maximum flow	0.009	c.m/sec"		
"	Hydrograph volume	13.969	c.m"		
"		0.009	0.009	0.009	0.009"
" 40	HYDROGRAPH Start - New Tributary"				
"	2 Start - New Tributary"				
"		0.009	0.000	0.009	0.009"
" 33	CATCHMENT 103"				
"	2 Rectangular"				
"	1 Equal length"				
"	2 Horton equation"				
"	103 No description"				
"	100.000 % Impervious"				
"	0.046 Total Area"				
"	13.529 Flow length"				
"	2.000 Overland Slope"				
"	0.000 Pervious Area"				
"	13.529 Pervious length"				
"	2.000 Pervious slope"				
"	0.046 Impervious Area"				
"	13.529 Impervious length"				
"	2.000 Impervious slope"				
"	0.250 Pervious Manning 'n'"				
"	35.000 Pervious Max.infiltration"				
"	5.000 Pervious Min.infiltration"				
"	0.500 Pervious Lag constant (hours)"				
"	7.500 Pervious Depression storage"				
"	0.015 Impervious Manning 'n'"				
"	0.000 Impervious Max.infiltration"				
"	0.000 Impervious Min.infiltration"				
"	0.050 Impervious Lag constant (hours)"				
"	2.000 Impervious Depression storage"				
"		0.012	0.000	0.009	0.009 c.m/sec"
"	Catchment 103	Pervious	Impervious	Total Area	"
"	Surface Area	0.000	0.046	0.046	hectare"
"	Time of concentration	10.183	1.420	1.420	minutes"
"	Time to Centroid	89.092	89.474	89.474	minutes"
"	Rainfall depth	44.904	44.904	44.904	mm"
"	Rainfall volume	0.00	20.66	20.66	c.m"



"		Rainfall losses	33.604	2.000	2.000	mm"
"		Runoff depth	11.301	42.904	42.904	mm"
"		Runoff volume	0.00	19.74	19.74	c.m"
"		Runoff coefficient	0.000	0.955	0.955	"
"		Maximum flow	0.000	0.012	0.012	c.m/sec"
" 40		HYDROGRAPH Add Runoff "				
"	4	Add Runoff "				
"		0.012	0.012	0.009	0.009"	
" 51		PIPE DESIGN"				
"	0.012	Current peak flow	c.m/sec"			
"	0.013	Manning 'n'"				
"	1.000	Diameter	metre"			
"	1.000	Gradient	%"			
"		Depth of flow	0.051	metre"		
"		Velocity	0.790	m/sec"		
"		Pipe capacity	2.398	c.m/sec"		
"		Critical depth	0.059	metre"		
" 53		ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"			
"		0.012	0.012	0.012	0.009 c.m/sec"	
" 40		HYDROGRAPH Combine	3"			
"	6	Combine "				
"	3	Node #"				
"		"				
"		Maximum flow	0.012	c.m/sec"		
"		Hydrograph volume	19.736	c.m"		
"		0.012	0.012	0.012	0.012"	
" 40		HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"				
"		0.012	0.000	0.012	0.012"	
" 33		CATCHMENT 104"				
"	2	Rectangular"				
"	1	Equal length"				
"	2	Horton equation"				
"	104	No description"				
"	5.600	% Impervious"				
"	0.014	Total Area"				
"	4.590	Flow length"				
"	2.000	Overland Slope"				
"	0.013	Pervious Area"				
"	4.590	Pervious length"				
"	2.000	Pervious slope"				
"	0.001	Impervious Area"				
"	4.590	Impervious length"				
"	2.000	Impervious slope"				
"	0.250	Pervious Manning 'n'"				
"	35.000	Pervious Max.infiltration"				
"	5.000	Pervious Min.infiltration"				
"	0.500	Pervious Lag constant (hours)"				
"	7.500	Pervious Depression storage"				
"	0.015	Impervious Manning 'n'"				
"	0.000	Impervious Max.infiltration"				
"	0.000	Impervious Min.infiltration"				
"	0.050	Impervious Lag constant (hours)"				
"	2.000	Impervious Depression storage"				
"		0.002	0.000	0.012	0.012 c.m/sec"	
"		Catchment 104	Pervious	Impervious	Total Area "	
"		Surface Area	0.013	0.001	0.014	hectare"
"		Time of concentration	5.324	0.742	4.481	minutes"
"		Time to Centroid	87.039	89.474	87.486	minutes"

"		Rainfall depth	44.904	44.904	44.904	mm"
"		Rainfall volume	5.93	0.35	6.29	c.m"
"		Rainfall losses	33.604	2.000	31.834	mm"
"		Runoff depth	11.301	42.904	13.070	mm"
"		Runoff volume	1.49	0.34	1.83	c.m"
"		Runoff coefficient	0.252	0.955	0.291	"
"		Maximum flow	0.002	0.000	0.002	c.m/sec"
" 40		HYDROGRAPH Add Runoff "				
"	4	Add Runoff "				
"		0.002	0.002	0.012	0.012"	
" 51		PIPE DESIGN"				
"	0.002	Current peak flow	c.m/sec"			
"	0.013	Manning 'n'"				
"	1.000	Diameter	metre"			
"	1.000	Gradient	%"			
"		Depth of flow	0.021	metre"		
"		Velocity	0.450	m/sec"		
"		Pipe capacity	2.398	c.m/sec"		
"		Critical depth	0.024	metre"		
" 53		ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"			
"		0.002	0.002	0.002	0.012 c.m/sec"	
" 40		HYDROGRAPH Combine 4"				
"	6	Combine "				
"	4	Node #"				
"		"				
"		Maximum flow	0.002	c.m/sec"		
"		Hydrograph volume	1.830	c.m"		
"		0.002	0.002	0.002	0.002"	
" 40		HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"				
"		0.002	0.000	0.002	0.002"	
" 33		CATCHMENT 105"				
"	2	Rectangular"				
"	1	Equal length"				
"	2	Horton equation"				
"	105	No description"				
"	41.400	% Impervious"				
"	0.012	Total Area"				
"	3.960	Flow length"				
"	2.000	Overland Slope"				
"	0.007	Pervious Area"				
"	3.960	Pervious length"				
"	2.000	Pervious slope"				
"	0.005	Impervious Area"				
"	3.960	Impervious length"				
"	2.000	Impervious slope"				
"	0.250	Pervious Manning 'n'"				
"	35.000	Pervious Max.infiltration"				
"	5.000	Pervious Min.infiltration"				
"	0.500	Pervious Lag constant (hours)"				
"	7.500	Pervious Depression storage"				
"	0.015	Impervious Manning 'n'"				
"	0.000	Impervious Max.infiltration"				
"	0.000	Impervious Min.infiltration"				
"	0.050	Impervious Lag constant (hours)"				
"	2.000	Impervious Depression storage"				
"		0.002	0.000	0.002	0.002 c.m/sec"	
"		Catchment 105	Pervious	Impervious	Total Area "	
"		Surface Area	0.007	0.005	0.012	hectare"

"	Time of concentration	4.872	0.679	1.818	minutes"
"	Time to Centroid	86.919	89.474	88.780	minutes"
"	Rainfall depth	44.904	44.904	44.904	mm"
"	Rainfall volume	3.16	2.23	5.39	c.m"
"	Rainfall losses	33.604	2.000	20.520	mm"
"	Runoff depth	11.301	42.904	24.385	mm"
"	Runoff volume	0.79	2.13	2.93	c.m"
"	Runoff coefficient	0.252	0.955	0.543	"
"	Maximum flow	0.001	0.001	0.002	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"		0.002	0.002	0.002	0.002"
" 51	PIPE DESIGN"				
"	0.002 Current peak flow	c.m/sec"			
"	0.013 Manning 'n'"				
"	1.000 Diameter	metre"			
"	1.000 Gradient	%"			
"	Depth of flow	0.023	metre"		
"	Velocity	0.471	m/sec"		
"	Pipe capacity	2.398	c.m/sec"		
"	Critical depth	0.025	metre"		
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length	( metre)"			
"		0.002	0.002	0.002	0.002 c.m/sec"
" 40	HYDROGRAPH Combine 5"				
"	6 Combine "				
"	5 Node #"				
"	"				
"	Maximum flow	0.002	c.m/sec"		
"	Hydrograph volume	2.926	c.m"		
"		0.002	0.002	0.002	0.002"
" 40	HYDROGRAPH Confluence 5"				
"	7 Confluence "				
"	5 Node #"				
"	"				
"	Maximum flow	0.002	c.m/sec"		
"	Hydrograph volume	2.926	c.m"		
"		0.002	0.002	0.002	0.000"
" 51	PIPE DESIGN"				
"	0.002 Current peak flow	c.m/sec"			
"	0.013 Manning 'n'"				
"	1.000 Diameter	metre"			
"	1.000 Gradient	%"			
"	Depth of flow	0.023	metre"		
"	Velocity	0.471	m/sec"		
"	Pipe capacity	2.398	c.m/sec"		
"	Critical depth	0.025	metre"		
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length	( metre)"			
"		0.002	0.002	0.002	0.000 c.m/sec"
" 40	HYDROGRAPH Combine 999"				
"	6 Combine "				
"	999 Node #"				
"	"				
"	Maximum flow	0.002	c.m/sec"		
"	Hydrograph volume	2.926	c.m"		
"		0.002	0.002	0.002	0.002"
" 40	HYDROGRAPH Confluence 4"				
"	7 Confluence "				
"	4 Node #"				

```

"
"
"      Maximum flow      0.002      c.m/sec"
"      Hydrograph volume 1.830      c.m"
"      0.002      0.002      0.002      0.000"
56  DIVERSION"
"      4      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow      0.002      c.m/sec"
"      Volume of diverted flow      1.830      c.m"
"      DIV00004.005hyd"
"      Divert to Infiltration Drywell 0.015 cms"
"      0.002      0.002      0.000      0.000 c.m/sec"
40  HYDROGRAPH Next link "
"      5      Next link "
"      0.002      0.000      0.000      0.000"
40  HYDROGRAPH Start - New Tributary"
"      2      Start - New Tributary"
"      0.002      0.000      0.000      0.000"
40  HYDROGRAPH Undo"
"      1      Undo"
"      0.002      0.000      0.000      0.000"
40  HYDROGRAPH Confluence 1"
"      7      Confluence "
"      1      Node #"
"      "
"      Maximum flow      0.012      c.m/sec"
"      Hydrograph volume 20.397      c.m"
"      0.002      0.012      0.000      0.000"
56  DIVERSION"
"      1      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow      0.012      c.m/sec"
"      Volume of diverted flow      20.397      c.m"
"      DIV00001.005hyd"
"      Divert to Infiltration Drywell 0.015 cms"
"      0.002      0.012      0.000      0.000 c.m/sec"
40  HYDROGRAPH Next link "
"      5      Next link "
"      0.002      0.000      0.000      0.000"
56  DIVERSION"
"      5      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow      0.000      c.m/sec"
"      Volume of diverted flow      0.000      c.m"
"      DIV00005.005hyd"
"      Divert to Surface Storage 27.2 cu.m. (35.8 available)"
"      0.002      0.000      0.000      0.000 c.m/sec"
40  HYDROGRAPH Combine 999"
"      6      Combine "
"      999      Node #"
"      "
"      Maximum flow      0.002      c.m/sec"
"      Hydrograph volume 2.926      c.m"
"      0.002      0.000      0.000      0.002"

```

```

" 40      HYDROGRAPH   Confluence   3"
"          7   Confluence  "
"          3   Node #"
"          "
"          Maximum flow           0.012   c.m/sec"
"          Hydrograph volume      19.736   c.m"
"          0.002   0.012   0.000   0.000"
" 51      PIPE DESIGN"
"          0.012   Current peak flow   c.m/sec"
"          0.013   Manning 'n'"
"          1.000   Diameter   metre"
"          1.000   Gradient   %"
"          Depth of flow           0.051   metre"
"          Velocity                 0.790   m/sec"
"          Pipe capacity            2.398   c.m/sec"
"          Critical depth           0.059   metre"
" 53      ROUTE Zero Route"
"          0.00   Zero Route Reach length   ( metre)"
"          0.002   0.012   0.012   0.000 c.m/sec"
" 40      HYDROGRAPH   Combine     2"
"          6   Combine  "
"          2   Node #"
"          "
"          Maximum flow           0.021   c.m/sec"
"          Hydrograph volume      33.705   c.m"
"          0.002   0.012   0.012   0.021"
" 40      HYDROGRAPH   Confluence   2"
"          7   Confluence  "
"          2   Node #"
"          "
"          Maximum flow           0.021   c.m/sec"
"          Hydrograph volume      33.705   c.m"
"          0.002   0.021   0.012   0.000"
" 54      POND DESIGN"
"          0.021   Current peak flow   c.m/sec"
"          0.019   Target outflow   c.m/sec"
"          33.7   Hydrograph volume   c.m"
"          3.   Number of stages"
"          230.200   Minimum water level   metre"
"          230.500   Maximum water level   metre"
"          230.200   Starting water level   metre"
"          0   Keep Design Data: 1 = True; 0 = False"
"          Level Discharge   Volume"
"          230.200   0.01640   0.7600"
"          230.350   0.01700   21.380"
"          230.500   0.01770   83.260"
"          Peak outflow           0.009   c.m/sec"
"          Maximum level          230.280   metre"
"          Maximum storage        11.806   c.m"
"          Centroidal lag         1.839   hours"
"          0.002   0.021   0.009   0.000 c.m/sec"
" 40      HYDROGRAPH Next link  "
"          5   Next link  "
"          0.002   0.009   0.009   0.000"
" 51      PIPE DESIGN"
"          0.009   Current peak flow   c.m/sec"
"          0.013   Manning 'n'"
"          0.200   Diameter   metre"
"          0.500   Gradient   %"
"          Depth of flow           0.089   metre"

```

"	Velocity	0.699	m/sec"
"	Pipe capacity	0.023	c.m/sec"
"	Critical depth	0.082	metre"
" 53	ROUTE Pipe Route 29"		
"	29.00 Pipe Route 29 Reach length ( metre)"		
"	0.326 X-factor <= 0.5"		
"	31.104 K-lag ( seconds)"		
"	0.000 Default(0) or user spec.(1) values used"		
"	0.500 X-factor <= 0.5"		
"	30.000 K-lag ( seconds)"		
"	0.500 Beta weighting factor"		
"	40.000 Routing time step ( seconds)"		
"	1 No. of sub-reaches"		
"	Peak outflow	0.009	c.m/sec"
"	0.002 0.009 0.009	0.009	0.000 c.m/sec"
" 40	HYDROGRAPH Combine 999"		
"	6 Combine "		
"	999 Node #"		
"	"		
"	Maximum flow	0.010	c.m/sec"
"	Hydrograph volume	36.631	c.m"
"	0.002 0.009 0.009	0.009	0.010"
" 40	HYDROGRAPH Confluence 999"		
"	7 Confluence "		
"	999 Node #"		
"	"		
"	Maximum flow	0.010	c.m/sec"
"	Hydrograph volume	36.631	c.m"
"	0.002 0.010 0.009	0.009	0.000"
" 38	START/RE-START TOTALS 999"		
"	3 Runoff Totals on EXIT"		
"	Total Catchment area	0.164	hectare"
"	Total Impervious area	0.128	hectare"
"	Total % impervious	77.802"	
" 19	EXIT"		



```

"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25  rev. 473"
"          MIDUSS created                      February-07-10"
"          10  Units used:                      ie METRIC"
"          Job folder:                        C:\swm\MIDUSS\14591"
"          Output filename:                    pst10.out"
"          Licensee name:                      Bob"
"          Company                            "
"          Date & Time last used:              23/05/2021 at 10:51:09 AM"
31          TIME PARAMETERS"
"          10.000  Time Step"
"          180.000  Max. Storm length"
"          1500.000  Max. Hydrograph"
32          STORM Chicago storm"
"          1  Chicago storm"
"          670.324  Coefficient A"
"          3.007  Constant B"
"          0.698  Exponent C"
"          0.400  Fraction R"
"          180.000  Duration"
"          1.000  Time step multiplier"
"          Maximum intensity          107.682  mm/hr"
"          Total depth                52.991  mm"
"          6  005hyd  Hydrograph extension used in this file"
33          CATCHMENT 101"
"          2  Rectangular"
"          1  Equal length"
"          2  Horton equation"
"          101  No description"
"          98.700  % Impervious"
"          0.048  Total Area"
"          9.600  Flow length"
"          2.000  Overland Slope"
"          0.001  Pervious Area"
"          9.600  Pervious length"
"          2.000  Pervious slope"
"          0.047  Impervious Area"
"          9.600  Impervious length"
"          2.000  Impervious slope"
"          0.250  Pervious Manning 'n'"
"          35.000  Pervious Max.infiltration"
"          5.000  Pervious Min.infiltration"
"          0.500  Pervious Lag constant (hours)"
"          7.500  Pervious Depression storage"
"          0.015  Impervious Manning 'n'"
"          0.000  Impervious Max.infiltration"
"          0.000  Impervious Min.infiltration"
"          0.050  Impervious Lag constant (hours)"
"          2.000  Impervious Depression storage"
"          0.014  0.000  0.000  0.000 c.m/sec"
"          Catchment 101  Pervious  Impervious  Total Area  "
"          Surface Area  0.001  0.047  0.048  hectare"
"          Time of concentration  6.982  1.087  1.116  minutes"
"          Time to Centroid  92.406  89.140  89.155  minutes"
"          Rainfall depth  52.991  52.991  52.991  mm"
"          Rainfall volume  0.33  25.11  25.44  c.m"
"          Rainfall losses  34.172  2.000  2.418  mm"
"          Runoff depth  18.819  50.991  50.573  mm"
"          Runoff volume  0.12  24.16  24.28  c.m"
"          Runoff coefficient  0.355  0.962  0.954  "

```

"		Maximum flow	0.000	0.014	0.014	c.m/sec"
" 40		HYDROGRAPH Add Runoff "				
"	4	Add Runoff "				
"		0.014	0.014	0.000	0.000"	
" 51		PIPE DESIGN"				
"	0.014	Current peak flow	c.m/sec"			
"	0.013	Manning 'n'"				
"	1.000	Diameter	metre"			
"	1.000	Gradient	%"			
"		Depth of flow	0.055	metre"		
"		Velocity	0.838	m/sec"		
"		Pipe capacity	2.398	c.m/sec"		
"		Critical depth	0.065	metre"		
" 53		ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"			
"		0.014	0.014	0.014	0.000 c.m/sec"	
" 40		HYDROGRAPH Combine	1"			
"	6	Combine "				
"	1	Node #"				
"		"				
"		Maximum flow	0.014	c.m/sec"		
"		Hydrograph volume	24.275	c.m"		
"		0.014	0.014	0.014	0.014"	
" 40		HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"				
"		0.014	0.000	0.014	0.014"	
" 33		CATCHMENT 102"				
"	2	Rectangular"				
"	1	Equal length"				
"	2	Horton equation"				
"	102	No description"				
"	64.700	% Impervious"				
"	0.044	Total Area"				
"	5.800	Flow length"				
"	2.000	Overland Slope"				
"	0.016	Pervious Area"				
"	5.800	Pervious length"				
"	2.000	Pervious slope"				
"	0.028	Impervious Area"				
"	5.800	Impervious length"				
"	2.000	Impervious slope"				
"	0.250	Pervious Manning 'n'"				
"	35.000	Pervious Max.infiltration"				
"	5.000	Pervious Min.infiltration"				
"	0.500	Pervious Lag constant (hours)"				
"	7.500	Pervious Depression storage"				
"	0.015	Impervious Manning 'n'"				
"	0.000	Impervious Max.infiltration"				
"	0.000	Impervious Min.infiltration"				
"	0.050	Impervious Lag constant (hours)"				
"	2.000	Impervious Depression storage"				
"		0.012	0.000	0.014	0.014 c.m/sec"	
"		Catchment 102	Pervious	Impervious	Total Area	"
"		Surface Area	0.016	0.028	0.044	hectare"
"		Time of concentration	5.160	0.803	1.534	minutes"
"		Time to Centroid	91.488	89.139	89.533	minutes"
"		Rainfall depth	52.991	52.991	52.991	mm"
"		Rainfall volume	8.23	15.09	23.32	c.m"
"		Rainfall losses	34.172	2.000	13.357	mm"
"		Runoff depth	18.819	50.991	39.634	mm"

"	Runoff volume	2.92	14.52	17.44	c.m"
"	Runoff coefficient	0.355	0.962	0.748	"
"	Maximum flow	0.003	0.009	0.012	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.012	0.012	0.014	0.014"	
" 51	PIPE DESIGN"				
"	0.012	Current peak flow	c.m/sec"		
"	0.013	Manning 'n'"			
"	1.000	Diameter	metre"		
"	1.000	Gradient	%"		
"	Depth of flow	0.050	metre"		
"	Velocity	0.785	m/sec"		
"	Pipe capacity	2.398	c.m/sec"		
"	Critical depth	0.059	metre"		
" 53	ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"		
"	0.012	0.012	0.012	0.014 c.m/sec"	
" 40	HYDROGRAPH Combine 2"				
"	6	Combine "			
"	2	Node #"			
"	"				
"	Maximum flow	0.012	c.m/sec"		
"	Hydrograph volume	17.439	c.m"		
"	0.012	0.012	0.012	0.012"	
" 40	HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"			
"	0.012	0.000	0.012	0.012"	
" 33	CATCHMENT 103"				
"	2	Rectangular"			
"	1	Equal length"			
"	2	Horton equation"			
"	103	No description"			
"	100.000	% Impervious"			
"	0.046	Total Area"			
"	13.529	Flow length"			
"	2.000	Overland Slope"			
"	0.000	Pervious Area"			
"	13.529	Pervious length"			
"	2.000	Pervious slope"			
"	0.046	Impervious Area"			
"	13.529	Impervious length"			
"	2.000	Impervious slope"			
"	0.250	Pervious Manning 'n'"			
"	35.000	Pervious Max.infiltration"			
"	5.000	Pervious Min.infiltration"			
"	0.500	Pervious Lag constant (hours)"			
"	7.500	Pervious Depression storage"			
"	0.015	Impervious Manning 'n'"			
"	0.000	Impervious Max.infiltration"			
"	0.000	Impervious Min.infiltration"			
"	0.050	Impervious Lag constant (hours)"			
"	2.000	Impervious Depression storage"			
"	0.014	0.000	0.012	0.012 c.m/sec"	
"	Catchment 103	Pervious	Impervious	Total Area	"
"	Surface Area	0.000	0.046	0.046	hectare"
"	Time of concentration	8.578	1.336	1.336	minutes"
"	Time to Centroid	93.200	89.142	89.142	minutes"
"	Rainfall depth	52.991	52.991	52.991	mm"
"	Rainfall volume	0.00	24.38	24.38	c.m"

"	Rainfall losses	34.172	2.000	2.000	mm"
"	Runoff depth	18.819	50.991	50.991	mm"
"	Runoff volume	0.00	23.46	23.46	c.m"
"	Runoff coefficient	0.000	0.962	0.962	"
"	Maximum flow	0.000	0.014	0.014	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.014	0.014	0.012	0.012"	
" 51	PIPE DESIGN"				
"	0.014	Current peak flow	c.m/sec"		
"	0.013	Manning 'n'"			
"	1.000	Diameter	metre"		
"	1.000	Gradient	%"		
"		Depth of flow	0.054	metre"	
"		Velocity	0.828	m/sec"	
"		Pipe capacity	2.398	c.m/sec"	
"		Critical depth	0.064	metre"	
" 53	ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"		
"	0.014	0.014	0.014	0.012 c.m/sec"	
" 40	HYDROGRAPH Combine 3"				
"	6	Combine "			
"	3	Node #"			
"					
"		Maximum flow	0.014	c.m/sec"	
"		Hydrograph volume	23.456	c.m"	
"	0.014	0.014	0.014	0.014"	
" 40	HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"			
"	0.014	0.000	0.014	0.014"	
" 33	CATCHMENT 104"				
"	2	Rectangular"			
"	1	Equal length"			
"	2	Horton equation"			
"	104	No description"			
"	5.600	% Impervious"			
"	0.014	Total Area"			
"	4.590	Flow length"			
"	2.000	Overland Slope"			
"	0.013	Pervious Area"			
"	4.590	Pervious length"			
"	2.000	Pervious slope"			
"	0.001	Impervious Area"			
"	4.590	Impervious length"			
"	2.000	Impervious slope"			
"	0.250	Pervious Manning 'n'"			
"	35.000	Pervious Max.infiltration"			
"	5.000	Pervious Min.infiltration"			
"	0.500	Pervious Lag constant (hours)"			
"	7.500	Pervious Depression storage"			
"	0.015	Impervious Manning 'n'"			
"	0.000	Impervious Max.infiltration"			
"	0.000	Impervious Min.infiltration"			
"	0.050	Impervious Lag constant (hours)"			
"	2.000	Impervious Depression storage"			
"	0.003	0.000	0.014	0.014 c.m/sec"	
"	Catchment 104	Pervious	Impervious	Total Area "	
"	Surface Area	0.013	0.001	0.014	hectare"
"	Time of concentration	4.484	0.698	3.960	minutes"
"	Time to Centroid	91.217	89.139	90.930	minutes"

"		Rainfall depth	52.991	52.991	52.991	mm"
"		Rainfall volume	7.00	0.42	7.42	c.m"
"		Rainfall losses	34.172	2.000	32.370	mm"
"		Runoff depth	18.819	50.991	20.621	mm"
"		Runoff volume	2.49	0.40	2.89	c.m"
"		Runoff coefficient	0.355	0.962	0.389	"
"		Maximum flow	0.003	0.000	0.003	c.m/sec"
" 40		HYDROGRAPH Add Runoff "				
"	4	Add Runoff "				
"		0.003	0.003	0.014	0.014"	
" 51		PIPE DESIGN"				
"	0.003	Current peak flow	c.m/sec"			
"	0.013	Manning 'n'"				
"	1.000	Diameter	metre"			
"	1.000	Gradient	%"			
"		Depth of flow	0.026	metre"		
"		Velocity	0.510	m/sec"		
"		Pipe capacity	2.398	c.m/sec"		
"		Critical depth	0.029	metre"		
" 53		ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"			
"		0.003	0.003	0.003	0.014 c.m/sec"	
" 40		HYDROGRAPH Combine	4"			
"	6	Combine "				
"	4	Node #"				
"		"				
"		Maximum flow	0.003	c.m/sec"		
"		Hydrograph volume	2.887	c.m"		
"		0.003	0.003	0.003	0.003"	
" 40		HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"				
"		0.003	0.000	0.003	0.003"	
" 33		CATCHMENT 105"				
"	2	Rectangular"				
"	1	Equal length"				
"	2	Horton equation"				
"	105	No description"				
"	41.400	% Impervious"				
"	0.012	Total Area"				
"	3.960	Flow length"				
"	2.000	Overland Slope"				
"	0.007	Pervious Area"				
"	3.960	Pervious length"				
"	2.000	Pervious slope"				
"	0.005	Impervious Area"				
"	3.960	Impervious length"				
"	2.000	Impervious slope"				
"	0.250	Pervious Manning 'n'"				
"	35.000	Pervious Max.infiltration"				
"	5.000	Pervious Min.infiltration"				
"	0.500	Pervious Lag constant (hours)"				
"	7.500	Pervious Depression storage"				
"	0.015	Impervious Manning 'n'"				
"	0.000	Impervious Max.infiltration"				
"	0.000	Impervious Min.infiltration"				
"	0.050	Impervious Lag constant (hours)"				
"	2.000	Impervious Depression storage"				
"		0.003	0.000	0.003	0.003 c.m/sec"	
"		Catchment 105	Pervious	Impervious	Total Area "	
"		Surface Area	0.007	0.005	0.012	hectare"

"	Time of concentration	4.104	0.639	1.828	minutes"
"	Time to Centroid	91.069	89.139	89.802	minutes"
"	Rainfall depth	52.991	52.991	52.991	mm"
"	Rainfall volume	3.73	2.63	6.36	c.m"
"	Rainfall losses	34.172	2.000	20.853	mm"
"	Runoff depth	18.819	50.991	32.138	mm"
"	Runoff volume	1.32	2.53	3.86	c.m"
"	Runoff coefficient	0.355	0.962	0.606	"
"	Maximum flow	0.001	0.001	0.003	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.003 0.003 0.003 0.003"				
" 51	PIPE DESIGN"				
"	0.003 Current peak flow c.m/sec"				
"	0.013 Manning 'n'"				
"	1.000 Diameter metre"				
"	1.000 Gradient %"				
"	Depth of flow 0.026 metre"				
"	Velocity 0.512 m/sec"				
"	Pipe capacity 2.398 c.m/sec"				
"	Critical depth 0.029 metre"				
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length ( metre)"				
"	0.003 0.003 0.003 0.003 c.m/sec"				
" 40	HYDROGRAPH Combine 5"				
"	6 Combine "				
"	5 Node #"				
"	"				
"	Maximum flow 0.003 c.m/sec"				
"	Hydrograph volume 3.857 c.m"				
"	0.003 0.003 0.003 0.003"				
" 40	HYDROGRAPH Confluence 5"				
"	7 Confluence "				
"	5 Node #"				
"	"				
"	Maximum flow 0.003 c.m/sec"				
"	Hydrograph volume 3.857 c.m"				
"	0.003 0.003 0.003 0.000"				
" 51	PIPE DESIGN"				
"	0.003 Current peak flow c.m/sec"				
"	0.013 Manning 'n'"				
"	1.000 Diameter metre"				
"	1.000 Gradient %"				
"	Depth of flow 0.026 metre"				
"	Velocity 0.512 m/sec"				
"	Pipe capacity 2.398 c.m/sec"				
"	Critical depth 0.029 metre"				
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length ( metre)"				
"	0.003 0.003 0.003 0.000 c.m/sec"				
" 40	HYDROGRAPH Combine 999"				
"	6 Combine "				
"	999 Node #"				
"	"				
"	Maximum flow 0.003 c.m/sec"				
"	Hydrograph volume 3.857 c.m"				
"	0.003 0.003 0.003 0.003"				
" 40	HYDROGRAPH Confluence 4"				
"	7 Confluence "				
"	4 Node #"				



"	"				
"	Maximum flow	0.003		c.m/sec"	
"	Hydrograph volume	2.887		c.m"	
"	0.003 0.003 0.003			0.000"	
" 56	DIVERSION"				
"	4 Node number"				
"	0.000 Overflow threshold"				
"	1.000 Required diverted fraction"				
"	0 Conduit type; 1=Pipe;2=Channel"				
"	Peak of diverted flow	0.003		c.m/sec"	
"	Volume of diverted flow	2.887		c.m"	
"	DIV00004.005hyd"				
"	Divert to Infiltration Drywell	0.015		cms"	
"	0.003 0.003 0.000			0.000 c.m/sec"	
" 40	HYDROGRAPH Next link "				
"	5 Next link "				
"	0.003 0.000 0.000			0.000"	
" 40	HYDROGRAPH Start - New Tributary"				
"	2 Start - New Tributary"				
"	0.003 0.000 0.000			0.000"	
" 40	HYDROGRAPH Undo"				
"	1 Undo"				
"	0.003 0.000 0.000			0.000"	
" 40	HYDROGRAPH Confluence 1"				
"	7 Confluence "				
"	1 Node #"				
"	"				
"	Maximum flow	0.014		c.m/sec"	
"	Hydrograph volume	24.275		c.m"	
"	0.003 0.014 0.000			0.000"	
" 56	DIVERSION"				
"	1 Node number"				
"	0.000 Overflow threshold"				
"	1.000 Required diverted fraction"				
"	0 Conduit type; 1=Pipe;2=Channel"				
"	Peak of diverted flow	0.014		c.m/sec"	
"	Volume of diverted flow	24.275		c.m"	
"	DIV00001.005hyd"				
"	Divert to Infiltration Drywell	0.015		cms"	
"	0.003 0.014 0.000			0.000 c.m/sec"	
" 40	HYDROGRAPH Next link "				
"	5 Next link "				
"	0.003 0.000 0.000			0.000"	
" 56	DIVERSION"				
"	5 Node number"				
"	0.000 Overflow threshold"				
"	1.000 Required diverted fraction"				
"	0 Conduit type; 1=Pipe;2=Channel"				
"	Peak of diverted flow	0.000		c.m/sec"	
"	Volume of diverted flow	0.000		c.m"	
"	DIV00005.005hyd"				
"	Divert to Surface Storage	0.0 cu.m. (35.8 available)"			
"	0.003 0.000 0.000			0.000 c.m/sec"	
" 40	HYDROGRAPH Combine 999"				
"	6 Combine "				
"	999 Node #"				
"	"				
"	Maximum flow	0.003		c.m/sec"	
"	Hydrograph volume	3.857		c.m"	
"	0.003 0.000 0.000			0.003"	

```

" 40      HYDROGRAPH   Confluence   3"
"          7   Confluence  "
"          3   Node #"
"          "
"          Maximum flow           0.014   c.m/sec"
"          Hydrograph volume      23.456   c.m"
"          0.003      0.014      0.000   0.000"
" 51      PIPE DESIGN"
"          0.014   Current peak flow   c.m/sec"
"          0.013   Manning 'n'"
"          1.000   Diameter   metre"
"          1.000   Gradient   %"
"          Depth of flow           0.054   metre"
"          Velocity                 0.828   m/sec"
"          Pipe capacity            2.398   c.m/sec"
"          Critical depth           0.064   metre"
" 53      ROUTE Zero Route"
"          0.00   Zero Route Reach length   ( metre)"
"          0.003      0.014      0.014      0.000 c.m/sec"
" 40      HYDROGRAPH   Combine     2"
"          6   Combine  "
"          2   Node #"
"          "
"          Maximum flow           0.025   c.m/sec"
"          Hydrograph volume      40.895   c.m"
"          0.003      0.014      0.014      0.025"
" 40      HYDROGRAPH   Confluence   2"
"          7   Confluence  "
"          2   Node #"
"          "
"          Maximum flow           0.025   c.m/sec"
"          Hydrograph volume      40.895   c.m"
"          0.003      0.025      0.014      0.000"
" 54      POND DESIGN"
"          0.025   Current peak flow   c.m/sec"
"          0.019   Target outflow   c.m/sec"
"          40.9   Hydrograph volume   c.m"
"          3.   Number of stages"
"          230.200   Minimum water level   metre"
"          230.500   Maximum water level   metre"
"          230.200   Starting water level   metre"
"          0   Keep Design Data: 1 = True; 0 = False"
"          Level Discharge   Volume"
"          230.200   0.01640   0.7600"
"          230.350   0.01700   21.380"
"          230.500   0.01770   83.260"
"          Peak outflow           0.011   c.m/sec"
"          Maximum level          230.297   metre"
"          Maximum storage        14.148   c.m"
"          Centroidal lag         1.838   hours"
"          0.003      0.025      0.011      0.000 c.m/sec"
" 40      HYDROGRAPH Next link  "
"          5   Next link  "
"          0.003      0.011      0.011      0.000"
" 51      PIPE DESIGN"
"          0.011   Current peak flow   c.m/sec"
"          0.013   Manning 'n'"
"          0.200   Diameter   metre"
"          0.500   Gradient   %"
"          Depth of flow           0.098   metre"

```

"	Velocity	0.733	m/sec"
"	Pipe capacity	0.023	c.m/sec"
"	Critical depth	0.090	metre"
" 53	ROUTE Pipe Route 29"		
"	29.00 Pipe Route 29 Reach length ( metre)"		
"	0.302 X-factor <= 0.5"		
"	29.688 K-lag ( seconds)"		
"	0.000 Default(0) or user spec.(1) values used"		
"	0.500 X-factor <= 0.5"		
"	30.000 K-lag ( seconds)"		
"	0.500 Beta weighting factor"		
"	40.000 Routing time step ( seconds)"		
"	1 No. of sub-reaches"		
"	Peak outflow	0.011	c.m/sec"
"	0.003 0.011 0.011	0.011	0.000 c.m/sec"
" 40	HYDROGRAPH Combine 999"		
"	6 Combine "		
"	999 Node #"		
"	"		
"	Maximum flow	0.012	c.m/sec"
"	Hydrograph volume	44.752	c.m"
"	0.003 0.011 0.011	0.011	0.012"
" 40	HYDROGRAPH Confluence 999"		
"	7 Confluence "		
"	999 Node #"		
"	"		
"	Maximum flow	0.012	c.m/sec"
"	Hydrograph volume	44.752	c.m"
"	0.003 0.012 0.011	0.011	0.000"
" 38	START/RE-START TOTALS 999"		
"	3 Runoff Totals on EXIT"		
"	Total Catchment area	0.164	hectare"
"	Total Impervious area	0.128	hectare"
"	Total % impervious	77.802"	
" 19	EXIT"		

```

"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25  rev. 473"
"          MIDUSS created                      February-07-10"
"      10  Units used:                          ie METRIC"
"          Job folder:                        C:\swm\MIDUSS\14591"
"          Output filename:                    pst25.out"
"          Licensee name:                      Bob"
"          Company                            "
"          Date & Time last used:              23/05/2021 at 10:46:16 AM"
31  TIME PARAMETERS"
"      10.000  Time Step"
"      180.000  Max. Storm length"
"      1500.000  Max. Hydrograph"
32  STORM Chicago storm"
"      1  Chicago storm"
"      721.533  Coefficient A"
"      2.253  Constant B"
"      0.679  Exponent C"
"      0.400  Fraction R"
"      180.000  Duration"
"      1.000  Time step multiplier"
"          Maximum intensity          127.011  mm/hr"
"          Total depth                63.151  mm"
"      6  005hyd  Hydrograph extension used in this file"
33  CATCHMENT 101"
"      2  Rectangular"
"      1  Equal length"
"      2  Horton equation"
"      101  No description"
"      98.700  % Impervious"
"      0.048  Total Area"
"      9.600  Flow length"
"      2.000  Overland Slope"
"      0.001  Pervious Area"
"      9.600  Pervious length"
"      2.000  Pervious slope"
"      0.047  Impervious Area"
"      9.600  Impervious length"
"      2.000  Impervious slope"
"      0.250  Pervious Manning 'n'"
"      35.000  Pervious Max.infiltration"
"      5.000  Pervious Min.infiltration"
"      0.500  Pervious Lag constant (hours)"
"      7.500  Pervious Depression storage"
"      0.015  Impervious Manning 'n'"
"      0.000  Impervious Max.infiltration"
"      0.000  Impervious Min.infiltration"
"      0.050  Impervious Lag constant (hours)"
"      2.000  Impervious Depression storage"
"          0.017  0.000  0.000  0.000 c.m/sec"
"      Catchment 101  Pervious  Impervious  Total Area  "
"      Surface Area  0.001  0.047  0.048  hectare"
"      Time of concentration  6.057  1.018  1.048  minutes"
"      Time to Centroid  95.384  88.972  89.011  minutes"
"      Rainfall depth  63.151  63.151  63.151  mm"
"      Rainfall volume  0.39  29.92  30.31  c.m"
"      Rainfall losses  34.738  2.000  2.426  mm"
"      Runoff depth  28.413  61.151  60.725  mm"
"      Runoff volume  0.18  28.97  29.15  c.m"
"      Runoff coefficient  0.450  0.968  0.962  "

```

"		Maximum flow	0.000	0.017	0.017	c.m/sec"
" 40		HYDROGRAPH Add Runoff "				
"	4	Add Runoff "				
"		0.017	0.017	0.000	0.000"	
" 51		PIPE DESIGN"				
"	0.017	Current peak flow	c.m/sec"			
"	0.013	Manning 'n'"				
"	1.000	Diameter	metre"			
"	1.000	Gradient	%"			
"		Depth of flow	0.060	metre"		
"		Velocity	0.881	m/sec"		
"		Pipe capacity	2.398	c.m/sec"		
"		Critical depth	0.071	metre"		
" 53		ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"			
"		0.017	0.017	0.017	0.000 c.m/sec"	
" 40		HYDROGRAPH Combine	1"			
"	6	Combine "				
"	1	Node #"				
"		"				
"		Maximum flow	0.017	c.m/sec"		
"		Hydrograph volume	29.148	c.m"		
"		0.017	0.017	0.017	0.017"	
" 40		HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"				
"		0.017	0.000	0.017	0.017"	
" 33		CATCHMENT 102"				
"	2	Rectangular"				
"	1	Equal length"				
"	2	Horton equation"				
"	102	No description"				
"	64.700	% Impervious"				
"	0.044	Total Area"				
"	5.800	Flow length"				
"	2.000	Overland Slope"				
"	0.016	Pervious Area"				
"	5.800	Pervious length"				
"	2.000	Pervious slope"				
"	0.028	Impervious Area"				
"	5.800	Impervious length"				
"	2.000	Impervious slope"				
"	0.250	Pervious Manning 'n'"				
"	35.000	Pervious Max.infiltration"				
"	5.000	Pervious Min.infiltration"				
"	0.500	Pervious Lag constant (hours)"				
"	7.500	Pervious Depression storage"				
"	0.015	Impervious Manning 'n'"				
"	0.000	Impervious Max.infiltration"				
"	0.000	Impervious Min.infiltration"				
"	0.050	Impervious Lag constant (hours)"				
"	2.000	Impervious Depression storage"				
"		0.014	0.000	0.017	0.017 c.m/sec"	
"		Catchment 102	Pervious	Impervious	Total Area	"
"		Surface Area	0.016	0.028	0.044	hectare"
"		Time of concentration	4.476	0.752	1.505	minutes"
"		Time to Centroid	94.587	88.972	90.108	minutes"
"		Rainfall depth	63.151	63.151	63.151	mm"
"		Rainfall volume	9.81	17.98	27.79	c.m"
"		Rainfall losses	34.738	2.000	13.556	mm"
"		Runoff depth	28.413	61.151	49.595	mm"

"	Runoff volume	4.41	17.41	21.82	c.m"
"	Runoff coefficient	0.450	0.968	0.785	"
"	Maximum flow	0.004	0.010	0.014	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.014 0.014 0.017 0.017"				
" 51	PIPE DESIGN"				
"	0.014 Current peak flow c.m/sec"				
"	0.013 Manning 'n'"				
"	1.000 Diameter metre"				
"	1.000 Gradient %"				
"	Depth of flow 0.055 metre"				
"	Velocity 0.839 m/sec"				
"	Pipe capacity 2.398 c.m/sec"				
"	Critical depth 0.065 metre"				
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length ( metre)"				
"	0.014 0.014 0.014 0.017 c.m/sec"				
" 40	HYDROGRAPH Combine 2"				
"	6 Combine "				
"	2 Node #"				
"	"				
"	Maximum flow 0.014 c.m/sec"				
"	Hydrograph volume 21.822 c.m"				
"	0.014 0.014 0.014 0.014"				
" 40	HYDROGRAPH Start - New Tributary"				
"	2 Start - New Tributary"				
"	0.014 0.000 0.014 0.014"				
" 33	CATCHMENT 103"				
"	2 Rectangular"				
"	1 Equal length"				
"	2 Horton equation"				
"	103 No description"				
"	100.000 % Impervious"				
"	0.046 Total Area"				
"	13.529 Flow length"				
"	2.000 Overland Slope"				
"	0.000 Pervious Area"				
"	13.529 Pervious length"				
"	2.000 Pervious slope"				
"	0.046 Impervious Area"				
"	13.529 Impervious length"				
"	2.000 Impervious slope"				
"	0.250 Pervious Manning 'n'"				
"	35.000 Pervious Max.infiltration"				
"	5.000 Pervious Min.infiltration"				
"	0.500 Pervious Lag constant (hours)"				
"	7.500 Pervious Depression storage"				
"	0.015 Impervious Manning 'n'"				
"	0.000 Impervious Max.infiltration"				
"	0.000 Impervious Min.infiltration"				
"	0.050 Impervious Lag constant (hours)"				
"	2.000 Impervious Depression storage"				
"	0.016 0.000 0.014 0.014 c.m/sec"				
"	Catchment 103 Pervious Impervious Total Area "				
"	Surface Area 0.000 0.046 0.046 hectare"				
"	Time of concentration 7.441 1.250 1.250 minutes"				
"	Time to Centroid 96.169 88.972 88.972 minutes"				
"	Rainfall depth 63.151 63.151 63.151 mm"				
"	Rainfall volume 0.00 29.05 29.05 c.m"				



"	Rainfall losses	34.738	2.000	2.000	mm"
"	Runoff depth	28.413	61.151	61.151	mm"
"	Runoff volume	0.00	28.13	28.13	c.m"
"	Runoff coefficient	0.000	0.968	0.968	"
"	Maximum flow	0.000	0.016	0.016	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.016	0.016	0.014	0.014"	
" 51	PIPE DESIGN"				
"	0.016	Current peak flow	c.m/sec"		
"	0.013	Manning 'n'"			
"	1.000	Diameter	metre"		
"	1.000	Gradient	%"		
"		Depth of flow	0.059	metre"	
"		Velocity	0.871	m/sec"	
"		Pipe capacity	2.398	c.m/sec"	
"		Critical depth	0.069	metre"	
" 53	ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"		
"	0.016	0.016	0.016	0.014 c.m/sec"	
" 40	HYDROGRAPH Combine 3"				
"	6	Combine "			
"	3	Node #"			
"					
"		Maximum flow	0.016	c.m/sec"	
"		Hydrograph volume	28.129	c.m"	
"	0.016	0.016	0.016	0.016"	
" 40	HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"			
"	0.016	0.000	0.016	0.016"	
" 33	CATCHMENT 104"				
"	2	Rectangular"			
"	1	Equal length"			
"	2	Horton equation"			
"	104	No description"			
"	5.600	% Impervious"			
"	0.014	Total Area"			
"	4.590	Flow length"			
"	2.000	Overland Slope"			
"	0.013	Pervious Area"			
"	4.590	Pervious length"			
"	2.000	Pervious slope"			
"	0.001	Impervious Area"			
"	4.590	Impervious length"			
"	2.000	Impervious slope"			
"	0.250	Pervious Manning 'n'"			
"	35.000	Pervious Max.infiltration"			
"	5.000	Pervious Min.infiltration"			
"	0.500	Pervious Lag constant (hours)"			
"	7.500	Pervious Depression storage"			
"	0.015	Impervious Manning 'n'"			
"	0.000	Impervious Max.infiltration"			
"	0.000	Impervious Min.infiltration"			
"	0.050	Impervious Lag constant (hours)"			
"	2.000	Impervious Depression storage"			
"	0.004	0.000	0.016	0.016 c.m/sec"	
"	Catchment 104	Pervious	Impervious	Total Area "	
"	Surface Area	0.013	0.001	0.014	hectare"
"	Time of concentration	3.890	0.654	3.524	minutes"
"	Time to Centroid	94.349	88.972	93.740	minutes"

"	Rainfall depth	63.151	63.151	63.151	mm"
"	Rainfall volume	8.35	0.50	8.84	c.m"
"	Rainfall losses	34.738	2.000	32.904	mm"
"	Runoff depth	28.413	61.151	30.247	mm"
"	Runoff volume	3.76	0.48	4.23	c.m"
"	Runoff coefficient	0.450	0.968	0.479	"
"	Maximum flow	0.004	0.000	0.004	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.004 0.004 0.016 0.016"				
" 51	PIPE DESIGN"				
"	0.004 Current peak flow c.m/sec"				
"	0.013 Manning 'n'"				
"	1.000 Diameter metre"				
"	1.000 Gradient %"				
"	Depth of flow 0.030 metre"				
"	Velocity 0.566 m/sec"				
"	Pipe capacity 2.398 c.m/sec"				
"	Critical depth 0.034 metre"				
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length ( metre)"				
"	0.004 0.004 0.004 0.016 c.m/sec"				
" 40	HYDROGRAPH Combine 4"				
"	6 Combine "				
"	4 Node #"				
"	"				
"	Maximum flow 0.004 c.m/sec"				
"	Hydrograph volume 4.235 c.m"				
"	0.004 0.004 0.004 0.004"				
" 40	HYDROGRAPH Start - New Tributary"				
"	2 Start - New Tributary"				
"	0.004 0.000 0.004 0.004"				
" 33	CATCHMENT 105"				
"	2 Rectangular"				
"	1 Equal length"				
"	2 Horton equation"				
"	105 No description"				
"	41.400 % Impervious"				
"	0.012 Total Area"				
"	3.960 Flow length"				
"	2.000 Overland Slope"				
"	0.007 Pervious Area"				
"	3.960 Pervious length"				
"	2.000 Pervious slope"				
"	0.005 Impervious Area"				
"	3.960 Impervious length"				
"	2.000 Impervious slope"				
"	0.250 Pervious Manning 'n'"				
"	35.000 Pervious Max.infiltration"				
"	5.000 Pervious Min.infiltration"				
"	0.500 Pervious Lag constant (hours)"				
"	7.500 Pervious Depression storage"				
"	0.015 Impervious Manning 'n'"				
"	0.000 Impervious Max.infiltration"				
"	0.000 Impervious Min.infiltration"				
"	0.050 Impervious Lag constant (hours)"				
"	2.000 Impervious Depression storage"				
"	0.004 0.000 0.004 0.004 c.m/sec"				
"	Catchment 105 Pervious Impervious Total Area "				
"	Surface Area 0.007 0.005 0.012 hectare"				

"	Time of concentration	3.560	0.598	1.773	minutes"
"	Time to Centroid	94.226	88.972	91.057	minutes"
"	Rainfall depth	63.151	63.151	63.151	mm"
"	Rainfall volume	4.44	3.14	7.58	c.m"
"	Rainfall losses	34.738	2.000	21.184	mm"
"	Runoff depth	28.413	61.151	41.967	mm"
"	Runoff volume	2.00	3.04	5.04	c.m"
"	Runoff coefficient	0.450	0.968	0.665	"
"	Maximum flow	0.002	0.002	0.004	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"		0.004	0.004	0.004	0.004"
" 51	PIPE DESIGN"				
"	0.004 Current peak flow	c.m/sec"			
"	0.013 Manning 'n'"				
"	1.000 Diameter	metre"			
"	1.000 Gradient	%"			
"	Depth of flow		0.029	metre"	
"	Velocity		0.555	m/sec"	
"	Pipe capacity		2.398	c.m/sec"	
"	Critical depth		0.033	metre"	
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length	( metre)"			
"		0.004	0.004	0.004	0.004 c.m/sec"
" 40	HYDROGRAPH Combine 5"				
"	6 Combine "				
"	5 Node #"				
"	"				
"	Maximum flow		0.004	c.m/sec"	
"	Hydrograph volume		5.036	c.m"	
"		0.004	0.004	0.004	0.004"
" 40	HYDROGRAPH Confluence 5"				
"	7 Confluence "				
"	5 Node #"				
"	"				
"	Maximum flow		0.004	c.m/sec"	
"	Hydrograph volume		5.036	c.m"	
"		0.004	0.004	0.004	0.000"
" 51	PIPE DESIGN"				
"	0.004 Current peak flow	c.m/sec"			
"	0.013 Manning 'n'"				
"	1.000 Diameter	metre"			
"	1.000 Gradient	%"			
"	Depth of flow		0.029	metre"	
"	Velocity		0.555	m/sec"	
"	Pipe capacity		2.398	c.m/sec"	
"	Critical depth		0.033	metre"	
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length	( metre)"			
"		0.004	0.004	0.004	0.000 c.m/sec"
" 40	HYDROGRAPH Combine 999"				
"	6 Combine "				
"	999 Node #"				
"	"				
"	Maximum flow		0.004	c.m/sec"	
"	Hydrograph volume		5.036	c.m"	
"		0.004	0.004	0.004	0.004"
" 40	HYDROGRAPH Confluence 4"				
"	7 Confluence "				
"	4 Node #"				

```

"
"
"      Maximum flow                0.004      c.m/sec"
"      Hydrograph volume            4.235      c.m"
"      0.004      0.004      0.004      0.000"
56  DIVERSION"
"      4      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow        0.004      c.m/sec"
"      Volume of diverted flow      4.235      c.m"
"      DIV00004.005hyd"
"      Divert to Infiltration Drywell 0.015 cms"
"      0.004      0.004      0.000      0.000 c.m/sec"
40  HYDROGRAPH Next link "
"      5      Next link "
"      0.004      0.000      0.000      0.000"
40  HYDROGRAPH Start - New Tributary"
"      2      Start - New Tributary"
"      0.004      0.000      0.000      0.000"
40  HYDROGRAPH Undo"
"      1      Undo"
"      0.004      0.000      0.000      0.000"
40  HYDROGRAPH Confluence 1"
"      7      Confluence "
"      1      Node #"
"      "
"      Maximum flow                0.017      c.m/sec"
"      Hydrograph volume            29.148     c.m"
"      0.004      0.017      0.000      0.000"
56  DIVERSION"
"      1      Node number"
"      0.002      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow        0.015      c.m/sec"
"      Volume of diverted flow      13.616     c.m"
"      DIV00001.005hyd"
"      Divert to Infiltration Drywell 0.015 cms"
"      0.004      0.017      0.002      0.000 c.m/sec"
40  HYDROGRAPH Next link "
"      5      Next link "
"      0.004      0.002      0.002      0.000"
56  DIVERSION"
"      5      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow        0.002      c.m/sec"
"      Volume of diverted flow      15.532     c.m"
"      DIV00005.005hyd"
"      Divert to Surface Storage 15.53 cu.m. (35.8 available)"
"      0.004      0.002      0.000      0.000 c.m/sec"
40  HYDROGRAPH Combine 999"
"      6      Combine "
"      999      Node #"
"      "
"      Maximum flow                0.004      c.m/sec"
"      Hydrograph volume            5.036      c.m"
"      0.004      0.002      0.000      0.004"

```

```

" 40      HYDROGRAPH   Confluence   3"
"          7   Confluence  "
"          3   Node #"
"          "
"          Maximum flow                0.016      c.m/sec"
"          Hydrograph volume          28.129      c.m"
"          0.004      0.016      0.000      0.000"
" 51      PIPE DESIGN"
"          0.016   Current peak flow    c.m/sec"
"          0.013   Manning 'n'"
"          1.000   Diameter      metre"
"          1.000   Gradient      %"
"          Depth of flow                0.059      metre"
"          Velocity                    0.871      m/sec"
"          Pipe capacity                2.398      c.m/sec"
"          Critical depth              0.069      metre"
" 53      ROUTE Zero Route"
"          0.00   Zero Route Reach length  ( metre)"
"          0.004      0.016      0.016      0.000 c.m/sec"
" 40      HYDROGRAPH   Combine      2"
"          6   Combine  "
"          2   Node #"
"          "
"          Maximum flow                0.031      c.m/sec"
"          Hydrograph volume          49.951      c.m"
"          0.004      0.016      0.016      0.031"
" 40      HYDROGRAPH   Confluence   2"
"          7   Confluence  "
"          2   Node #"
"          "
"          Maximum flow                0.031      c.m/sec"
"          Hydrograph volume          49.951      c.m"
"          0.004      0.031      0.016      0.000"
" 54      POND DESIGN"
"          0.031   Current peak flow    c.m/sec"
"          0.019   Target outflow    c.m/sec"
"          50.0   Hydrograph volume    c.m"
"          3.     Number of stages"
"          230.200 Minimum water level    metre"
"          230.500 Maximum water level    metre"
"          230.200 Starting water level    metre"
"          0     Keep Design Data: 1 = True; 0 = False"
"          Level Discharge      Volume"
"          230.200  0.01640      0.7600"
"          230.350  0.01700      21.380"
"          230.500  0.01770      83.260"
"          Peak outflow                0.013      c.m/sec"
"          Maximum level                230.318      metre"
"          Maximum storage              16.943      c.m"
"          Centroidal lag              1.840      hours"
"          0.004      0.031      0.013      0.000 c.m/sec"
" 40      HYDROGRAPH Next link  "
"          5   Next link  "
"          0.004      0.013      0.013      0.000"
" 51      PIPE DESIGN"
"          0.013   Current peak flow    c.m/sec"
"          0.013   Manning 'n'"
"          0.200   Diameter      metre"
"          0.500   Gradient      %"
"          Depth of flow                0.109      metre"

```

"	Velocity	0.766	m/sec"
"	Pipe capacity	0.023	c.m/sec"
"	Critical depth	0.099	metre"
" 53	ROUTE Pipe Route 29"		
"	29.00 Pipe Route 29 Reach length ( metre)"		
"	0.269 X-factor <= 0.5"		
"	28.404 K-lag ( seconds)"		
"	0.000 Default(0) or user spec.(1) values used"		
"	0.500 X-factor <= 0.5"		
"	30.000 K-lag ( seconds)"		
"	0.500 Beta weighting factor"		
"	40.000 Routing time step ( seconds)"		
"	1 No. of sub-reaches"		
"	Peak outflow	0.013	c.m/sec"
"	0.004 0.013 0.013	0.000	c.m/sec"
" 40	HYDROGRAPH Combine 999"		
"	6 Combine "		
"	999 Node #"		
"	"		
"	Maximum flow	0.014	c.m/sec"
"	Hydrograph volume	54.987	c.m"
"	0.004 0.013 0.013	0.014	"
" 40	HYDROGRAPH Confluence 999"		
"	7 Confluence "		
"	999 Node #"		
"	"		
"	Maximum flow	0.014	c.m/sec"
"	Hydrograph volume	54.987	c.m"
"	0.004 0.014 0.013	0.000	"
" 38	START/RE-START TOTALS 999"		
"	3 Runoff Totals on EXIT"		
"	Total Catchment area	0.164	hectare"
"	Total Impervious area	0.128	hectare"
"	Total % impervious	77.802	"
" 19	EXIT"		

```

"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25  rev. 473"
"          MIDUSS created                      February-07-10"
"          10  Units used:                      ie METRIC"
"          Job folder:                        C:\swm\MIDUSS\14591"
"          Output filename:                    pst50.out"
"          Licensee name:                      Bob"
"          Company                            "
"          Date & Time last used:              23/05/2021 at 10:43:04 AM"
31  TIME PARAMETERS"
"      10.000  Time Step"
"      180.000  Max. Storm length"
"      1500.000  Max. Hydrograph"
32  STORM Chicago storm"
"      1  Chicago storm"
"      766.038  Coefficient A"
"      1.898  Constant B"
"      0.668  Exponent C"
"      0.400  Fraction R"
"      180.000  Duration"
"      1.000  Time step multiplier"
"          Maximum intensity          141.545  mm/hr"
"          Total depth                71.090  mm"
"      6  005hyd  Hydrograph extension used in this file"
33  CATCHMENT 101"
"      2  Rectangular"
"      1  Equal length"
"      2  Horton equation"
"      101  No description"
"      98.700  % Impervious"
"      0.048  Total Area"
"      9.600  Flow length"
"      2.000  Overland Slope"
"      0.001  Pervious Area"
"      9.600  Pervious length"
"      2.000  Pervious slope"
"      0.047  Impervious Area"
"      9.600  Impervious length"
"      2.000  Impervious slope"
"      0.250  Pervious Manning 'n'"
"      35.000  Pervious Max.infiltration"
"      5.000  Pervious Min.infiltration"
"      0.500  Pervious Lag constant (hours)"
"      7.500  Pervious Depression storage"
"      0.015  Impervious Manning 'n'"
"      0.000  Impervious Max.infiltration"
"      0.000  Impervious Min.infiltration"
"      0.050  Impervious Lag constant (hours)"
"      2.000  Impervious Depression storage"
"          0.019  0.000  0.000  0.000 c.m/sec"
"      Catchment 101  Pervious  Impervious  Total Area  "
"      Surface Area  0.001  0.047  0.048  hectare"
"      Time of concentration  5.537  0.974  1.006  minutes"
"      Time to Centroid  96.277  88.885  88.935  minutes"
"      Rainfall depth  71.090  71.090  71.090  mm"
"      Rainfall volume  0.44  33.68  34.12  c.m"
"      Rainfall losses  35.051  2.000  2.430  mm"
"      Runoff depth  36.038  69.090  68.660  mm"
"      Runoff volume  0.22  32.73  32.96  c.m"
"      Runoff coefficient  0.507  0.972  0.966  "

```



"		Maximum flow	0.000	0.019	0.019	c.m/sec"
" 40		HYDROGRAPH Add Runoff "				
"	4	Add Runoff "				
"		0.019	0.019	0.000	0.000"	
" 51		PIPE DESIGN"				
"	0.019	Current peak flow	c.m/sec"			
"	0.013	Manning 'n'"				
"	1.000	Diameter	metre"			
"	1.000	Gradient	%"			
"		Depth of flow	0.063	metre"		
"		Velocity	0.911	m/sec"		
"		Pipe capacity	2.398	c.m/sec"		
"		Critical depth	0.075	metre"		
" 53		ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"			
"		0.019	0.019	0.019	0.000 c.m/sec"	
" 40		HYDROGRAPH Combine	1"			
"	6	Combine "				
"	1	Node #"				
"		"				
"		Maximum flow	0.019	c.m/sec"		
"		Hydrograph volume	32.957	c.m"		
"		0.019	0.019	0.019	0.019"	
" 40		HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"				
"		0.019	0.000	0.019	0.019"	
" 33		CATCHMENT 102"				
"	2	Rectangular"				
"	1	Equal length"				
"	2	Horton equation"				
"	102	No description"				
"	64.700	% Impervious"				
"	0.044	Total Area"				
"	5.800	Flow length"				
"	2.000	Overland Slope"				
"	0.016	Pervious Area"				
"	5.800	Pervious length"				
"	2.000	Pervious slope"				
"	0.028	Impervious Area"				
"	5.800	Impervious length"				
"	2.000	Impervious slope"				
"	0.250	Pervious Manning 'n'"				
"	35.000	Pervious Max.infiltration"				
"	5.000	Pervious Min.infiltration"				
"	0.500	Pervious Lag constant (hours)"				
"	7.500	Pervious Depression storage"				
"	0.015	Impervious Manning 'n'"				
"	0.000	Impervious Max.infiltration"				
"	0.000	Impervious Min.infiltration"				
"	0.050	Impervious Lag constant (hours)"				
"	2.000	Impervious Depression storage"				
"		0.017	0.000	0.019	0.019 c.m/sec"	
"		Catchment 102	Pervious	Impervious	Total Area "	
"		Surface Area	0.016	0.028	0.044	hectare"
"		Time of concentration	4.092	0.720	1.467	minutes"
"		Time to Centroid	95.601	88.885	90.373	minutes"
"		Rainfall depth	71.090	71.090	71.090	mm"
"		Rainfall volume	11.04	20.24	31.28	c.m"
"		Rainfall losses	35.051	2.000	13.667	mm"
"		Runoff depth	36.038	69.090	57.423	mm"

"	Runoff volume	5.60	19.67	25.27	c.m"
"	Runoff coefficient	0.507	0.972	0.808	"
"	Maximum flow	0.005	0.011	0.017	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.017	0.017	0.019	0.019"	
" 51	PIPE DESIGN"				
"	0.017	Current peak flow	c.m/sec"		
"	0.013	Manning 'n'"			
"	1.000	Diameter	metre"		
"	1.000	Gradient	%"		
"		Depth of flow	0.059	metre"	
"		Velocity	0.876	m/sec"	
"		Pipe capacity	2.398	c.m/sec"	
"		Critical depth	0.070	metre"	
" 53	ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"		
"	0.017	0.017	0.017	0.019 c.m/sec"	
" 40	HYDROGRAPH Combine 2"				
"	6	Combine "			
"	2	Node #"			
"					
"		Maximum flow	0.017	c.m/sec"	
"		Hydrograph volume	25.266	c.m"	
"	0.017	0.017	0.017	0.017"	
" 40	HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"			
"	0.017	0.000	0.017	0.017"	
" 33	CATCHMENT 103"				
"	2	Rectangular"			
"	1	Equal length"			
"	2	Horton equation"			
"	103	No description"			
"	100.000	% Impervious"			
"	0.046	Total Area"			
"	13.529	Flow length"			
"	2.000	Overland Slope"			
"	0.000	Pervious Area"			
"	13.529	Pervious length"			
"	2.000	Pervious slope"			
"	0.046	Impervious Area"			
"	13.529	Impervious length"			
"	2.000	Impervious slope"			
"	0.250	Pervious Manning 'n'"			
"	35.000	Pervious Max.infiltration"			
"	5.000	Pervious Min.infiltration"			
"	0.500	Pervious Lag constant (hours)"			
"	7.500	Pervious Depression storage"			
"	0.015	Impervious Manning 'n'"			
"	0.000	Impervious Max.infiltration"			
"	0.000	Impervious Min.infiltration"			
"	0.050	Impervious Lag constant (hours)"			
"	2.000	Impervious Depression storage"			
"	0.018	0.000	0.017	0.017 c.m/sec"	
"	Catchment 103	Pervious	Impervious	Total Area "	
"	Surface Area	0.000	0.046	0.046	hectare"
"	Time of concentration	6.803	1.197	1.197	minutes"
"	Time to Centroid	97.034	88.885	88.885	minutes"
"	Rainfall depth	71.090	71.090	71.090	mm"
"	Rainfall volume	0.00	32.70	32.70	c.m"

"		Rainfall losses	35.051	2.000	2.000	mm"
"		Runoff depth	36.038	69.090	69.090	mm"
"		Runoff volume	0.00	31.78	31.78	c.m"
"		Runoff coefficient	0.000	0.972	0.972	"
"		Maximum flow	0.000	0.018	0.018	c.m/sec"
" 40		HYDROGRAPH Add Runoff "				
"	4	Add Runoff "				
"		0.018	0.018	0.017	0.017"	
" 51		PIPE DESIGN"				
"	0.018	Current peak flow	c.m/sec"			
"	0.013	Manning 'n'"				
"	1.000	Diameter	metre"			
"	1.000	Gradient	%"			
"		Depth of flow	0.062	metre"		
"		Velocity	0.900	m/sec"		
"		Pipe capacity	2.398	c.m/sec"		
"		Critical depth	0.073	metre"		
" 53		ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"			
"		0.018	0.018	0.018	0.017 c.m/sec"	
" 40		HYDROGRAPH Combine	3"			
"	6	Combine "				
"	3	Node #"				
"		"				
"		Maximum flow	0.018	c.m/sec"		
"		Hydrograph volume	31.781	c.m"		
"		0.018	0.018	0.018	0.018"	
" 40		HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"				
"		0.018	0.000	0.018	0.018"	
" 33		CATCHMENT 104"				
"	2	Rectangular"				
"	1	Equal length"				
"	2	Horton equation"				
"	104	No description"				
"	5.600	% Impervious"				
"	0.014	Total Area"				
"	4.590	Flow length"				
"	2.000	Overland Slope"				
"	0.013	Pervious Area"				
"	4.590	Pervious length"				
"	2.000	Pervious slope"				
"	0.001	Impervious Area"				
"	4.590	Impervious length"				
"	2.000	Impervious slope"				
"	0.250	Pervious Manning 'n'"				
"	35.000	Pervious Max.infiltration"				
"	5.000	Pervious Min.infiltration"				
"	0.500	Pervious Lag constant (hours)"				
"	7.500	Pervious Depression storage"				
"	0.015	Impervious Manning 'n'"				
"	0.000	Impervious Max.infiltration"				
"	0.000	Impervious Min.infiltration"				
"	0.050	Impervious Lag constant (hours)"				
"	2.000	Impervious Depression storage"				
"		0.005	0.000	0.018	0.018 c.m/sec"	
"		Catchment 104	Pervious	Impervious	Total Area "	
"		Surface Area	0.013	0.001	0.014	hectare"
"		Time of concentration	3.556	0.626	3.257	minutes"
"		Time to Centroid	95.379	88.885	94.716	minutes"

"	Rainfall depth	71.090	71.090	71.090	mm"
"	Rainfall volume	9.40	0.56	9.95	c.m"
"	Rainfall losses	35.051	2.000	33.200	mm"
"	Runoff depth	36.038	69.090	37.889	mm"
"	Runoff volume	4.76	0.54	5.30	c.m"
"	Runoff coefficient	0.507	0.972	0.533	"
"	Maximum flow	0.005	0.000	0.005	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.005 0.005 0.018 0.018"				
" 51	PIPE DESIGN"				
"	0.005 Current peak flow c.m/sec"				
"	0.013 Manning 'n'"				
"	1.000 Diameter metre"				
"	1.000 Gradient %"				
"	Depth of flow 0.034 metre"				
"	Velocity 0.604 m/sec"				
"	Pipe capacity 2.398 c.m/sec"				
"	Critical depth 0.038 metre"				
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length ( metre)"				
"	0.005 0.005 0.005 0.018 c.m/sec"				
" 40	HYDROGRAPH Combine 4"				
"	6 Combine "				
"	4 Node #"				
"	"				
"	Maximum flow 0.005 c.m/sec"				
"	Hydrograph volume 5.304 c.m"				
"	0.005 0.005 0.005 0.005"				
" 40	HYDROGRAPH Start - New Tributary"				
"	2 Start - New Tributary"				
"	0.005 0.000 0.005 0.005"				
" 33	CATCHMENT 105"				
"	2 Rectangular"				
"	1 Equal length"				
"	2 Horton equation"				
"	105 No description"				
"	41.400 % Impervious"				
"	0.012 Total Area"				
"	3.960 Flow length"				
"	2.000 Overland Slope"				
"	0.007 Pervious Area"				
"	3.960 Pervious length"				
"	2.000 Pervious slope"				
"	0.005 Impervious Area"				
"	3.960 Impervious length"				
"	2.000 Impervious slope"				
"	0.250 Pervious Manning 'n'"				
"	35.000 Pervious Max.infiltration"				
"	5.000 Pervious Min.infiltration"				
"	0.500 Pervious Lag constant (hours)"				
"	7.500 Pervious Depression storage"				
"	0.015 Impervious Manning 'n'"				
"	0.000 Impervious Max.infiltration"				
"	0.000 Impervious Min.infiltration"				
"	0.050 Impervious Lag constant (hours)"				
"	2.000 Impervious Depression storage"				
"	0.004 0.000 0.005 0.005 c.m/sec"				
"	Catchment 105 Pervious Impervious Total Area "				
"	Surface Area 0.007 0.005 0.012 hectare"				

"	Time of concentration	3.255	0.573	1.712	minutes"
"	Time to Centroid	95.269	88.885	91.596	minutes"
"	Rainfall depth	71.090	71.090	71.090	mm"
"	Rainfall volume	5.00	3.53	8.53	c.m"
"	Rainfall losses	35.051	2.000	21.368	mm"
"	Runoff depth	36.038	69.090	49.722	mm"
"	Runoff volume	2.53	3.43	5.97	c.m"
"	Runoff coefficient	0.507	0.972	0.699	"
"	Maximum flow	0.002	0.002	0.004	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"		0.004	0.004	0.005	0.005"
" 51	PIPE DESIGN"				
"	0.004 Current peak flow	c.m/sec"			
"	0.013 Manning 'n'"				
"	1.000 Diameter	metre"			
"	1.000 Gradient	%"			
"	Depth of flow	0.032	metre"		
"	Velocity	0.585	m/sec"		
"	Pipe capacity	2.398	c.m/sec"		
"	Critical depth	0.036	metre"		
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length	( metre)"			
"		0.004	0.004	0.004	0.005 c.m/sec"
" 40	HYDROGRAPH Combine 5"				
"	6 Combine "				
"	5 Node #"				
"	"				
"	Maximum flow	0.004	c.m/sec"		
"	Hydrograph volume	5.967	c.m"		
"		0.004	0.004	0.004	0.004"
" 40	HYDROGRAPH Confluence 5"				
"	7 Confluence "				
"	5 Node #"				
"	"				
"	Maximum flow	0.004	c.m/sec"		
"	Hydrograph volume	5.967	c.m"		
"		0.004	0.004	0.004	0.000"
" 51	PIPE DESIGN"				
"	0.004 Current peak flow	c.m/sec"			
"	0.013 Manning 'n'"				
"	1.000 Diameter	metre"			
"	1.000 Gradient	%"			
"	Depth of flow	0.032	metre"		
"	Velocity	0.585	m/sec"		
"	Pipe capacity	2.398	c.m/sec"		
"	Critical depth	0.036	metre"		
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length	( metre)"			
"		0.004	0.004	0.004	0.000 c.m/sec"
" 40	HYDROGRAPH Combine 999"				
"	6 Combine "				
"	999 Node #"				
"	"				
"	Maximum flow	0.004	c.m/sec"		
"	Hydrograph volume	5.967	c.m"		
"		0.004	0.004	0.004	0.004"
" 40	HYDROGRAPH Confluence 4"				
"	7 Confluence "				
"	4 Node #"				

```

"
"
"      Maximum flow              0.005      c.m/sec"
"      Hydrograph volume         5.304      c.m"
"      0.004      0.005      0.004      0.000"
56  DIVERSION"
"      4      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow      0.005      c.m/sec"
"      Volume of diverted flow    5.304      c.m"
"      DIV00004.005hyd"
"      Divert to Infiltration Drywell 0.015 cms"
"      0.004      0.005      0.000      0.000 c.m/sec"
40  HYDROGRAPH Next link "
"      5      Next link "
"      0.004      0.000      0.000      0.000"
40  HYDROGRAPH Start - New Tributary"
"      2      Start - New Tributary"
"      0.004      0.000      0.000      0.000"
40  HYDROGRAPH Undo"
"      1      Undo"
"      0.004      0.000      0.000      0.000"
40  HYDROGRAPH Confluence 1"
"      7      Confluence "
"      1      Node #"
"      "
"      Maximum flow              0.019      c.m/sec"
"      Hydrograph volume         32.957     c.m"
"      0.004      0.019      0.000      0.000"
56  DIVERSION"
"      1      Node number"
"      0.004      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow      0.015      c.m/sec"
"      Volume of diverted flow    10.917     c.m"
"      DIV00001.005hyd"
"      Divert to Infiltration Drywell 0.015 cms"
"      0.004      0.019      0.004      0.000 c.m/sec"
40  HYDROGRAPH Next link "
"      5      Next link "
"      0.004      0.004      0.004      0.000"
56  DIVERSION"
"      5      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow      0.004      c.m/sec"
"      Volume of diverted flow    22.040     c.m"
"      DIV00005.005hyd"
"      Divert to Surface Storage 22.0 cu.m. (35.8 available)"
"      0.004      0.004      0.000      0.000 c.m/sec"
40  HYDROGRAPH Combine 999"
"      6      Combine "
"      999      Node #"
"      "
"      Maximum flow              0.004      c.m/sec"
"      Hydrograph volume         5.967      c.m"
"      0.004      0.004      0.000      0.004"

```

```

" 40      HYDROGRAPH   Confluence   3"
"          7   Confluence  "
"          3   Node #"
"          "
"          Maximum flow           0.018   c.m/sec"
"          Hydrograph volume       31.781   c.m"
"              0.004   0.018   0.000   0.000"
" 51      PIPE DESIGN"
"          0.018   Current peak flow   c.m/sec"
"          0.013   Manning 'n'"
"          1.000   Diameter   metre"
"          1.000   Gradient   %"
"              Depth of flow           0.062   metre"
"              Velocity                 0.900   m/sec"
"              Pipe capacity            2.398   c.m/sec"
"              Critical depth           0.073   metre"
" 53      ROUTE Zero Route"
"          0.00   Zero Route Reach length   ( metre)"
"              0.004   0.018   0.018   0.000 c.m/sec"
" 40      HYDROGRAPH   Combine     2"
"          6   Combine  "
"          2   Node #"
"          "
"          Maximum flow           0.035   c.m/sec"
"          Hydrograph volume       57.047   c.m"
"              0.004   0.018   0.018   0.035"
" 40      HYDROGRAPH   Confluence   2"
"          7   Confluence  "
"          2   Node #"
"          "
"          Maximum flow           0.035   c.m/sec"
"          Hydrograph volume       57.047   c.m"
"              0.004   0.035   0.018   0.000"
" 54      POND DESIGN"
"          0.035   Current peak flow   c.m/sec"
"          0.019   Target outflow   c.m/sec"
"          57.0   Hydrograph volume   c.m"
"          3.   Number of stages"
"          230.200   Minimum water level   metre"
"          230.500   Maximum water level   metre"
"          230.200   Starting water level   metre"
"          0   Keep Design Data: 1 = True; 0 = False"
"              Level Discharge   Volume"
"              230.200   0.01640   0.7600"
"              230.350   0.01700   21.380"
"              230.500   0.01770   83.260"
"          Peak outflow           0.015   c.m/sec"
"          Maximum level           230.334   metre"
"          Maximum storage         19.123   c.m"
"          Centroidal lag           1.842   hours"
"              0.004   0.035   0.015   0.000 c.m/sec"
" 40      HYDROGRAPH Next link  "
"          5   Next link  "
"              0.004   0.015   0.015   0.000"
" 51      PIPE DESIGN"
"          0.015   Current peak flow   c.m/sec"
"          0.013   Manning 'n'"
"          0.200   Diameter   metre"
"          0.500   Gradient   %"
"          Depth of flow           0.118   metre"

```



"	Velocity	0.787	m/sec"
"	Pipe capacity	0.023	c.m/sec"
"	Critical depth	0.105	metre"
" 53	ROUTE Pipe Route 29"		
"	29.00 Pipe Route 29 Reach length ( metre)"		
"	0.237 X-factor <= 0.5"		
"	27.622 K-lag ( seconds)"		
"	0.000 Default(0) or user spec.(1) values used"		
"	0.500 X-factor <= 0.5"		
"	30.000 K-lag ( seconds)"		
"	0.500 Beta weighting factor"		
"	40.000 Routing time step ( seconds)"		
"	1 No. of sub-reaches"		
"	Peak outflow	0.015	c.m/sec"
"	0.004 0.015 0.015 0.000 c.m/sec"		
" 40	HYDROGRAPH Combine 999"		
"	6 Combine "		
"	999 Node #"		
"	"		
"	Maximum flow	0.016	c.m/sec"
"	Hydrograph volume	63.014	c.m"
"	0.004 0.015 0.015 0.016"		
" 40	HYDROGRAPH Confluence 999"		
"	7 Confluence "		
"	999 Node #"		
"	"		
"	Maximum flow	0.016	c.m/sec"
"	Hydrograph volume	63.014	c.m"
"	0.004 0.016 0.015 0.000"		
" 38	START/RE-START TOTALS 999"		
"	3 Runoff Totals on EXIT"		
"	Total Catchment area	0.164	hectare"
"	Total Impervious area	0.128	hectare"
"	Total % impervious	77.802"	
" 19	EXIT"		

```

"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25  rev. 473"
"          MIDUSS created                      February-07-10"
"          10  Units used:                      ie METRIC"
"          Job folder:                        C:\swm\MIDUSS\14591"
"          Output filename:                    pst100.out"
"          Licensee name:                      Bob"
"          Company                            "
"          Date & Time last used:              23/05/2021 at 10:15:14 AM"
" 31      TIME PARAMETERS"
"          10.000  Time Step"
"          180.000  Max. Storm length"
"          1500.000  Max. Hydrograph"
" 32      STORM Chicago storm"
"          1  Chicago storm"
"          801.041  Coefficient A"
"          1.501  Constant B"
"          0.657  Exponent C"
"          0.400  Fraction R"
"          180.000  Duration"
"          1.000  Time step multiplier"
"          Maximum intensity          155.782  mm/hr"
"          Total depth                78.830  mm"
"          6  005hyd  Hydrograph extension used in this file"
" 33      CATCHMENT 101"
"          2  Rectangular"
"          1  Equal length"
"          2  Horton equation"
"          101  No description"
"          98.700  % Impervious"
"          0.048  Total Area"
"          9.600  Flow length"
"          2.000  Overland Slope"
"          0.001  Pervious Area"
"          9.600  Pervious length"
"          2.000  Pervious slope"
"          0.047  Impervious Area"
"          9.600  Impervious length"
"          2.000  Impervious slope"
"          0.250  Pervious Manning 'n'"
"          35.000  Pervious Max.infiltration"
"          5.000  Pervious Min.infiltration"
"          0.500  Pervious Lag constant (hours)"
"          7.500  Pervious Depression storage"
"          0.015  Impervious Manning 'n'"
"          0.000  Impervious Max.infiltration"
"          0.000  Impervious Min.infiltration"
"          0.050  Impervious Lag constant (hours)"
"          2.000  Impervious Depression storage"
"          0.021  0.000  0.000  0.000 c.m/sec"
"          Catchment 101  Pervious  Impervious Total Area "
"          Surface Area  0.001  0.047  0.048  hectare"
"          Time of concentration  5.217  0.938  0.969  minutes"
"          Time to Centroid  96.885  88.849  88.908  minutes"
"          Rainfall depth  78.830  78.830  78.830  mm"
"          Rainfall volume  0.49  37.35  37.84  c.m"
"          Rainfall losses  35.397  2.000  2.434  mm"
"          Runoff depth  43.433  76.830  76.396  mm"
"          Runoff volume  0.27  36.40  36.67  c.m"
"          Runoff coefficient  0.551  0.975  0.969  "

```

"	Maximum flow	0.000	0.021	0.021	"c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.021 0.021 0.000 0.000"				
" 51	PIPE DESIGN"				
"	0.021 Current peak flow c.m/sec"				
"	0.013 Manning 'n'"				
"	1.000 Diameter metre"				
"	1.000 Gradient %"				
"	Depth of flow 0.066 metre"				
"	Velocity 0.938 m/sec"				
"	Pipe capacity 2.398 c.m/sec"				
"	Critical depth 0.079 metre"				
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length ( metre)"				
"	0.021 0.021 0.021 0.000 c.m/sec"				
" 40	HYDROGRAPH Combine 1"				
"	6 Combine "				
"	1 Node #"				
"	"				
"	Maximum flow 0.021 c.m/sec"				
"	Hydrograph volume 36.670 c.m"				
"	0.021 0.021 0.021 0.021"				
" 40	HYDROGRAPH Start - New Tributary"				
"	2 Start - New Tributary"				
"	0.021 0.000 0.021 0.021"				
" 33	CATCHMENT 102"				
"	2 Rectangular"				
"	1 Equal length"				
"	2 Horton equation"				
"	102 No description"				
"	64.700 % Impervious"				
"	0.044 Total Area"				
"	5.800 Flow length"				
"	2.000 Overland Slope"				
"	0.016 Pervious Area"				
"	5.800 Pervious length"				
"	2.000 Pervious slope"				
"	0.028 Impervious Area"				
"	5.800 Impervious length"				
"	2.000 Impervious slope"				
"	0.250 Pervious Manning 'n'"				
"	35.000 Pervious Max.infiltration"				
"	5.000 Pervious Min.infiltration"				
"	0.500 Pervious Lag constant (hours)"				
"	7.500 Pervious Depression storage"				
"	0.015 Impervious Manning 'n'"				
"	0.000 Impervious Max.infiltration"				
"	0.000 Impervious Min.infiltration"				
"	0.050 Impervious Lag constant (hours)"				
"	2.000 Impervious Depression storage"				
"	0.019 0.000 0.021 0.021 c.m/sec"				
"	Catchment 102 Pervious Impervious Total Area "				
"	Surface Area 0.016 0.028 0.044 hectare"				
"	Time of concentration 3.856 0.693 1.439 minutes"				
"	Time to Centroid 96.212 88.849 90.584 minutes"				
"	Rainfall depth 78.830 78.830 78.830 mm"				
"	Rainfall volume 12.24 22.44 34.69 c.m"				
"	Rainfall losses 35.397 2.000 13.789 mm"				
"	Runoff depth 43.433 76.830 65.041 mm"				

"	Runoff volume	6.75	21.87	28.62	c.m"
"	Runoff coefficient	0.551	0.975	0.825	"
"	Maximum flow	0.006	0.012	0.019	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.019	0.019	0.021	0.021"	
" 51	PIPE DESIGN"				
"	0.019 Current peak flow	c.m/sec"			
"	0.013 Manning 'n'"				
"	1.000 Diameter	metre"			
"	1.000 Gradient	%"			
"	Depth of flow	0.063	metre"		
"	Velocity	0.908	m/sec"		
"	Pipe capacity	2.398	c.m/sec"		
"	Critical depth	0.075	metre"		
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length	( metre)"			
"	0.019	0.019	0.019	0.021 c.m/sec"	
" 40	HYDROGRAPH Combine	2"			
"	6 Combine "				
"	2 Node #"				
"	"				
"	Maximum flow	0.019	c.m/sec"		
"	Hydrograph volume	28.618	c.m"		
"	0.019	0.019	0.019	0.019"	
" 40	HYDROGRAPH Start - New Tributary"				
"	2 Start - New Tributary"				
"	0.019	0.000	0.019	0.019"	
" 33	CATCHMENT 103"				
"	2 Rectangular"				
"	1 Equal length"				
"	2 Horton equation"				
"	103 No description"				
"	100.000 % Impervious"				
"	0.046 Total Area"				
"	13.529 Flow length"				
"	2.000 Overland Slope"				
"	0.000 Pervious Area"				
"	13.529 Pervious length"				
"	2.000 Pervious slope"				
"	0.046 Impervious Area"				
"	13.529 Impervious length"				
"	2.000 Impervious slope"				
"	0.250 Pervious Manning 'n'"				
"	35.000 Pervious Max.infiltration"				
"	5.000 Pervious Min.infiltration"				
"	0.500 Pervious Lag constant (hours)"				
"	7.500 Pervious Depression storage"				
"	0.015 Impervious Manning 'n'"				
"	0.000 Impervious Max.infiltration"				
"	0.000 Impervious Min.infiltration"				
"	0.050 Impervious Lag constant (hours)"				
"	2.000 Impervious Depression storage"				
"	0.020	0.000	0.019	0.019 c.m/sec"	
"	Catchment 103	Pervious	Impervious	Total Area "	
"	Surface Area	0.000	0.046	0.046	hectare"
"	Time of concentration	6.409	1.152	1.152	minutes"
"	Time to Centroid	0.000	88.849	88.849	minutes"
"	Rainfall depth	78.830	78.830	78.830	mm"
"	Rainfall volume	0.00	36.26	36.26	c.m"

"	Rainfall losses	78.830	2.000	2.000	mm"
"	Runoff depth	0.000	76.830	76.830	mm"
"	Runoff volume	0.00	35.34	35.34	c.m"
"	Runoff coefficient	0.000	0.975	0.975	"
"	Maximum flow	0.000	0.020	0.020	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.020	0.020	0.019	0.019"	
" 51	PIPE DESIGN"				
"	0.020	Current peak flow	c.m/sec"		
"	0.013	Manning 'n'"			
"	1.000	Diameter	metre"		
"	1.000	Gradient	%"		
"	Depth of flow	0.065	metre"		
"	Velocity	0.926	m/sec"		
"	Pipe capacity	2.398	c.m/sec"		
"	Critical depth	0.077	metre"		
" 53	ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"		
"	0.020	0.020	0.020	0.019 c.m/sec"	
" 40	HYDROGRAPH Combine 3"				
"	6	Combine "			
"	3	Node #"			
"	"				
"	Maximum flow	0.020	c.m/sec"		
"	Hydrograph volume	35.342	c.m"		
"	0.020	0.020	0.020	0.020"	
" 40	HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"			
"	0.020	0.000	0.020	0.020"	
" 33	CATCHMENT 104"				
"	2	Rectangular"			
"	1	Equal length"			
"	2	Horton equation"			
"	104	No description"			
"	5.600	% Impervious"			
"	0.014	Total Area"			
"	4.590	Flow length"			
"	2.000	Overland Slope"			
"	0.013	Pervious Area"			
"	4.590	Pervious length"			
"	2.000	Pervious slope"			
"	0.001	Impervious Area"			
"	4.590	Impervious length"			
"	2.000	Impervious slope"			
"	0.250	Pervious Manning 'n'"			
"	35.000	Pervious Max.infiltration"			
"	5.000	Pervious Min.infiltration"			
"	0.500	Pervious Lag constant (hours)"			
"	7.500	Pervious Depression storage"			
"	0.015	Impervious Manning 'n'"			
"	0.000	Impervious Max.infiltration"			
"	0.000	Impervious Min.infiltration"			
"	0.050	Impervious Lag constant (hours)"			
"	2.000	Impervious Depression storage"			
"	0.006	0.000	0.020	0.020 c.m/sec"	
"	Catchment 104	Pervious	Impervious	Total Area "	
"	Surface Area	0.013	0.001	0.014	hectare"
"	Time of concentration	3.351	0.602	3.090	minutes"
"	Time to Centroid	96.000	88.849	95.321	minutes"

"		Rainfall depth	78.830	78.830	78.830	mm"
"		Rainfall volume	10.42	0.62	11.04	c.m"
"		Rainfall losses	35.397	2.000	33.527	mm"
"		Runoff depth	43.433	76.830	45.304	mm"
"		Runoff volume	5.74	0.60	6.34	c.m"
"		Runoff coefficient	0.551	0.975	0.575	"
"		Maximum flow	0.005	0.000	0.006	c.m/sec"
" 40		HYDROGRAPH Add Runoff "				
"	4	Add Runoff "				
"		0.006	0.006	0.020	0.020"	
" 51		PIPE DESIGN"				
"	0.006	Current peak flow	c.m/sec"			
"	0.013	Manning 'n'"				
"	1.000	Diameter	metre"			
"	1.000	Gradient	%"			
"		Depth of flow	0.036	metre"		
"		Velocity	0.633	m/sec"		
"		Pipe capacity	2.398	c.m/sec"		
"		Critical depth	0.041	metre"		
" 53		ROUTE Zero Route"				
"	0.00	Zero Route Reach length	( metre)"			
"		0.006	0.006	0.006	0.020 c.m/sec"	
" 40		HYDROGRAPH Combine	4"			
"	6	Combine "				
"	4	Node #"				
"		"				
"		Maximum flow	0.006	c.m/sec"		
"		Hydrograph volume	6.342	c.m"		
"		0.006	0.006	0.006	0.006"	
" 40		HYDROGRAPH Start - New Tributary"				
"	2	Start - New Tributary"				
"		0.006	0.000	0.006	0.006"	
" 33		CATCHMENT 105"				
"	2	Rectangular"				
"	1	Equal length"				
"	2	Horton equation"				
"	105	No description"				
"	41.400	% Impervious"				
"	0.012	Total Area"				
"	3.960	Flow length"				
"	2.000	Overland Slope"				
"	0.007	Pervious Area"				
"	3.960	Pervious length"				
"	2.000	Pervious slope"				
"	0.005	Impervious Area"				
"	3.960	Impervious length"				
"	2.000	Impervious slope"				
"	0.250	Pervious Manning 'n'"				
"	35.000	Pervious Max.infiltration"				
"	5.000	Pervious Min.infiltration"				
"	0.500	Pervious Lag constant (hours)"				
"	7.500	Pervious Depression storage"				
"	0.015	Impervious Manning 'n'"				
"	0.000	Impervious Max.infiltration"				
"	0.000	Impervious Min.infiltration"				
"	0.050	Impervious Lag constant (hours)"				
"	2.000	Impervious Depression storage"				
"		0.005	0.000	0.006	0.006 c.m/sec"	
"		Catchment 105	Pervious	Impervious	Total Area "	
"		Surface Area	0.007	0.005	0.012	hectare"

"	Time of concentration	3.067	0.551	1.669	minutes"
"	Time to Centroid	95.897	88.849	91.981	minutes"
"	Rainfall depth	78.830	78.830	78.830	mm"
"	Rainfall volume	5.54	3.92	9.46	c.m"
"	Rainfall losses	35.397	2.000	21.571	mm"
"	Runoff depth	43.433	76.830	57.260	mm"
"	Runoff volume	3.05	3.82	6.87	c.m"
"	Runoff coefficient	0.551	0.975	0.726	"
"	Maximum flow	0.003	0.002	0.005	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.005 0.005 0.006 0.006"				
" 51	PIPE DESIGN"				
"	0.005 Current peak flow c.m/sec"				
"	0.013 Manning 'n'"				
"	1.000 Diameter metre"				
"	1.000 Gradient %"				
"	Depth of flow 0.034 metre"				
"	Velocity 0.608 m/sec"				
"	Pipe capacity 2.398 c.m/sec"				
"	Critical depth 0.038 metre"				
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length ( metre)"				
"	0.005 0.005 0.005 0.006 c.m/sec"				
" 40	HYDROGRAPH Combine 5"				
"	6 Combine "				
"	5 Node #"				
"	"				
"	Maximum flow 0.005 c.m/sec"				
"	Hydrograph volume 6.871 c.m"				
"	0.005 0.005 0.005 0.005"				
" 40	HYDROGRAPH Confluence 5"				
"	7 Confluence "				
"	5 Node #"				
"	"				
"	Maximum flow 0.005 c.m/sec"				
"	Hydrograph volume 6.871 c.m"				
"	0.005 0.005 0.005 0.000"				
" 51	PIPE DESIGN"				
"	0.005 Current peak flow c.m/sec"				
"	0.013 Manning 'n'"				
"	1.000 Diameter metre"				
"	1.000 Gradient %"				
"	Depth of flow 0.034 metre"				
"	Velocity 0.608 m/sec"				
"	Pipe capacity 2.398 c.m/sec"				
"	Critical depth 0.038 metre"				
" 53	ROUTE Zero Route"				
"	0.00 Zero Route Reach length ( metre)"				
"	0.005 0.005 0.005 0.000 c.m/sec"				
" 40	HYDROGRAPH Combine 999"				
"	6 Combine "				
"	999 Node #"				
"	"				
"	Maximum flow 0.005 c.m/sec"				
"	Hydrograph volume 6.871 c.m"				
"	0.005 0.005 0.005 0.005"				
" 40	HYDROGRAPH Confluence 4"				
"	7 Confluence "				
"	4 Node #"				



```

"
"
"      Maximum flow      0.006      c.m/sec"
"      Hydrograph volume 6.342      c.m"
"      0.005      0.006      0.005      0.000"
" 56      DIVERSION"
"      4      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow      0.006      c.m/sec"
"      Volume of diverted flow      6.342      c.m"
"      DIV00004.005hyd"
"      Divert to Infiltration Drywell 0.015 cms"
"      0.005      0.006      0.000      0.000 c.m/sec"
" 40      HYDROGRAPH Next link "
"      5      Next link "
"      0.005      0.000      0.000      0.000"
" 40      HYDROGRAPH Start - New Tributary"
"      2      Start - New Tributary"
"      0.005      0.000      0.000      0.000"
" 40      HYDROGRAPH Undo"
"      1      Undo"
"      0.005      0.000      0.000      0.000"
" 40      HYDROGRAPH Confluence 1"
"      7      Confluence "
"      1      Node #"
"      "
"
"      Maximum flow      0.021      c.m/sec"
"      Hydrograph volume 36.670      c.m"
"      0.005      0.021      0.000      0.000"
" 56      DIVERSION"
"      1      Node number"
"      0.006      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow      0.015      c.m/sec"
"      Volume of diverted flow      9.425      c.m"
"      DIV00001.005hyd"
"      Divert to Infiltration Drywell 0.015 cms"
"      0.005      0.021      0.006      0.000 c.m/sec"
" 40      HYDROGRAPH Next link "
"      5      Next link "
"      0.005      0.006      0.006      0.000"
" 56      DIVERSION"
"      5      Node number"
"      0.000      Overflow threshold"
"      1.000      Required diverted fraction"
"      0      Conduit type; 1=Pipe;2=Channel"
"      Peak of diverted flow      0.006      c.m/sec"
"      Volume of diverted flow      27.245      c.m"
"      DIV00005.005hyd"
"      Divert to Surface Storage 27.2 cu.m. (35.8 available)"
"      0.005      0.006      0.000      0.000 c.m/sec"
" 40      HYDROGRAPH Combine 999"
"      6      Combine "
"      999      Node #"
"      "
"      Maximum flow      0.005      c.m/sec"
"      Hydrograph volume 6.871      c.m"
"      0.005      0.006      0.000      0.005"

```

```

" 40      HYDROGRAPH   Confluence   3"
"          7   Confluence  "
"          3   Node #"
"          "
"          Maximum flow                0.020      c.m/sec"
"          Hydrograph volume          35.342      c.m"
"          0.005      0.020      0.000      0.000"
" 51      PIPE DESIGN"
"          0.020   Current peak flow    c.m/sec"
"          0.013   Manning 'n'"
"          1.000   Diameter      metre"
"          1.000   Gradient      %"
"          Depth of flow                0.065      metre"
"          Velocity                    0.926      m/sec"
"          Pipe capacity                2.398      c.m/sec"
"          Critical depth              0.077      metre"
" 53      ROUTE Zero Route"
"          0.00   Zero Route Reach length  ( metre)"
"          0.005      0.020      0.020      0.000 c.m/sec"
" 40      HYDROGRAPH   Combine     2"
"          6   Combine  "
"          2   Node #"
"          "
"          Maximum flow                0.039      c.m/sec"
"          Hydrograph volume          63.960      c.m"
"          0.005      0.020      0.020      0.039"
" 40      HYDROGRAPH   Confluence   2"
"          7   Confluence  "
"          2   Node #"
"          "
"          Maximum flow                0.039      c.m/sec"
"          Hydrograph volume          63.960      c.m"
"          0.005      0.039      0.020      0.000"
" 54      POND DESIGN"
"          0.039   Current peak flow    c.m/sec"
"          0.019   Target outflow    c.m/sec"
"          64.0   Hydrograph volume    c.m"
"          3.     Number of stages"
"          230.200 Minimum water level  metre"
"          230.500 Maximum water level  metre"
"          230.200 Starting water level  metre"
"          0      Keep Design Data: 1 = True; 0 = False"
"          Level Discharge      Volume"
"          230.200  0.01640      0.7600"
"          230.350  0.01700      21.380"
"          230.500  0.01770      83.260"
"          Peak outflow          0.017      c.m/sec"
"          Maximum level          230.349      metre"
"          Maximum storage        21.203      c.m"
"          Centroidal lag        1.843      hours"
"          0.005      0.039      0.017      0.000 c.m/sec"
" 40      HYDROGRAPH Next link  "
"          5   Next link  "
"          0.005      0.017      0.017      0.000"
" 51      PIPE DESIGN"
"          0.017   Current peak flow    c.m/sec"
"          0.013   Manning 'n'"
"          0.200   Diameter      metre"
"          0.500   Gradient      %"
"          Depth of flow                0.126      metre"

```

"	Velocity	0.805	m/sec"
"	Pipe capacity	0.023	c.m/sec"
"	Critical depth	0.111	metre"
" 53	ROUTE Pipe Route 29"		
"	29.00 Pipe Route 29 Reach length ( metre)"		
"	0.200 X-factor <= 0.5"		
"	27.016 K-lag ( seconds)"		
"	0.000 Default(0) or user spec.(1) values used"		
"	0.500 X-factor <= 0.5"		
"	30.000 K-lag ( seconds)"		
"	0.500 Beta weighting factor"		
"	42.857 Routing time step ( seconds)"		
"	1 No. of sub-reaches"		
"	Peak outflow	0.017	c.m/sec"
"	0.005 0.017 0.017	0.000	c.m/sec"
" 40	HYDROGRAPH Combine 999"		
"	6 Combine "		
"	999 Node #"		
"	"		
"	Maximum flow	0.018	c.m/sec"
"	Hydrograph volume	70.831	c.m"
"	0.005 0.017 0.017	0.018"	
" 40	HYDROGRAPH Confluence 999"		
"	7 Confluence "		
"	999 Node #"		
"	"		
"	Maximum flow	0.018	c.m/sec"
"	Hydrograph volume	70.831	c.m"
"	0.005 0.018 0.017	0.000"	
" 38	START/RE-START TOTALS 999"		
"	3 Runoff Totals on EXIT"		
"	Total Catchment area	0.164	hectare"
"	Total Impervious area	0.128	hectare"
"	Total % impervious	77.802"	
" 19	EXIT"		

J.H. Cohoon Engineering Limited

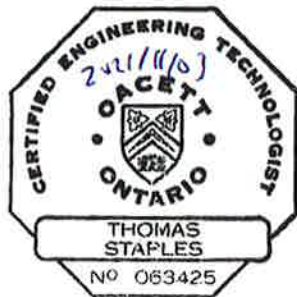
## **GEOTECHNICAL INVESTIGATION REPORT**

**Three Storey Apartment Building  
161 Wellington Avenue  
Delhi, Ontario**

November 2021

04.02103018.000-GS-R-0001-00

**FINAL VERSION**



Prepared by:

A handwritten signature in blue ink, appearing to read "Thom Staples".

**Thom Staples, C.E.T.**  
Senior Project Manager, Brantford Area  
Manager



Approved by:

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Appendix A	Drawings
Appendix B	Borehole Logs
Appendix C	Laboratory Test Results

# 1 Introduction

Englobe Corp. (Englobe) was retained by J.H. Cohoon Engineering Limited to carry out a geotechnical investigation for the proposed 18 unit, three storey apartment building located at 161 Wellington Avenue in Delhi, Ontario (Drawing 1 in Appendix A).

## 2 General Information

The project involves the proposed construction of a three-storey slab-on-grade building and pavements. It is understood that the new building will be constructed on the southeast corner of the site and pavements will be constructed at the north side of the site and access will be from Wellington Avenue west of the new building. The site is generally vegetated with grass with the exception of a small area at the northwest corner that is covered with gravel. The site is typically flat with the borehole locations varying in elevation by less than 200 mm.

The purpose of this investigation was to explore the subsurface soil and groundwater conditions at the subject site and prepare a geotechnical report. The geotechnical report includes recommendations on building design and construction, site pavements, and construction and inspection testing.

Additionally, soil environmental quality data was obtained from the northwest corner of the site in the area of a former house for preliminary soil management discussion purposes. The results of the environmental testing will be reported under a separate cover.

## 3 Field and Laboratory Investigation

### 3.1 Field Program

The fieldwork for this investigation was completed on June 24, 2021 and involved the drilling of six boreholes (Boreholes BH-01-21 to BH-06-21) to depths ranging from 3.7 to 12.7 m. The borehole locations are shown on Drawing 2 in Appendix A. The field investigation was carried out in general conformance with the professional standards set out in the Canadian Foundation Engineering Manual (CFEM 2006, 4th Edition), applicable Ontario Regulations and the ASTM International (ASTM) standards. The following is a summary of field investigation tasks:

- ▶ Local utility companies were contacted prior to the start of drilling activities in order to demarcate underground utilities on the site.
- ▶ The boreholes were advanced using a track mounted drill rig equipped with continuous flight hollow stem augers supplied and operated by London Soil Test Inc. under the supervision of an Englobe drilling supervisor. The boreholes were logged by our geotechnical supervisor.

- ▶ The boreholes were located relative to existing property lines and were surveyed upon completion by Englobe. The ground surface at each borehole location were referred to the following temporary benchmark (TBM) provided by J.H. Cohoon engineering Limited:

TBM: Top of fire hydrant south side of Wellington Avenue (as shown on Drawing 2).  
Elevation: 231.54 m (geodetic)

- ▶ Soil samples were recovered from the boreholes at regular depth intervals using a 50 mm outside diameter split spoon sampler in accordance with ASTM D1586 Standard Penetration Test (SPT). The recorded SPT N-values are provided on the borehole logs (Appendix B).
- ▶ A dynamic cone penetration test was carried out near Borehole BH-01-21 to obtain a continuous indication of soil relative density changes with depth. The energy used for the dynamic cone penetration test was the same used for the SPT testing. The dynamic cone penetration test values recorded are plotted on the borehole log in Appendix B.
- ▶ Samples of the cohesive soils were tested using a handheld pocket penetrometer to determine approximate shear strengths. The pocket penetrometer test results are plotted on the borehole logs in Appendix B.
- ▶ Soil samples were subdivided for environmental testing and/or visual and olfactory screening. Selected samples were prepared using preservation vials containing methanol (prepared by the laboratory) in preparation to be delivered to the laboratory for environmental testing.
- ▶ Groundwater observations and measurements were carried out in the open boreholes during and upon completion of drilling and they are noted on the borehole logs.
- ▶ The boreholes were backfilled with soil cuttings and bentonite in accordance with Ontario Regulation 903 as amended, under the Ontario Water Resources Act.

### 3.2 Geotechnical Laboratory Testing

The soil samples secured during this investigation were returned to our laboratory for visual examination, as well as moisture content testing. Selected soil samples were submitted for Particle Size Analysis

Table 1 List of laboratory tests conducted as per ASTM Standards

Test	Standard	Number of Samples
Natural Moisture Content	ASTM D2216	52
Particle Size Analysis (Sieve and Hydrometer)	ASTM D7298	2

The results of the particle size analysis are summarized in Section 4.1 (Subsurface Conditions) and plotted on Figures 1 and 2 in Appendix C.

It is important to note that as per the standard policy of Englobe, the soil samples will be stored for a period of three months from the date of sampling. These soils samples will be discarded after the three month period unless prior arrangements have been made for longer storage.

## 4 Subsurface Conditions

### 4.1 Subsoil Conditions

This section presents a brief summary of the subsurface soil and groundwater conditions encountered during the geotechnical investigation. The full details of the subsoil and groundwater conditions are presented on the borehole logs in Appendix B. Based on results of the geotechnical field investigation, the subsurface soils consists of topsoil and or fill typically underlain by a native deposit of sand which overlies silt and clay deposits

Topsoil was encountered at surface in Boreholes BH-01-21 to BH-04-21 and is 120 to 250 mm thick. The topsoil was moist at the time of the field investigation.

Fill was encountered at surface in Boreholes BH-05-21 and BH-06-21 and underlying the topsoil in Boreholes BH-01-21 to BH-04-2. The fill was penetrated at depths of 0.5 to 1.2 m. The fill is comprised of damp to moist, sand with some silt and topsoil.

A110 mm thick concrete slab with wire mesh was encountered underlying the fill in Borehole BH-04-21 at a depth of 0.4 m.

The fill or concrete slab is underlain by native material comprised of sand with trace to some silt and trace to some gravel to gravelly sand with some silt. The SPT N-values within the sand range from 2 to 18 blows per 300 mm indicating a very loose to compact relative density (typically loose). The sand was penetrated at depth of 4.6 to 5.5 m in Boreholes BH-01-21 to BH-04-21 and extended to the termination depth of Boreholes BH-05-21 and BH-06-21. The results of a particle size analysis carried out on a sample of the sand are provided on Figure 1 in Appendix C and summarized in Table 2.

Table 2 Particle Size Distribution Analyses - Native Sand

Borehole and Sample Number	Sample Depth (m)	Soil Type	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
BH-01-21 SS-3	2.29 – 2.74	Gravelly Silty Sand trace Clay	20	51	22	7

Silt was encountered underlying the sand in Boreholes BH-01-21 to BH-04-21 and typically extends to the termination depth of the boreholes. The deposit comprises silt with trace sand and clay. Silty clay seems were observed within the silt deposit. The silt has a very loose to compact relative density based on SPT N-values of 3 to 24 (typically loose). The silt is observed to be in a wet condition.

Silt and clay and silty clay were encountered within the silt deposit in Boreholes BH-01-21 and BH-03-21. The silt and clay had a stiff to very stiff consistency based on SPT N-values of 9 to 25 blows per 300 mm and a pocket penetrometer reading of 60 kPa. The results of a particle size analysis carried out on a sample of the silt and clay are provided on Figure 2 in Appendix C and summarized in Table 3.

Table 3 Particle Size Distribution Analyses - Native Silt and Clay

Borehole and Sample Number	Sample Depth (m)	Soil Type	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
BH-03-21 SS-9	9.14 – 9.55	Silt and Clay trace Sand	-	1	58	41

## 4.2 Groundwater

Groundwater observations and measurements carried out in the open boreholes are summarized on the appended borehole logs and in Table 4.

Table 4 Water Level Measurements – June 24, 2021

Borehole No.	Ground Surface Elevation (m)	Groundwater Depth (m)	Groundwater Elevation (m)
BH- 01-21	230.19	3.35	226.84
BH- 02-21	230.29	3.29	227.00
BH- 03-21	230.12	3.35	226.77
BH-04-21	230.12	3.35	226.77
BH-05-21	230.11	3.35	226.76
BH-06-21	230.23	3.51	226.72

It is important to note that the groundwater conditions described in this report refer only to those observed at the place and time of observation noted in the report. These elevations and conditions may vary locally due to seasonal fluctuations, groundwater regimes encountered at the site or as a consequence of construction activities on the site or adjacent sites.

## 5 Geotechnical Design Recommendations

This project involves the proposed construction of a three-storey slab-on-grade apartment building and associated pavement areas as shown on Drawing 2 in Appendix A. The finished floor elevation was unknown at the time of this report, but it is assumed that the finished floor elevation is approximately equal to the existing grades on site.

The soil conditions encountered in the boreholes comprise topsoil and or fill typically underlain by a native deposit of sand which overlies silt and clay deposits. The native sand deposit at the location of the proposed apartment building is typically in a loose to very loose condition and not suitable for conventional shallow foundations without undergoing post construction settlement. Two alternatives for constructing foundations at this site are as follows:

- ▶ Structural fill, or,
- ▶ Helical piers.

The founding options are discussed in the following sections.



## 5.1 Shallow Foundations

Due to the very loose to loose sand deposit encountered at convention foundation depth, foundations may be constructed on an engineered fill pad reinforced with triaxial geogrid. The engineered fill pad shall be constructed as follows:

- ▶ Sub-excavate the sand to a depth of 1.6 m below underside of footing grade within in the footprint of the proposed building.
- ▶ compact the exposed native subgrade and proof roll the subgrade with a smooth drum vibratory roller;
- ▶ Place a triaxial geogrid over the subgrade, the geogrid shall comprise Tensar TX-7 or equivalent the geogrid shall be placed in accordance with the manufacturers specifications;
- ▶ Raise the grades to underside of footing grade using OPSS 1010, Granular "A" or Granular "B" Type II. Minimum thickness of granular pad is 1.6 m to be placed in 200 mm thick lifts and compacted to 100% SPMDD. Each lift shall be verified for compaction. The boundaries of the engineered granular pad must be clearly and accurately laid out in the field by qualified surveyors prior to the commencement of engineered fill construction. The top of the engineered pad should extend a minimum of 1.2 m beyond the perimeter of the structure to be supported. This horizontal distance of 1.2 m beyond the perimeter of the structure should be increased by at least 1.0 m for each 1.0 m depth of fill.
- ▶ Place second layer of Tensar TX-7 triaxial geogrid within the structural fill at a depth of 200 mm below footing grade.

Spread footings founded on the approved structural fill pad as noted above, may be designed for soil bearing resistance at Serviceability Limit States of 150 kPa, and a factored geotechnical resistance at Ultimate Limit States of 225 kPa, where the resistance factor is equal to 0.5.

To provide sufficient protection against heave due to frost action, all exterior footings and footings in non-heated areas must incorporate a minimum depth of soil cover of 1.2 m between the footing subgrade and the finished ground surface or equivalent insulation.

Contractor can use frost protection insulation to protect foundation built within the frost depth. Insulation with thickness of 25 mm can provide 300 mm of frost depth and 50 mm thick of insulation can provide 500 mm of frost depth.

A Site Classification 'D' should be used for earthquake load and effects in accordance with Table 4.1.8.4.A of the Ontario Building Code (2012).

## 5.2 Helical Pier Foundation

Helical pier foundations can be used in place of traditional deep foundations such as driven piles or caissons and are well suited for lower capacity applications.

A helical pier foundation system comprises large diameter steel helixes on the end of small diameter solid steel shafts. The steel helixes are screwed into the ground to the level of competent bearing soil using a torque driver machine. The pier load capacity is then determined by on-site testing at the time of installation and integral brackets are then used to attach the pile to structures. The helical pier system is proprietary and a specialist contracting firm and

structural engineer must be retained for design. A structural engineer will be required to determine the ability of the existing foundation wall to act as a grade beam.

### 5.3 Slab-on-Grade Construction

The floor of the proposed building may be constructed using conventional slab-on-grade techniques providing the floor slab is on suitably compacted engineered fill. Fill required to raise grades beneath the slab-on-grade floor should comprise sand and gravel similar to OPSS.MUNI 1010 Granular B placed in 200 mm thick lifts and compacted to 100% standard Proctor maximum dry density (SPMDD). A minimum 150 mm thick layer of OPSS.MUNI 1010 Granular A material compacted to 100% SPMDD should be provided directly beneath the slab for levelling and uniform support purposes.

A modulus of subgrade reaction (k) of 30 MPa/m may be used for the design of the floor slabs on approved and suitably compacted structural fill material. The slab-on-grade floor should be independent of all load-bearing walls and columns. No special underfloor drains are required provided the exterior grades are at least 300 mm lower than the finished floor slab/concrete pad and positively sloped away from the structures.

To prevent the migration of moisture vapour into the building from beneath ground floor slabs, particularly where moisture sensitive floor coverings are placed, a vapour retarder shall be placed directly beneath the floor slab that meets the requirements of the designer and flooring manufacturer. Prior to installing moisture sensitive floor coverings, the moisture content of the concrete slab must be determined at operational conditions by internal relative humidity testing to ensure an acceptable slab moisture level. It should be noted that it typically takes more than 90 days at operational conditions to lower the slabs internal relative humidity to 85%. Different flooring systems have different responses to slab moisture (i.e. some systems can tolerate more moisture than others), and the flooring contractor must assess the floor moisture levels with respect to their flooring components.

The water to cement ratio and slump of the concrete utilized in the floor slab should be strictly controlled to minimize shrinkage of the slab. Control joints should be sawed into the slab at maximum 4 m spacing's within 12 hours of initial concrete placement in order to pre-locate shrinkage cracks. The saw-cut depths should be  $\frac{1}{4}$  of the slab thickness.

During placement of concrete at the construction site, testing should be performed to determine the slump, temperature, and air entrainment of the concrete; and concrete cylinders should be cast for compressive strength testing.

### 5.4 Pavement Structure Recommendation

Asphalt parking will be constructed north of the building and an access driveway will extend from Wellington Avenue along the west of the new building.

Any existing fill and organic material should be removed from below the pavement areas and if required, grades should be raised with approved inorganic soils. The subgrade fill should be placed in 200 mm thick lifts and compacted to 100% SPMDD.

The pavement component thicknesses in Table 5 are recommended based on the anticipated pavement usage, the frost-susceptibility, and strength of the subgrade soils.

Table 5 Pavement Component Thicknesses

Pavement Component	Light Duty (Car Parking)	Heavy Duty (Driveways)
	Thickness (mm)	
Hot-Mix Asphalt	90	100
Granular A Base Course	150	150
Granular B Type I Subbase Course	300	400

Samples of both the Granular A and Granular B Type 1 aggregates should be checked for conformance to OPSS.MUNI 1010 prior to utilization on site and during construction. The Granular B Type 1 subbase and Granular A base courses must be compacted to 100% SPMD, as verified by insitu density testing.

The hot-mix asphalt should comprise 50 and 60 mm of HL4 or HL8 binder for light duty and heavy-duty pavement, respectively, and 40 mm of HL3 surface. The hot-mix asphalt paving materials should conform to the requirements of OPSS 1150. The asphalt should be placed and compacted in accordance with OPSS 310. Performance graded asphalt cement (PGAC) 58-28 should be utilized in the hot mix asphalt in accordance with the recommendations of OPSS 1101.

The pavement subgrade and granular courses will lose their strength to support traffic loads if allowed to become wet due to surface water or groundwater infiltration; therefore, drainage of the pavement and the granular courses is essential. The finished pavement surface and underlying subgrade should be free of depressions and should be sloped to provide effective drainage. Surface water should not be allowed to pond adjacent to the outside edges of pavement areas.

The need for continuous paving supervision by a qualified pavement technician, and quality control testing during pavement construction cannot be over emphasized. All materials and construction services required for the work should be in accordance with the applicable sections of the Ontario Provincial Standard Specifications.

## 6 Construction Recommendations

### 6.1 Excavations and Dewatering

All trench excavations and excavations for foundations must comply with Ontario Regulation 213/91 (Construction Projects) under the Occupational Health and Safety Act. The predominant sandy soils contacted in the boreholes would be classified as Type 3 soils (O.Reg. 213/91, s. 226(4)). Temporary cut slopes within Type 3 soil should be at a slope of 1:1 (H:V) or flatter from the bottom of the excavation as per O.Reg. 213/91, s. 234(2). The wet to saturated sand layers encountered shall be classified as Type 4 soil. Excavation side slopes within Type 4 soils must be cut from the excavation bottom at gradients of 3:1 (H:V) or flatter as per O.Reg. 213/91, s.234(2). If the above-mentioned slopes are not achievable, shoring and dewatering will be required to ensure stability.



Based on the results of the geotechnical investigation, it is not anticipated that groundwater will be encountered in the open excavations. However, minor groundwater seepage may be encountered (due to seasonal variations) and may be controlled using conventional sump pumping and trenching techniques. Surface runoff should be directed away from any open excavations.

## 6.2 Foundations

The following recommendations are given based on results of the geotechnical investigation:

- ▶ Prior to construction of the foundations any unsuitable material including surficial vegetation, topsoil, fill, and loose soils shall be excavated from within the building footprint. The subgrade should be inspected and approved by an experienced geotechnical engineer/technician upon excavation.
- ▶ Fill material within the building must be placed on approved subgrades as structural fill under full time geotechnical supervision. The structural fill should comprise granular material such as OPSS.MUNI 1010 Select Subgrade Material or equivalent, placed in 200 mm thick lifts and compacted to 100% SPMDD.
- ▶ Compaction testing by experienced geotechnical personnel should be carried out to examine and approve structural fill materials, and to verify that the specified degree of compaction has been achieved.
- ▶ The footing areas must be inspected by a qualified geotechnical engineer/technician at the time of construction to confirm soil conditions encountered and recommended bearing capacity.
- ▶ All exterior footings and those exposed to freezing should be provided with minimum of 1.2 m of soil cover or equivalent insulation to provide protection from freezing. If construction extends into the winter months, all founding soil must be protected from freezing during construction.
- ▶ The materials excavated from the foundation trench areas may be suitable for reuse as exterior foundation wall backfill. The backfill should be placed in 200 mm thick lifts and compacted to 95% SPMDD on the exterior of the building and 100% SPMDD on the interior of the building. The backfill should be placed evenly on both sides of walls that are not designed to resist lateral earth pressure. Over-compaction must be avoided since this could cause excessive lateral earth pressure.

## 6.3 Construction Inspection and Testing

During construction of the new building, testing should be carried out for quality assurance. Soils testing for the project would include engineering site visits to confirm bearing capacity for footings for the new building. Compaction testing shall be carried out on structural fill beneath the building, foundation wall backfill, sub-slab granular fill, and service pipe bedding and trench backfill.

During the placement of concrete at the construction site, testing should be performed to determine the slump and air content of the concrete, and concrete cylinders should be cast for compressive strength testing in accordance with the requirements of CSA A23.1 and A23.2. Field sampling and testing of concrete shall be according to OPSS 904. Preparation of the test cylinders, curing, and testing should be carried out by Englobe.

Englobe maintains CSA/CCIL certified concrete laboratories in Kitchener, London, and can provide concrete sampling and testing services for the project as required. Englobe staff also provide quality testing services for building envelope, structural steel, reinforcing steel, and roofing.

## 7 Statement of Limitations

The geotechnical recommendations provided in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report. Since all details of the design may not be known at the time of report preparation, we recommend that we be retained during the final design stage to verify that the geotechnical recommendations have been correctly interpreted in the design. Also, if any further clarification and/or elaboration are needed concerning the geotechnical aspects of the project, Englobe should be contacted. We recommend that we be retained during construction to confirm that the subsurface conditions do not deviate materially from those encountered in the test holes and to ensure that our recommendations are properly understood.

The geotechnical recommendations provided in this report are intended for the use of the owner and its retained designer. They are not intended as specifications or instructions to contractors. Any use which a contractor makes of this report, or decisions made based on it, are the responsibility of the contractor. The contractor must also accept the responsibility for means and methods of construction, seek additional information if required, and draw their own conclusions as to how the subsurface conditions may affect their work. Englobe accepts no responsibility and denies any liability whatsoever for any damages arising from improper or unauthorized use of the report or parts thereof.

It is important to note that the geotechnical investigation involves a limited sampling of the site gathered at specific test hole locations and the conclusions in this report are based on this information gathered. The subsurface geotechnical, hydrogeological, environmental, and geologic conditions between and beyond the test holes will differ from those encountered at the test holes. Also, such conditions are not uniform and can vary over time. Should subsurface conditions be encountered which differ materially from those indicated at the test holes, we request that we be notified in order to assess the additional information and determine whether or not changes should be made as a result of the conditions.

## **Appendix A Drawings**

Drawing 1: Location Plan

Drawing 2: Site Plan

10 cm

5

4

3

2

1

0

**NOTES:**

1-REFERENCE: © OpenStreetMap contributors (2021).

2-Drawing scale may be distorted due to file conversion and/or copying.  
Measurements taken from the drawing must be verified in the field.

0 100 200 300 400 500 m

SCALE 1:15000

Project

**Geotechnical Investigation**

161 Wellington Avenue, Delhi, Ontario

Title

**LOCATION PLAN**25 Market Place  
Stratford (Ontario) N5A 1A4  
Telephone 519 273 0101  
Fax 519 273 7188Prepared **E.Clochon**Drawn **E.Clochon**Checked **T.Staples**Discipline **GEOTECHNICAL**Scale **1: 15000**Date **2021-07-06**

Project manager

**T.Staples**

Sequence no

**01 of 02**

M dept

**04**

Project

**02103018.000**

Disc

**GE**

Dwg no.

**00100**

Rev.



## **Appendix B    Borehole Logs**

List of Abbreviations  
Boreholes BH-01-21 to BH-06-21



## LIST OF ABBREVIATIONS

The abbreviations commonly employed on the borehole logs, on the figures, and in the text of the report, are as follows:

Sample Types		Soil Tests and Properties	
AS	Auger Sample	SPT	Standard Penetration Test
CS	Core Sample	UC	Unconfined Compression
RC	Rock Core	FV	Field Vane Test
SS	Split Spoon	$\phi$	Angle of internal friction
TW	Thinwall, Open	$\gamma$	Unit weight
WS	Wash Sample	$w_p$	Plastic limit
BS	Bulk Sample	$w$	Water content
GS	Grab Sample	$w_L$	Liquid limit
WC	Water Content Sample	$I_L$	Liquidity index
TP	Thinwall, Piston	$I_p$	Plasticity index
		PP	Pocket penetrometer

Penetration Resistances	
Dynamic Penetration Resistance	The number of blows by a 63.5 kg (140 lb.) hammer dropped 760 mm (30 in.) required to drive a 50 mm (2 in.) diameter 60° cone a distance 300 mm (12 in.). The cone is attached to 'A' size drill rods and casing is not used.
Standard Penetration Resistance, N (ASTM D1586)	The number of blows by a 63.5 kg (140 lb.) hammer dropped 760 mm (30 in.) required to drive a standard split spoon sampler 300 mm (12 in.)
WH	sampler advanced by static weight of hammer
PH	sampler advanced by hydraulic pressure
PM	sampler advanced by manual pressure

Soil Description		
Cohesionless Soils	SPT N-Value	Relative Density ( $D_r$ )
Compactness Condition	(blows per 0.3 m)	(%)
Very Loose	0 to 4	0 to 20
Loose	4 to 10	20 to 40
Compact	10 to 30	40 to 60
Dense	30 to 50	60 to 80
Very Dense	over 50	80 to 100
Cohesive Soils	Undrained Shear Strength ( $C_u$ )	
Consistency	kPa	psf
Very Soft	less than 12	less than 250
Soft	12 to 25	250 to 500
Firm	25 to 50	500 to 1000
Stiff	50 to 100	1000 to 2000
Very Stiff	100 to 200	2000 to 4000
Hard	over 200	over 4000
DTPL	Drier than plastic limit	Low Plasticity, $W_L < 30$
APL	About plastic limit	Medium Plasticity, $30 < W_L < 50$
WTPL	Wetter than plastic limit	High Plasticity, $W_L > 50$

# LOG OF BOREHOLE No. BH-01-21

Englobe

Project No. 02103018.000

DRAWING No. 1

Project: Geotechnical Investigation

Sheet No. 1 of 2

Location: 161 Wellington Avenue, Delhi, ON

Date Drilled: 2021-6-24

Drill Type: Hollow Stem Auger

Datum: Top nut of hire hydrant, El. 231.54 m

Split Spoon Sample



Auger Sample



SPT (N) Value



Dynamic Cone Test



Shelby Tube



Shear Strength by



Vane Test

Natural Moisture Content

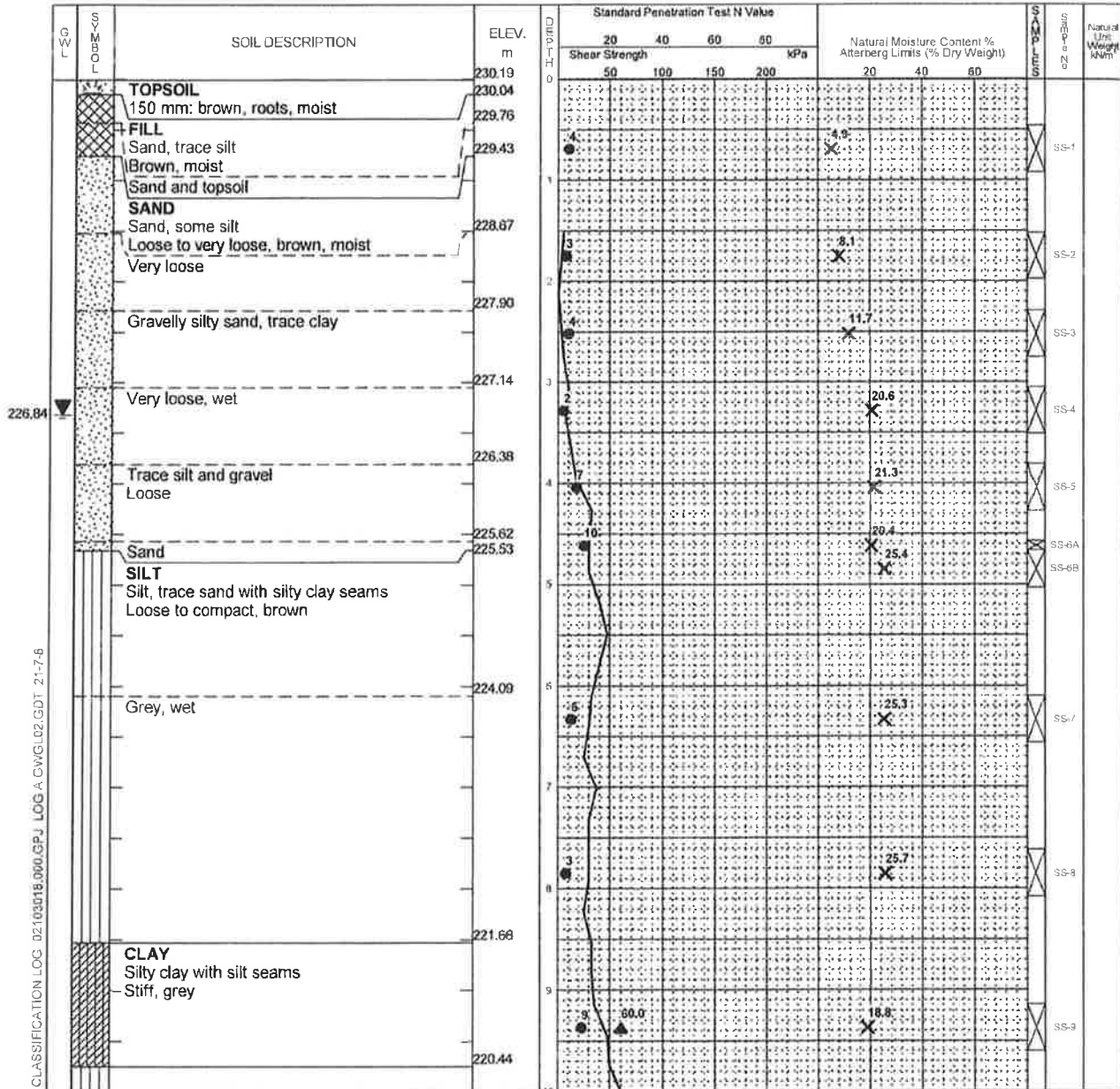
Atterberg Limits

Undrained Triaxial at

% Strain at Failure

Shear Strength by

Penetrometer Test



Continued Next Page

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	3.35 m	



# LOG OF BOREHOLE No. BH-01-21

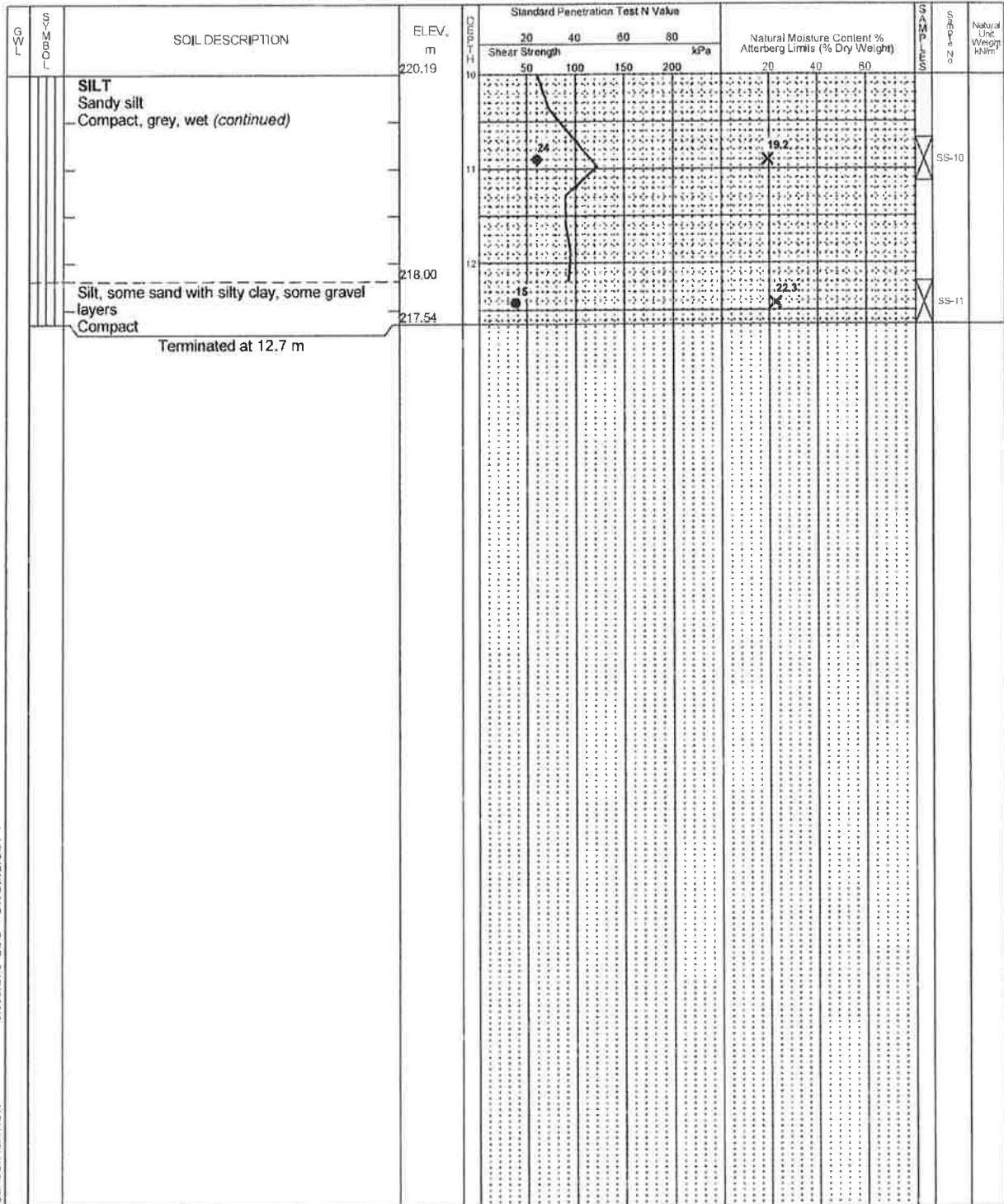
Englobe

Project No. 02103018.000

DRAWING No. 1

Project: Geotechnical Investigation

Sheet No. 2 of 2



CLASSIFICATION LOG 02103018.000.GPJ LOG A GWGL02.GDT 21-7-8

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	3.35 m	

# LOG OF BOREHOLE No. BH-02-21

Englobe

Project No. 02103018.000

DRAWING No. 2

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 161 Wellington Avenue, Delhi, ON

Date Drilled: 2021-6-24

Drill Type: Hollow Stem Auger

Datum: Top nut of hire hydrant, El. 231.54 m

Split Spoon Sample

Auger Sample

SPT (N) Value

Dynamic Cone Test

Shelby Tube

Shear Strength by

Vane Test



Natural Moisture Content

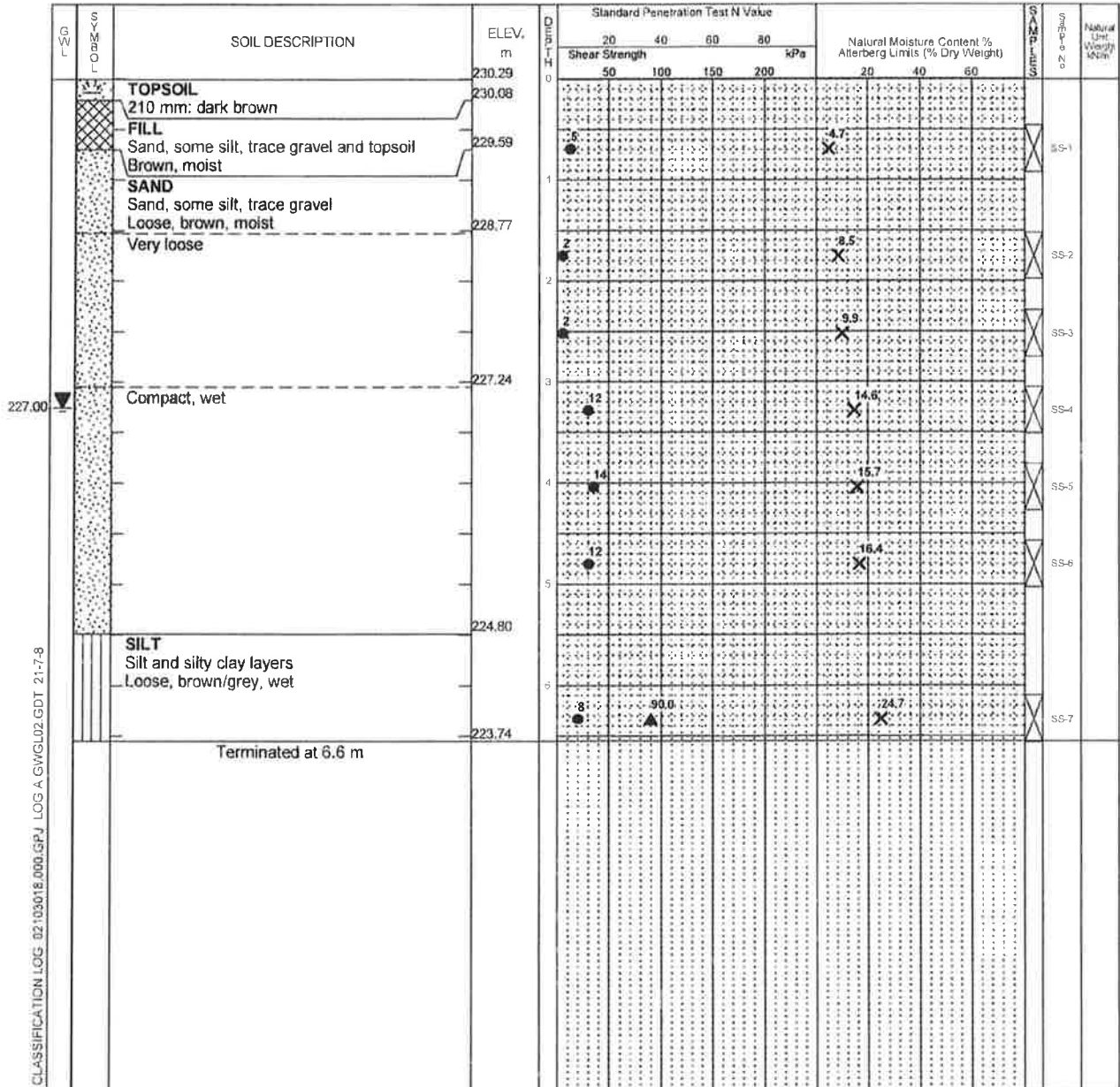
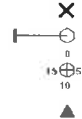
Atterberg Limits

Undrained Triaxial at

% Strain at Failure

Shear Strength by

Penetrometer Test



CLASSIFICATION LOG: 02103018.000.GPJ LOG A GW/GJ02.GDT 21-7-8

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	3.29 m	

# LOG OF BOREHOLE No. BH-03-21

Englobe

Project No. 02103018.000

DRAWING No. 3

Project: Geotechnical Investigation

Sheet No. 1 of 2

Location: 161 Wellington Avenue, Delhi, ON

Date Drilled: 2021-6-24

Drill Type: Hollow Stem Auger

Datum: Top nut of hire hydrant, El. 231.54 m

Split Spoon Sample



Auger Sample



SPT (N) Value



Dynamic Cone Test



Shelby Tube



Shear Strength by  
Vane Test

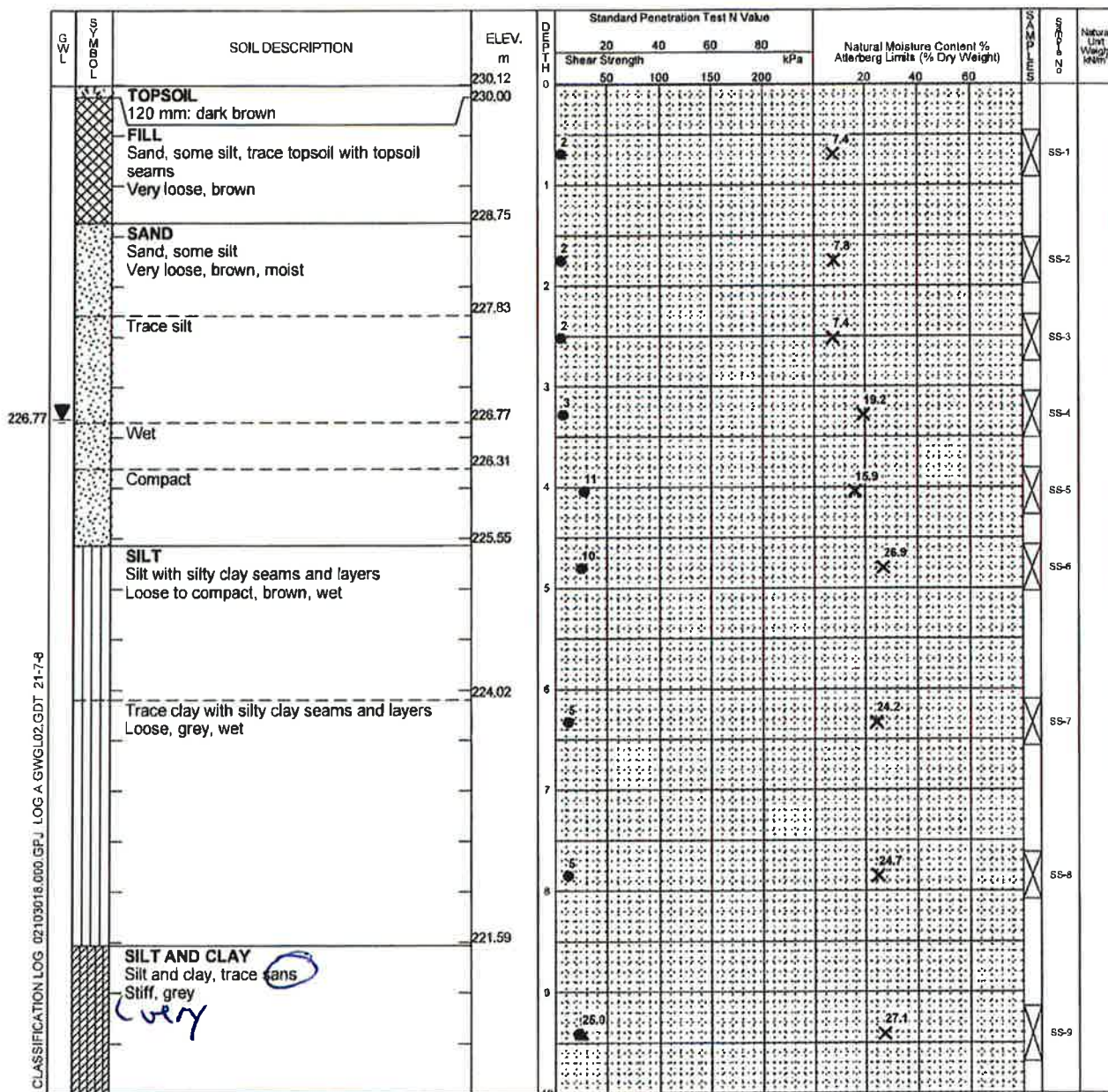
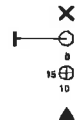


Natural Moisture Content

Atterberg Limits

Undrained Triaxial at  
% Strain at Failure

Shear Strength by  
Penetrometer Test



Continued Next Page

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	3.35 m	

# LOG OF BOREHOLE No. BH-03-21

Englobe

Project No. 02103018.000

DRAWING No. 3

Project: Geotechnical Investigation

Sheet No. 2 of 2

L W L O B H O L E	SOIL DESCRIPTION	ELEV. m	DEPTH m	Standard Penetration Test N Value				Natural Moisture Content % Atterberg Limits (% Dry Weight)			S A M P L E S	S O I L C O L O R	Natural Unit Weight kN/m <sup>3</sup>
				20 40 60 80				20 40 60					
				Shear Strength kPa									
		220.12	10										
		220.06											
	<b>SILT</b> Silt and silty clay layers Compact, grey, wet												

CLASSIFICATION LOG 02103018.000.GPJ LOG A GWS-02.GDT 21-7-8

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	3.35 m	



# LOG OF BOREHOLE No. BH-04-21

Englobe

Project No. 02103018.000

DRAWING No. 4

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 161 Wellington Avenue, Delhi, ON

Date Drilled: 2021-6-24

Drill Type: Hollow Stem Auger

Datum: Top nut of hire hydrant, El. 231.54 m

Split Spoon Sample



Auger Sample



SPT (N) Value



Dynamic Cone Test



Shelby Tube



Shear Strength by  
Vane Test



Natural Moisture Content



Atterberg Limits



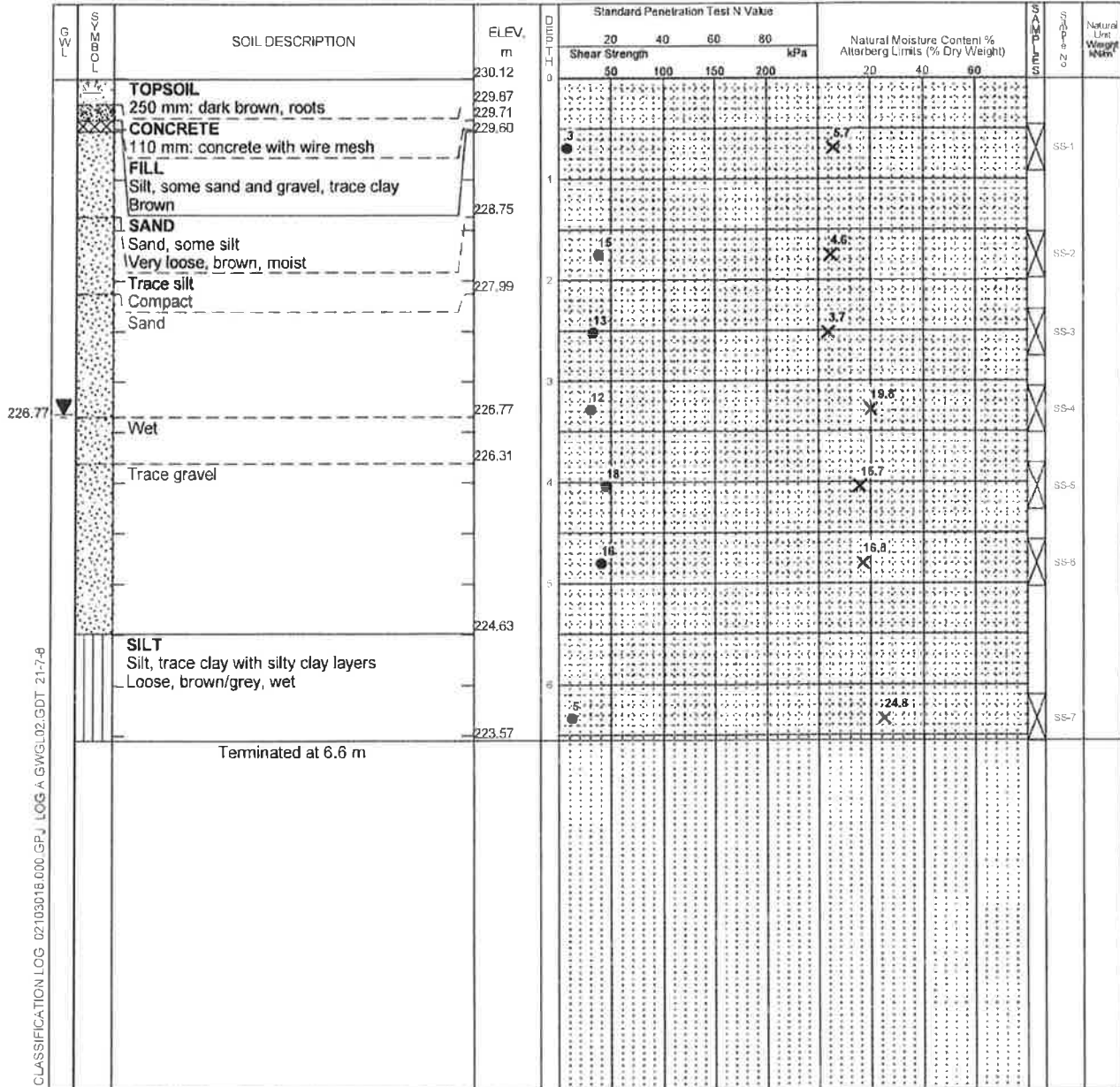
Undrained Triaxial at



% Strain at Failure



Shear Strength by  
Penetrometer Test



Time	Water Level (m)	Depth to Cave (m)
Upon Completion	3.35 m	

# LOG OF BOREHOLE No. BH-05-21

Englobe

Project No. 02103018.000

DRAWING No. 5

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 161 Wellington Avenue, Delhi, ON

Date Drilled: 2021-6-24

Drill Type: Hollow Stem Auger

Datum: Top nut of hire hydrant, El. 231.54 m

Split Spoon Sample



Auger Sample



SPT (N) Value



Dynamic Cone Test



Shelby Tube



Shear Strength by Vane Test



Natural Moisture Content



Atterberg Limits



Undrained Triaxial at % Strain at Failure



Shear Strength by Penetrometer Test



SYMBOL	SOIL DESCRIPTION	ELEV. m	Standard Penetration Test N Value				Natural Moisture Content %				Soil Classification	Natural Unit Weight (kN/m³)
			20	40	60	80	3.1	20	40	60		
 	FILL	230.11									SS-1A	
	Gravelly sand, some silt	230.02									SS-1B	
	Loose, brown, moist											
	Sand, some silt and topsoil with silty clay and topsoil layers	229.35									SS-2	
	SAND											
	Sand, some silt										SS-3A	
	Loose to very loose, brown, moist											
	Some gravel, trace silt	228.28									SS-3B	
	Loose	227.82										
	Trace gravel and silt										SS-4	
	Very loose	227.21										
	Loose to very loose, wet										SS-5	
		226.45										
	Terminated at 3.7 m											

226.76

CLASSIFICATION LOG 02103018.000.GPJ LOG A.GWGL02.GDT 21-7-8

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	3.35 m	

# LOG OF BOREHOLE No. BH-06-21

Englobe

Project No. 02103018.000

DRAWING No. 6

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 161 Wellington Avenue, Delhi, ON

Date Drilled: 2021-6-24

Drill Type: Hollow Stem Auger

Datum: Top nut of hire hydrant, El. 231.54 m

Split Spoon Sample



Auger Sample



SPT (N) Value



Dynamic Cone Test



Shelby Tube



Shear Strength by Vane Test



Natural Moisture Content



Atterberg Limits



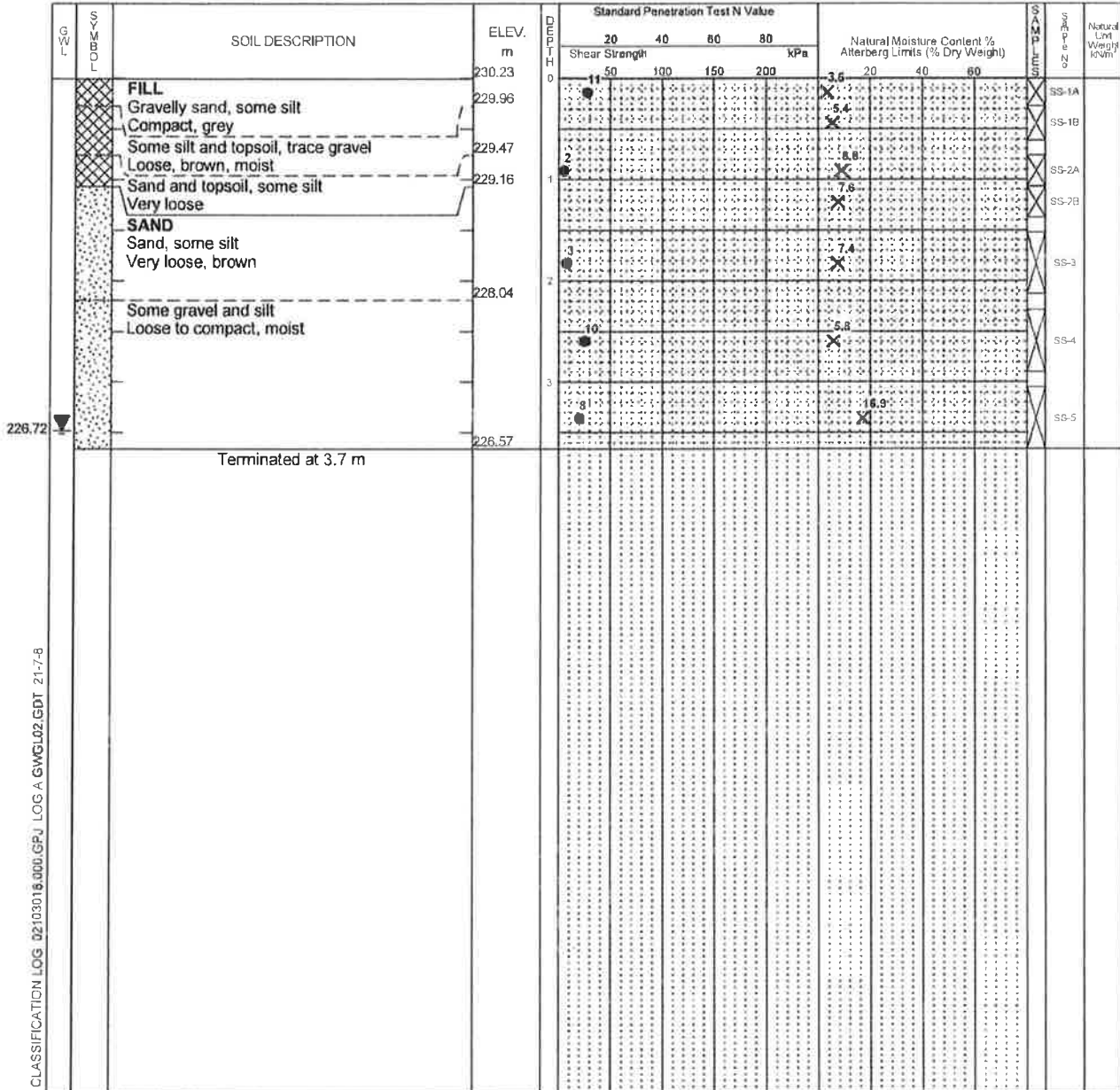
Undrained Triaxial at



% Strain at Failure



Shear Strength by Penetrometer Test



Time	Water Level (m)	Depth to Cave (m)
Upon Completion	3.51 m	

CLASSIFICATION LOG 02103018.000.GPJ LOG A GWGL02.GDT 21-7-8



## **Appendix C    Laboratory Test Results**

Figures 1 and 2: Particle Size Distribution Analyses

# GRAIN SIZE AND HYDROMETER ANALYSIS REPORT

## LS-602, 702 & 703/704

PROJECT NUMBER: 04.02103018.000 PROJECT NAME: 161 Wellington Street, Delhi CLIENT: J.H. Cohoon Engineering Ltd.

LAB NUMBER: S-663 SAMPLE ID: Borehole 03-21 Sample 9 SAMPLE DEPTH: 9.14 m

SAMPLED BY: DATE RECEIVED: June 29, 2021 DATE COMPLETED: July 7, 2021

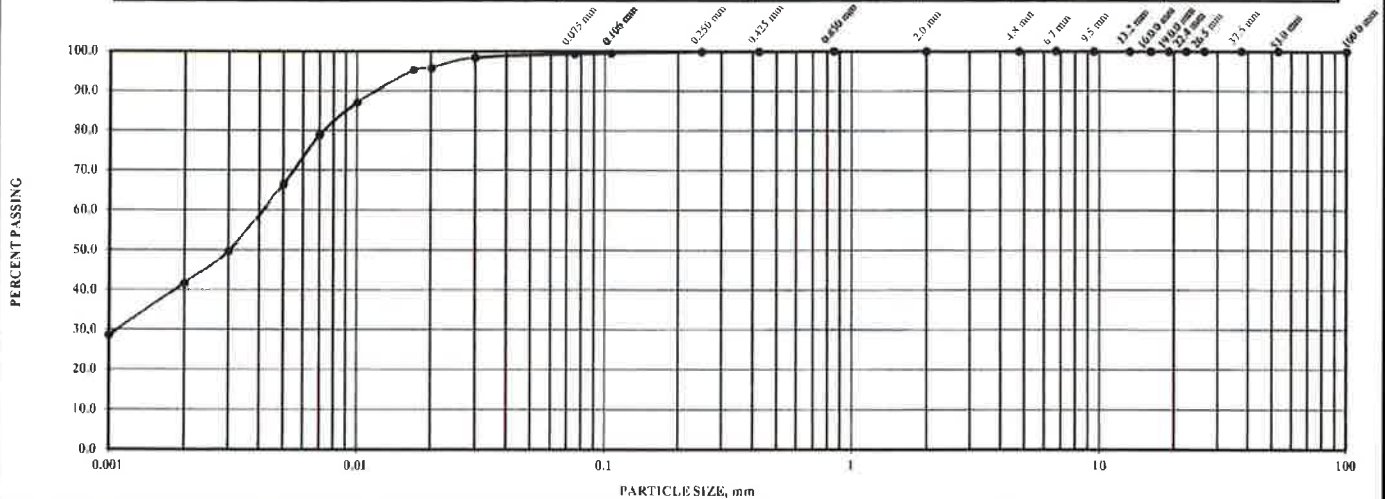
### PARTICLE SIZE DISTRIBUTION, MTO LS-702

#### U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
------	------	----------------	-----------	-------------	-------------	-------------	--------

#### UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
---------------------	-----------	-------------	-------------	-------------	---------------



#### COEFFICIENTS

D60	0.004	D30	0.001	D10	Cc	Cu
-----	-------	-----	-------	-----	----	----

#### GRAIN SIZE ANALYSIS

SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING
53	100.0	0.030	98.4
37.5	100.0	0.020	95.8
26.5	100.0	0.017	95.1
22.4	100.0	0.010	87.1
19	100.0	0.007	78.9
16	100.0	0.005	66.5
13.2	100.0	0.002	41.6
9.5	100.0	0.001	29.6
6.7	100.0	ATTERBERG LIMITS	
4.75	100.0		
2.00	100.0		
0.850	100.0		
0.425	99.9	Liquid Limit	
0.250	99.8	Plastic Limit	
0.106	99.5	Plastic Index	
0.075	99.3		

#### GRAIN SIZE PROPORTIONS, %

% GRAVEL (> 4.75 mm):	
% SAND (75 µm to 4.75 mm):	0.7
% SILT (2 µm to 75 µm):	57.7
% CLAY (< 2 µm):	41.6
SOIL DESCRIPTION:	SILT & CLAY, trace Sand

SUSCEPTIBILITY TO FROST HEAVING: LOW

#### REMARKS

Figure: 2

TESTED BY: Nolan Pietrasik  
Laboratory Technician

REVIEWED BY: David McBay, C. Tech.  
Laboratory Supervisor

## GRAIN SIZE AND HYDROMETER ANALYSIS REPORT

### LS-602, 702 & 703/704

**PROJECT NUMBER:** 04.02103018.000 **PROJECT NAME:** 161 Wellington Street, Delhi **CLIENT:** J.H. Cohoon Engineering Ltd.  
**LAB NUMBER:** S-663 **SAMPLE ID:** Borehole 01-21 Sample 3 **SAMPLE DEPTH:** 2.29 - 2.74 m  
**SAMPLED BY:** \* **DATE RECEIVED:** June 29, 2021 **DATE COMPLETED:** July 7, 2021

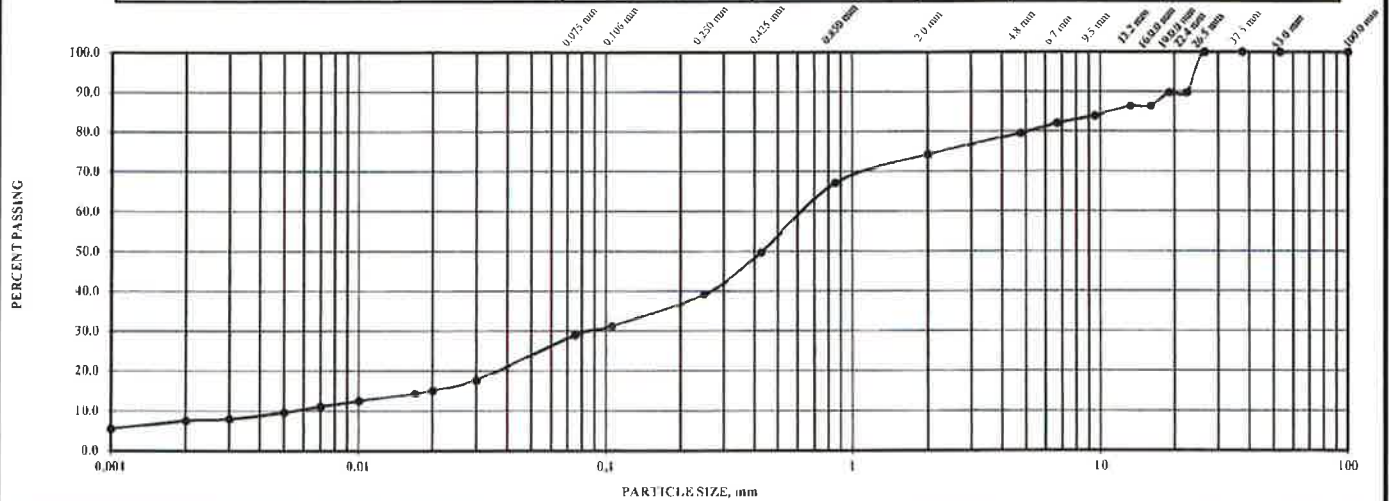
#### PARTICLE SIZE DISTRIBUTION, MTO LS-702

##### U.S. BUREAU OF SOILS CLASSIFICATION (AS USED IN MINISTRY OF TRANSPORTATION OF ONTARIO PAVEMENT DESIGNS)

CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	GRAVEL
------	------	----------------	-----------	-------------	-------------	-------------	--------

##### UNIFIED SOILS CLASSIFICATION ASTM D 2487

FINES (SILT & CLAY)	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
---------------------	-----------	-------------	-------------	-------------	---------------



#### COEFFICIENTS

D60	0.677	D30	0.088	D10	0.006	Cc	2.084	Cu	122.49
-----	-------	-----	-------	-----	-------	----	-------	----	--------

#### GRAIN SIZE ANALYSIS

SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING
53	100.0	0.030	17.6
37.5	100.0	0.020	15.0
26.5	100.0	0.017	14.2
22.4	89.8	0.010	12.5
19	89.8	0.007	11.1
16	86.3	0.005	9.6
13.2	86.3	0.002	7.5
9.5	83.9	0.001	5.5
6.7	82.1	<b>ATTERBERG LIMITS</b>  Liquid Limit  Plastic Limit  Plastic Index	
4.75	79.6		
2.00	74.2		
0.850	67.1		
0.425	49.6		
0.250	39.1		
0.106	31.3		
0.075	29.0		

#### GRAIN SIZE PROPORTIONS, %

% GRAVEL (> 4.75 mm):	20.4
% SAND (75 µm to 4.75 mm):	50.6
% SILT (2 µm to 75 µm):	21.5
% CLAY (< 2 µm):	7.5
<b>SOIL DESCRIPTION:</b>	Gravelly Silty SAND, trace Clay

**SUSCEPTIBILITY TO FROST HEAVING:** LOW

#### REMARKS

Figure: 1

**TESTED BY:** Nolan Pietrasik  
 Laboratory Technician

**REVIEWED BY:** David McBey, C.Tech.  
 Laboratory Supervisor

[www.englobecorp.com](http://www.englobecorp.com)



**Angelo Cappucci**

## **PHASE ONE ENVIRONMENTAL SITE ASSESSMENT**

**161 Wellington Avenue  
DELHI, ONTARIO**

**09-02103034.100-SG-R-0001-00**

**MAY 2021**

**FINAL REPORT**



Prepared by:

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## Executive Summary

Englobe Corp. (Englobe) was retained by Angelo Cappucci (hereinafter referred to as the "Client") to complete a Phase One Environmental Site Assessment (Phase One ESA) for the property located at 161 Wellington Avenue in Delhi, Ontario (hereinafter referred to as the "Phase One Property" or "Site"). For ease of reporting, Wellington Avenue will be referenced as running in an east-west direction and surrounding properties will be oriented as such.

It is Englobe's understanding that this Phase One ESA was requested as part of planned redevelopment of the Site and a Record of Site Condition (RSC) is required to be filed with the Ontario Ministry of the Environment, Conservation and Parks (MECP). The work was carried out in accordance with Englobe's proposal dated March 22, 2021 (Ref.: P02103034) and authorized by the Client on April 11, 2021.

The Site is rectangular in shape and is approximately 1,740 square metres (m<sup>2</sup>) in area and is currently undeveloped with a fence around the perimeter.

Surrounding land uses consist of commercial (grocery store) to the north a; residential to the east; mixed use commercial and residential to the west, and residential to the south across Wellington Avenue. The Site and surrounding properties are located as shown on the attached Site and Surrounding Land Use Plan, Drawing 2 provided in Appendix A. Properties within 250 metres (m) of the Site property boundary were considered during this Phase One ESA.

The first developed use of the Site was determined from a review of different information sources including chain of title records, historical maps, aerial photographs and Fire Insurance Plans (FIPs). Based on the information reviewed from these sources, the Site was first patented by the Crown in 1828 and owned by private individuals between 1828 to 1932. From 1932 to 1939, the Site was owned by trustees of the Delhi United Church, however no records are available. The Site was then purchased by the Village of Delhi in 1939 and was used as an outdoor rink (according to the FIPs), and then was developed with a single building in the northwest corner for unknown purposes between 1949 and 1976, which was removed by 1989 (as shown in aerial photographs) and has been undeveloped since this time.

Based on the information obtained and reviewed as part of this assessment, current and historic potentially contaminating activities (PCAs) associated with the Site and surrounding properties within the Phase One Study Area were identified as summarized in the table below:

### Potentially Contaminating Activities

Location of PCA	Potentially Contaminating Activity (PCA)	On or Off Site	Form an APEC (Yes/No)	Rationale
SITE	No. 30 Importation of Fill of Unknown Quality	On	Yes	Based on observations made at the property during the Site visit, sand and gravel was observed on the northwest corner of the Site that appears to have been imported. Fill was likely used to backfill any building demolitions that occurred on the Site.



Location of PCA	Potentially Contaminating Activity (PCA)	On or Off Site	Form an APEC (Yes/No)	Rationale
180 m south of the Site	No. 28 – Gasoline and Associated Products Storage in Fixed Tanks	Off	No	As observed in the 1947 FIP, one UST was present. The property however, appeared to be residential. Based on the groundwater flow direction (west) and the separation distance, this is not considered to contribute to an APEC on the Site.
303 Main Street of Delhi (125 m south of the Site)	Other – Hazardous Waste Generator	Off	No	The property is listed in the ERIS report as a generator of hazardous wastes. Based on the groundwater flow direction (west) and the separation distance, this is not considered to contribute to an APEC on the Site.
263 Queen Street (135 m east of the Site)	No. 28 – Gasoline and Associated Products Storage in Fixed Tanks	Off	No	The property is listed in the ERIS report as private fuel outlet. Based on the separation distance, this is not considered to contribute to an APEC on the Site.
183 Main Street (170 m north of the Site)	Other – Hazardous Waste Generator	Off	No	The property is listed in the ERIS report as a generator of hazardous wastes. Based on the groundwater flow direction (west) and the separation distance, this is not considered to contribute to an APEC on the Site.

Areas of Potential Environmental Concern (APECs) on the Site associated with the on-Site PCA is summarized in the following table.

#### Areas of Potential Environmental Concern

APEC	Location of APEC	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted
APEC 1	Entire Site	No. 30. – Importation of Fill Material of Unknown Quality	On-Site	Metals, As, Sb, Se, PAHs, PHC, BTEX.	Soil and Shallow Groundwater

Based on the information obtained and evaluated in this Phase One ESA, a PCA was identified on-Site, which contributed to an APEC at the Site. Therefore, a Phase Two ESA is recommended to assess the environmental quality of the soil and/or groundwater at the APEC for potential contaminants of concern related to the contributing PCA.

## Production Team

### Client

Mr. Angelo Cappucci

### Englobe Corp.

Project Manager – Environment      Carrie Barnes, P.Geo.

Director Environment - Ontario      Randall Barkhouse, P.Geo.

Revision and Publication Register		
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# 1 Introduction

Englobe Corp. (Englobe) was retained by Angelo Cappucci (hereinafter referred to as the “Client”) to complete a Phase One Environmental Site Assessment (Phase One ESA) for the property located at 161 Wellington Avenue in Delhi, Ontario (hereinafter referred to as the “Phase One Property” or “Site”). The location of the Site is shown on the attached Location Plan, Drawing 1, contained in Appendix A. For ease of reporting, Wellington Avenue will be referenced as running in an east-west direction and surrounding properties will be oriented as such.

It is Englobe’s understanding that this Phase One ESA was requested as part of planned redevelopment of the Site and a Record of Site Condition (RSC) is required to be filed with the Ontario Ministry of the Environment, Conservation and Parks (MECP). The work was carried out in accordance with Englobe’s proposal dated March 22, 2021 (Ref.: P02103034) and authorized by the Client on April 11, 2021.

The Site is rectangular in shape and is approximately 1,740 square metres (m<sup>2</sup>) in area and is currently undeveloped with a fence around the perimeter.

Surrounding land uses consist of commercial (grocery store) to the north a; residential to the east; mixed use commercial and residential to the west, and residential to the south across Wellington Avenue. The Site and surrounding properties are located as shown on the attached Site and Surrounding Land Use Plan, Drawing 2 provided in Appendix A. Properties within 250 metres (m) of the Site property boundary were considered during this Phase One ESA.

## 2 Scope of Investigation

The Phase One ESA presented herein was completed in accordance with the requirements of the Environmental Protection Act, Ontario Regulation 153/04 Records of Site Condition, Part XV.1 of the Act, as amended (O. Reg. 153/04).

This assessment includes a review of historical archival information for the Site and surrounding properties, interviews with the Site representative(s) and regulatory personnel, a Site reconnaissance, and a final report on the findings of the assessment. No intrusive investigation or sampling of environmental media or building materials was undertaken as part of this assessment. The Phase One ESA did not include an assessment of biological features or related aspects of the natural environment.

As neighbouring properties may affect or be affected by the property being assessed, the Phase One Study Area consisted of adjoining and surrounding property locations within 250 m of the Site boundaries, including the following:

- ▶ Current and historical land use of the Site and neighbouring properties;
- ▶ Known or potential contamination on the Site and on neighbouring properties; and
- ▶ Site topography and groundwater flow directions, which would influence the potential migration of contaminants onto or away from the Site.

Information sources reviewed for the Site and surrounding properties included:

- ▶ Interviews/correspondence with Site representative(s), and regulatory and municipal information sources including:
- ▶ Freedom of Information and Protection of Privacy Act, Ontario Ministry of Environment Conservation and Parks (MECP);
- ▶ Ontario Ministry of Natural Resources and Forestry (MNR);
- ▶ Public Information Services, Technical Standards and Safety Authority (TSSA);
- ▶ An Environmental Risk Information Services Ltd. (ERIS) public and private database search;
- ▶ Fire Insurance Plans (FIPs) in the Ontario Collection document or from other sources; and
- ▶ A review of physical setting sources including aerial photographs, topography, hydrology and geology maps, the presence of fill materials, water bodies and areas of natural significance, and water well records.

A Site reconnaissance visit was completed on April 24, 2021 by Russell Ironside of Englobe to observe the conditions at the Site and surrounding properties including:

- ▶ Hazardous materials – usage, storage, disposal, treatment and transport on the Site (if any);
- ▶ Product handling, raw material storage/transportation, equipment cleaning, etc.;
- ▶ Storage tanks and containers – above ground storage tanks (ASTs) and underground storage tanks (USTs);
- ▶ Water supply – source of potable water;
- ▶ Stained soil, pavement, concrete, floors and walls;
- ▶ General housekeeping;
- ▶ Sewage disposal – pits, lagoons, septic systems and wastewater treatment;
- ▶ Topographic, geological, and hydrogeological features;
- ▶ Watercourses, ditches, and standing water; and,
- ▶ Adjacent property land uses that might impact the Site.

Key aspects of the Site were documented in photographs for future reference and are included with this report as Appendix B.

### 3 Site Description

The Site, subject to this Phase One ESA, is described as follows:



Table 1 Phase One Property Description

Site Information	
Site Area	1,740 m <sup>2</sup>
Legal Description	Part Lot 18, Block 37, Plan 189 as in NR188498
PIN	50160-0107 (LT)
Assessment Roll Number	49200211800
Municipal/Civic Address	161 Wellington Avenue, Delhi, Ontario
Zoning	Commercial
Geodetic Coordinates to Centroid (approx.)	UTM Zone 17T 540944 m E, 4744563 m N 1984 World Geodetic System datum

Notes: PIN – Property Identification Number  
UTM – Universal Transverse Mercator

## 4 Site Owner Information

The Site ownership information is as follows:

The Municipal Corporation of the Village of Delhi  
183 Main Street  
Delhi, ON N4B 2M2

## 5 Records Review

### 5.1 General

#### 5.1.1 Phase One Study Area Determination

For the purpose of this Phase One ESA, the Phase One Study Area consists of the Site and surrounding properties located entirely or partially within 250 m of the Site boundaries (refer to the Site and Surrounding Land Use Plan, Drawing 2, Appendix A). No additional properties were identified beyond 250 m of the Site boundaries, which warranted evaluation in this Phase One ESA.

#### 5.1.2 First Developed Use Determination

The first developed use of the Site was determined from a review of different information sources including chain of title records, historical maps, aerial photographs and Fire Insurance Plans (FIPs). Based on the information reviewed from these sources, the Site was first patented by the Crown in 1828 and owned by private individuals between 1828 to 1932. From 1932 to 1939, the Site was owned in by trustees of the Delhi United Church, however no records are available. The Site was then purchased by the Village of Delhi in 1939 and was used as an outdoor rink (according to the FIPs), then was developed with a single building in the northwest

corner for unknown purposes between 1949 and 1976, which was removed by 1989 (as shown in aerial photographs) and has been undeveloped since this time.

### 5.1.3 Fire Insurance Plans (FIPs)

Englobe contracted ERIS who in turn completed a search for FIPs through Opta Information Intelligence. FIPs were available for the years 1904 and 1949. Copies of the FIPs are presented in Appendix D.

The 1904 FIP does not show the details of the Site and surrounding area.

In the 1949 FIP, the Site is listed as a rink. There are small residential buildings to the north and east of the Site, and to the south across Wellington Avenue; to the west is the Royal Canadian Legion and Kinsmen Club Room. One underground storage tank (UST) can be observed approximately 180 m south of the Site. No other potential environmental concerns are noted within the Phase One study area.

### 5.1.4 City Directory Information

Englobe contracted ERIS to carry out a city directory search, however due to the ongoing COVID-19 pandemic, access to records are limited to the documents ERIS has available. ERIS did not have any records available.

### 5.1.5 Chain of Title

Englobe retained ERIS to provide historical chain of title search data for the Site. The chronological chain of title was searched back to ownership in 1828 when the Site was patented by the Crown. The chain of title information is summarized below:

Table 2 Chain of Title

Year	Party From	Party To
1828	Patented by the Crown	Daniel McCall
1837	Daniel McCall	Frederick Sovereign
1851	Frederick Sovereign	George McClean
1853	George McClean	Abraham Anderson
1855	Abraham Anderson	Jacob Tice
1856	Jacob Tice	James Wilson
1860	James Wilson	John Nickerson
1868	John Nickerson	Warren H. Blake
1872	Warren H. Blake – Estate	Jacob Sovereign
1891	Jacob Sovereign	Edmund Neale
1921	Edmund Neale	George Neale & Edmund Neale
1921	George Neale & Edmund Neale	Thomas Matthews
1932	Thomas Matthews	Howard Hoover
1932	Howard Hoover	Robert W. Tisdale & Walter Barnard, Trustees of Young Peoples Society of The Delhi United Church
1939	Robert W. Tisdale & Walter Barnard, Trustees of Young Peoples Society of The Delhi United Church	The Municipal Corporation of The Village of Delhi

The complete chain of title is presented in Appendix D. The title information is also available in the Table of Current and Past Land Uses in Appendix C.

### 5.1.6 Previous Reports

No previous environmental reports were provided to Englobe for review.

### 5.1.7 Environmental Risk Information Services Ltd. (ERIS)

A records and regulatory agency database review was completed through a database search carried out by ERIS for the Site and Phase One Study Area. The ERIS report, dated April 15, 2021, includes a search of all available federal, private, and provincial databases for records. Included with the report is a site diagram and a summary of all records pertaining to the Site and Phase One Study Area. A copy of the ERIS report is presented in Appendix D. A list of records related to the Site and the Phase One Study Area is provided in the table below.

Table 3 ERIS Database Search Results

Database Name	Database	On Site	Within 250 m
Certificates of Approval	CA	0	2
Environmental Compliance Approval	ECA	0	10
ERIS Historical Searches	EHS	0	5
List of Expired Fuels Safety Facilities	EXP	0	4
Fuel Storage Tank	FST	0	4
Ontario Regulation 347 Waste Generators Summary	GEN	0	21
Pesticide Register	PES	0	10
Pipeline Incidents	PINC	0	8
Private and Retail Fuel Storage Tanks	PRT	0	1
Scott's Manufacturing Directory	SCT	0	1
Ontario Spills	SPL	0	7
Water Well Information System	WWIS	0	1
<b>TOTAL RECORDS</b>		<b>0</b>	<b>74</b>

There were no records identified for the Site and 74 records were identified for the surrounding area (within 250 m of the centre point of the Site). Records are summarized in Table 6 below, excluding records from the CA, ECA, EHS, PINC, and WWIS databases, which do not represent a potential for concern. It was noted during review that records in the EXP and FST databases belonged to a property in Waterford and have not been included in the summary below.

Table 4 ERIS Report Summary

Location	Dist/Dir <sup>(1)</sup>	Data <sup>(2)</sup>	Description	Potential for Environmental Concern
227 Main Street	Adjacent to the N	PES	This property is listed as a vendor/limited vendor of pesticides	The sale of pesticides is not considered to be a potential for environmental concern.
221 Main Street	60 m N	GEN	The property is listed as a hazardous waste generator of pharmaceuticals and pathological wastes.	Based on the type of waste produced, this record is not considered to be a potential for environmental concern.
232 Queen Street	100 m E	SPL	A natural gas pipeline was struck due to improper excavation techniques.	Based on the type of release (to the air), this record is not considered to be a potential for environmental concern.
276 Queen Street	115 m SE	SPL	A natural gas pipeline was struck due to improper excavation techniques.	Based on the type of release (to the air), this record is not considered to be a potential for environmental concern.

Location	Dist/Dir <sup>(1)</sup>	Data <sup>(2)</sup>	Description	Potential for Environmental Concern
303 Main Street	125 m S	GEN	The property is listed as a generator of waste oils & lubricants for the years 2014 to 2018.	Based on the separation distance, this record is not considered to be a potential for environmental concern.
227 Queen Street	135 m E	GEN	The property is listed as a generator of unknown wastes for the year 1994	Based on the unknown waste produced (school purposes) and separation distance, this record is not considered to be a potential for environmental concern.
182 Eastern Avenue	140 m S	SPL	A natural gas pipeline was struck due to improper excavation techniques.	Based on the type of release (to the air), this record is not considered to be a potential for environmental concern.
263 Queen Street	135 m E	PRT	The property is listed as having a private fuel storage.	Based on the separation distance, this record does not represent a potential for environmental concern.
325 Gilbert Avenue	145 m S	SPL	A natural gas pipeline was struck due to improper excavation techniques.	Based on the type of release (to the air), this record is not considered to be a potential for environmental concern.
183 Main Street	170 m N	GEN	The property is listed as a generator of paint/pigment/coatings, inorganic lab chemicals, petroleum distillates, light fuels, organic lab chemicals for the year 1995 to 1998	Based on the separation distance, this record does not represent a potential for environmental concern.
80 Church Street	160 m NE	PES	This property is listed as a vendor/limited vendor of pesticides	The sale of pesticides is not considered to be a potential for environmental concern.
334 Gilbert Avenue	190 m S	GEN	Listed as a generator of pathological wastes and pharmaceuticals from 2015 to 2020.	Based on the type of waste produced, this record does not represent a potential for environmental concern.
70 Church Street	215 m SE	GEN	Listed as a generator of pathological wastes and pharmaceuticals from 2015 to 2021.	Based on the type of waste produced, this record does not represent a potential for environmental concern.
76 Park Avenue	245 m E	SPL	A natural gas pipeline was struck due to improper excavation techniques.	Based on the type of release (to the air), this record is not considered to be a potential for environmental concern.
158 Church Street	230 m NW	SPL	Approximately 100 Litres of hydraulic oil was spilled to the ground in 2019 due to a leak from a truck. Noted to be contained in the record.	Based on containment of the spill as noted and the separation distance, this record does not represent a potential for environmental concern.
100 Pine Street	250 m SE	SPL	A natural gas pipeline was struck due to improper excavation techniques.	Based on the type of release (to the air), this record is not considered to be a potential for environmental concern.

Note: (1) Approximate distance in metres (m) and direction from the Site.  
(2) Please refer to Table 5 above for database definitions.

### 5.1.8 Other Environmental Sources

Additional environmental information regarding the Site and Phase One Study Area was obtained through Englobe's in-house resource collection, online databases/registries and/or information requests made to external parties and is summarized in the following table.

Table 5 Other Environmental Records – Site and Phase One Study Area

Environmental Source	Record(s) Details for Site
MECP Freedom of Information (FOI)	A FOI request was submitted to the MECP for information regarding any environmental concerns, orders, spills, investigations/prosecutions, Waste Generator Numbers/Classes and Certificates of Approvals related to the Site and select surrounding properties. As of writing this report, there has been no response from the MECP. If any pertinent information regarding the Site is received, an addendum will be issued to this report.



Environmental Source	Record(s) Details for Site
MECP Inventory of Coal Gasification Plant Waste Sites in Ontario (April 1987)	The Site has not been used for the gasification of coal. No coal gasification plants were identified at the surrounding properties.
MECP Inventory of Industrial Site Producing Coal Tars and Related Tars in Ontario (November 1988)	The production and use of coal or other tars has not taken place at the Site or surrounding properties.
MECP Waste Disposal Site Inventory (June 1991)	There are no active waste disposal sites at the Site or surrounding properties. One closed waste disposal site was located approximately 330 m northwest of the Site, classified as A7 for municipal/domestic waste. No information could be found regarding this landfill's actual location, therefore this was not considered to be a potential for environmental concern.
MECP Registered PCB Storage Sites (1997, 1999, 2003)	The Site is not listed as a registered PCB storage site. No PCB storage sites were identified on the surrounding properties.
MECP Hazardous Waste Information Network (HWIN)	Information contained in the ERIS report indicates that the Site is not listed in the MECP Database as generators of registered waste materials.
MECP Brownfield Environmental Site Registry as of May 2021	A review of the MECP's on-line Record of Site Condition (RSC) database revealed no RSCs have been filed on the Site or surrounding properties.
MECP Water Well Records	As noted in the ERIS report, only 1 well record was identified within 250 m of the Site, listed for observation purposes.
Technical Standards and Safety Authority (TSSA)	The TSSA was contacted for information regarding fuel storage tanks with respect to the Site. A response was received from the TSSA via e-mail on May 11, 2021, indicating that there were no tanks registered at the Site. A copy of the TSSA responses are included in Appendix E.
Enbridge Gas Limited Service Records	Enbridge gas was contacted to determine date natural gas service was installed at the Site. Enbridge responded on May 11, 2021 to inform that they have no service installed at the Site.
Ontario Ministry of Natural Resources and Forestry (MNRF)	The MNRF maps application was reviewed on May 11, 2021 for any areas of natural significance (ANSIs) or provincially significant wetlands (PSWs). There were no ANSIs or PSWs at the site or surrounding properties.

## 5.2 Physical Setting Sources

### 5.2.1 Aerial Photographs

Englobe contracted ERIS to provide aerial photographs for the Site. Aerial Photographs were received for the years 1946, 1976, and 1989. A recent aerial photograph for 2019 was reviewed from Google Earth. The interpretation of the aerial photographs is summarized in the following table and the aerial photographs from ERIS are provided in Appendix D.

Table 6 Aerial Photograph Summary

Year	Details of Site and/or Surrounding Properties
1946	The Site appears to be vacant/graded. Due to the scale and clarity of the image, observations are limited. Small inferred residential properties are located north, east, west and to the south across Wellington Avenue.
1976	The Site is occupied by a small building located on the northwest corner of the Site. The property to the north is occupied by a large inferred commercial building. The property to the west appears to be a medium sized, inferred community/commercial building. To the east, and to the south across Wellington Avenue are smaller inferred residential buildings.
1989	The Site appears vacant with gravel cover in the northwest corner of the Site. Surrounding properties generally appear similar to the previous aerial photograph. Due to scale and clarity of the image, observations are limited.
2019	The Site and surrounding properties generally appear similar to the previous aerial photograph.

Based on a review of the aerial photographs and historical map, the Site was developed with a small building in the northwest corner between 1946 and 1976, which was removed by the 1989 aerial photograph.

### **5.2.2 Topography, Geology and Hydrology**

An Ontario Base Map showing the Site and surrounding area was reviewed for information relevant to the Site, and is presented in Appendix A, Drawing 4. Based on the topographic contour lines shown, the ground surface in the general area of the Site appears to be relatively flat and generally the surrounding area slopes towards the west towards Big Creek located approximately 380 m west of the Site. The Site appears to be at an elevation of approximately 230 m above mean sea level (masl) and is shown to be occupied by a small building on the northwest corner of the Site.

The Site is located within the physiographic region of Southern Ontario known as the Norfolk Sand Plain (Chapman and Putnam, 2007). The primary physiographic landform in the area of the Site is sand plains. The subsurface stratigraphy at the Site is comprised of glaciolacustrine deposits of sand, gravelly sand and gravel (Ontario Geological Survey, 1991). Bedrock geology in this area is comprised of limestone and minor dolostone of the Dundee Formation (Armstrong, D.K. and Dodge, J.E.P. 2007).

Based on topographic considerations, the groundwater flow direction in the general area of the Site is inferred to flow towards the Big Creek, west/southwest. It should be noted that additional subsurface work beyond the scope of this report is required to confirm the groundwater flow direction at the Site.

### **5.2.3 Fill Materials**

The northwest corner of the Site appears to have been graded with a sand and gravel surface which has been assumed to have been imported.

## **6 Interviews**

Englobe conducted an interview with the Site representative Mr. Joe Cohoon on December 8, 2020. Mr. Cohoon has been familiar with the Site only a short time. His answers have been incorporated throughout this report.

Information was also gathered from other individuals and/or regulatory agencies and has been incorporated into various sections of this report (both previous and proceeding sections). All relevant correspondence logs and emails, if any, are provided in Appendix E.

## **7 Site Reconnaissance**

### **7.1 General Requirements**

A visual survey of the Site was completed by Russell Ironside of Englobe on April 24, 2021. The qualifications of the assessors are provided in Appendix F. The Site reconnaissance took approximately one hour to complete. Weather conditions were mainly sunny with a temperature of approximately 15°C.

Photographs showing various areas of the Site and surrounding properties, including written descriptions for each, are provided in Appendix B.

### **7.2 Physical Impediments**

There were no physical impediments encountered during the Site reconnaissance.

### **7.3 Observations at the Phase One Property**

The Site is rectangular in shape and is approximately 1,740 square metres (m<sup>2</sup>) in area and is currently undeveloped with a fence around the perimeter.

Surrounding land uses consist of commercial (grocery store) to the north a; residential to the east; mixed use commercial and residential to the west, and residential to the south across Wellington Avenue. The Site and surrounding properties are located as shown on the attached Site and Surrounding Land Use Plan, Drawing 2 provided in Appendix A.

#### **7.3.1 On-Site Buildings/Structures, Parking and Access**

There are no buildings on the Site. The Site is completely fenced, with a gate located along the north fence-line to the receiving area of the grocery store to the north.

#### **7.3.2 Site Operations**

There are currently no Site operations.

#### **7.3.3 Solid Waste Generation**

No solid waste is generated at the Site.

#### **7.3.4 Above ground and Underground Storage Tanks**

No ASTs or evidence of USTs were observed on the Site at the time of the Site visit.

#### **7.3.5 Pits/Sumps and Floor Drains**

No pits/sumps and/or floor drains were observed during the Site visit.



### 7.3.6 Chemical Storage and Handling

#### Storage of Products and Wastes

Englobe did not observe the storage of bulk products or wastes on the Site.

#### Compressed Gas Storage

No compressed gases were used/stored at the Site at the time of the Site visit.

### 7.3.7 Staining / Corrosion or Stressed Vegetation

Englobe did not observe any significant signs of staining/corrosion, however, did note some stressed vegetation at the time of the Site visit located in the gravelly area at the northwest corner of the Site, and centrally at the Site there appeared a rectangular shaped area where the grass growth was minimal.

### 7.3.8 Fill Materials

Fill material of sand and gravel was observed on the northwest corner of the Site during the Site visit.

### 7.3.9 Hazardous Materials

There are no buildings on the property, therefore no asbestos-containing materials (ACMs), polychlorinated biphenyls (PCBs), lead-based or mercury containing materials, urea formaldehyde foam insulation (UFFI), ozone-depleting substances (ODSs), or microbial contamination (Mould) or issues with indoor air quality were present.

### 7.3.10 Special Attention Items

Special attention items pertaining to the Site are listed in the following table:

Table 7 Special Attention Items

Characteristics	Comments
Radon Gas	Based on the geology of the area and the absence of buildings at the Site, radon gas accumulation is not expected to be a significant environmental concern at the Site. However, it should be noted that no testing for radon gas was completed at the Site during this assessment period.
Electromagnetic Frequencies (EMFs)	No high-voltage transmission lines or electrical substations, which could generate significant EMFs, were identified on or adjacent to the Site. Although EMFs are assumed to be typical for developed areas, no testing was performed as part of this assessment.
Noise and Vibration	Ambient noise was limited to intermittent traffic along Wellington Avenue and the alley north of the Site used for receiving by the grocery store; however, no noise or vibration testing was performed as part of this assessment.

## 7.4 Enhanced Investigation

The Site has not historically been used, or currently being used (in whole or in part), for any industrial uses, as a garage, a bulk liquid dispensing facility (including a gasoline outlet), or the operation of dry-cleaning equipment. An enhanced investigation is not considered warranted.

## 7.5 Observations at the Phase One Study Area

The neighbouring properties adjoining and surrounding the Site were observed during the Site reconnaissance from accessible public locations. These properties are identified on the attached Site and Surrounding Land Use Plan, Drawing 2 contained in Appendix A and observation are summarized in the table below.

Table 8 Surrounding Properties

Position Relative to Site	Property Description	Potential for Contamination
North	Commercial	These properties are not considered to pose a potential significant environmental concern for the Site.
East	Residential	This property is not considered to pose a potential significant environmental concern for the Site.
South	Residential	This property is not considered to pose a potential significant environmental concern for the Site.
West	Residential/Commercial	This property is not considered to pose a potential significant environmental concern for the Site.

## 8 Review and Evaluation of Information

### 8.1 Current and Past Uses

Based on the historic information review and interviews, the current and past use at the Site since development has been for institutional and commercial purposes. A summary of current and past land uses at the Site are provided in the Table of Current and Past Land Use in Appendix C.

### 8.2 Potentially Contaminating Activities and Areas of Potential Environmental Concern

Based on the information obtained and reviewed as part of this assessment, current and historic potentially contaminating activities (PCAs) associated with the Site and surrounding properties within the Phase One Study Area were identified as summarized in the table below:

Table 9 Potentially Contaminating Activities

Location of PCA	Potentially Contaminating Activity (PCA)	On or Off Site	Form an APEC (Yes/No)	Rationale
SITE	No. 30 Importation of Fill of Unknown Quality	On	Yes	Based on observations made at the property during the Site visit, sand and gravel was observed on the northwest corner of the Site that appears to have been imported. Fill was likely used to backfill any building demolitions that occurred on the Site.

Location of PCA	Potentially Contaminating Activity (PCA)	On or Off Site	Form an APEC (Yes/No)	Rationale
180 m south of the Site	No. 28 – Gasoline and Associated Products Storage in Fixed Tanks	Off	No	As observed in the 1947 FIP, one UST was present. The property however, appeared to be residential. Based on the groundwater flow direction (west) and the separation distance, this is not considered to contribute to an APEC on the Site.
303 Main Street of Delhi (125 m south of the Site)	Other – Hazardous Waste Generator	Off	No	The property is listed in the ERIS report as a generator of hazardous wastes. Based on the groundwater flow direction (west) and the separation distance, this is not considered to contribute to an APEC on the Site.
263 Queen Street (135 m east of the Site)	No. 28 – Gasoline and Associated Products Storage in Fixed Tanks	Off	No	The property is listed in the ERIS report as private fuel outlet. Based on the separation distance, this is not considered to contribute to an APEC on the Site.
183 Main Street (170 m north of the Site)	Other – Hazardous Waste Generator	Off	No	The property is listed in the ERIS report as a generator of hazardous wastes. Based on the groundwater flow direction (west) and the separation distance, this is not considered to contribute to an APEC on the Site.

Areas of Potential Environmental Concern (APECs) on the Site associated with the on-Site PCA is summarized in the following table.

Table 10 Areas of Potential Environmental Concern

APEC	Location of APEC	Potentially Contaminating Activity	Location of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted
APEC 1	Entire Site	No. 30. – Importation of Fill Material of Unknown Quality	On-Site	Metals, As, Sb, Se, PAHs, PHC, BTEX.	Soil and Shallow Groundwater

### 8.3 Uncertainty

Different sources were relied upon in the identification and evaluation of PCAs, which may have contributed to an APEC including historical records, previous reports, site observations, interviews and environmental databases. Each of these sources have potential uncertainties related to accuracy (i.e. written records), interpretation (i.e. resolution of aerial photographs) and time gaps (aerial photographs). Multiple sources of information were evaluated in this Phase One ESA corroborating findings and minimizing uncertainties related to the evaluation of individual information sources. As such, uncertainties with the information sources reviewed in this Phase One ESA are not considered to have affected the evaluation of PCAs and the identification of associated APECs.

At the time of writing this report, Englobe has not received a Freedom of Information response from the MECP. Any information obtained via FOI requests (if applicable) may identify on-site or off-site PCAs which may generate APECs at the Site; however, potential information provided by these agencies is not expected to alter the conclusions of this report.

## 8.4 Phase One Conceptual Site Model

The mandatory requirements for the Phase One Conceptual Site Model outlined in “Table 1 of Schedule D, Part VI – Phase One Environmental Site Assessment Report in O. Reg. 153/04 as amended”, and the findings/details from this Phase One ESA are summarized in the table below.

Table 11 Phase One Conceptual Site Model

O.Reg. 153/04 Schedule D (Part VI) Table 1 Requirement	Phase One ESA Findings / Details
Show any existing buildings and structures	The Site is rectangular in shape and is approximately 1,740 square metres (m <sup>2</sup> ) in area and is currently undeveloped with a fence around the perimeter. The approximate location of the Site features are shown on the attached Site Plan, Drawing 3 contained in Appendix A.
Identify and locate water bodies located in whole or in part on the Phase One Study Area	No water bodies, streams, ponds or wetland areas were observed at the Site. Big Creek is located approximately 380 m west of the Site.
Identify and locate any areas of natural significance located in whole or in part on the Phase One Study Area	The MNRF maps application was reviewed on May 11, 2021 for any areas of natural significance (ANSIs) or provincially significant wetlands (PSWs). There were no ANSIs or PSWs at the site or within the Phase One Study Area.
Locate any drinking water wells at the Phase One Property	No known water supply wells were identified or observed at the Site. No known water supply wells were identified within the Phase One Study Area.
Show roads, including names, within the Phase One Study Area	The Phase One Property is located north of Wellington Avenue in Delhi, Ontario. Roads located in the Phase One Study Area are identified on the Site and Surrounding Land Use Plan, Drawing 2, Appendix A.
Show uses of properties adjacent to the Phase One Property	The Site is located at the southern edge of the commercial business core in Delhi, Ontario. Surrounding land uses consist of commercial (grocery store) to the north; residential to the east; mixed use commercial/residential to the west, and residential to the south across Wellington Avenue. The Site and surrounding properties are located as shown on the attached Site and Surrounding Land Use Plan, Drawing 2 provided in Appendix A.
Identify and locate areas where any PCA has occurred and show tanks in such areas.	One PCA was identified on-Site, which gives rise to an APEC. All other PCAs identified off-Site did not contribute to an APEC. No. 28 – One UST observed in the 1949 FIP located 180 m south of the Site, and one private fuel outlet record 135 m east of the Site were identified, however based on groundwater flow direction (west) and the separation distance, this is not considered to contribute to an APEC on the Site No. 30 – Importation of Fill of Unknown Quality – as observed during the Site visit, and inferred, there is the potential for importation of fill during backfilling after demolition of the on-Site building. Sand and gravel fill was observed on the northwest portion of the Site. Other – Hazardous Waste Generators – records of hazardous waste generators belonged to properties 125 m south, and 170 m north of the Site, however based on groundwater flow direction (west) and the separation distance, this is not considered to contribute to an APEC on the Site PCAs noted in the Phase One Study Area are noted on Drawing 5 in Appendix A.
Identify and locate any APECs	One APEC was identified at the Site, as shown on Drawing 6 in Appendix A. This included the entire Site.



O.Reg. 153/04 Schedule D (Part VI) Table 1 Requirement	Phase One ESA Findings / Details
Describe and assess any areas where potentially contaminating activity on or potentially affecting the Phase One Property has occurred.	Importation of fill material of unknown quality may be present in the northwest corner of the Site as observed during the Site visit (sand and gravel). Fill material was likely used to backfill after demolition of the building observed in aerial photographs.
Describe and assess and contaminants of potential environmental concern	APEC 1 - Metals, As, Sb, Se, PAHs, PHC, BTEX in soil and potential for leaching to any shallow groundwater.
Describe and assess the potential for underground utilities, if any, to affect contaminant distribution and transport	The Site is not serviced by gas, or communications, and an overhead hydro line was observed at the property. A sewer line was observed through the Site. Backfilling materials used to surround the sewer may affect contaminant transport as the materials are normally coarse grained. This would act as a preferential pathway for any contaminants.
Describe and assess available regional or site specific geological and hydrogeological information	<p>An Ontario Base Map showing the Site and surrounding area was reviewed for information relevant to the Site, and is presented in Appendix A, Drawing 4. Based on the topographic contour lines shown, the ground surface in the general area of the Site appears to be relatively flat and generally the surrounding area slopes towards the west towards Big Creek located approximately 380 m west of the Site. The Site appears to be at an elevation of approximately 230 m above mean sea level (masl) and is shown to be occupied by a small building on the northwest corner of the Site.</p> <p>The Site is located within the physiographic region of Southern Ontario known as the Norfolk Sand Plain (Chapman and Putnam, 2007). The primary physiographic landform in the area of the Site is sand plains. The subsurface stratigraphy at the Site is comprised of glaciolacustrine deposits of sand, gravelly sand and gravel (Ontario Geological Survey, 1991). Bedrock geology in this area is comprised of limestone and minor dolostone of the Dundee Formation (Armstrong, D.K. and Dodge, J.E.P. 2007). Based on topographic considerations, the groundwater flow direction in the general area of the Site is inferred to flow towards the Big Creek, west/southwest. It should be noted that additional subsurface work beyond the scope of this report is required to confirm the groundwater flow direction at the Site.</p>
Describe and assess how any uncertainty or absence of information obtained in each of the components of the Phase One ESA could affect the validity of the model.	<p>Different sources were relied upon in the identification and evaluation of PCAs, which may have contributed to an APEC including historical records, previous reports, site observations, interviews and environmental databases. Each of these sources have potential uncertainties related to accuracy (i.e. written records), interpretation (i.e. resolution of aerial photographs) and time gaps (aerial photographs). Multiple sources of information were evaluated in this Phase One ESA corroborating findings and minimizing uncertainties related to the evaluation of individual information sources. As such, uncertainties with the information sources reviewed in this Phase One ESA are not considered to have affected the evaluation of PCAs and the identification of associated APECs.</p> <p>At the time of writing this report, Englobe has not received a Freedom of Information response from the MECP. Any information obtained via FOI requests (if applicable) may identify on-site or off-site PCAs which may generate APECs at the Site; however, potential information provided by these agencies is not expected to alter the conclusions of this report.</p>

Notes: (1) Numbers in parenthesis refer to the potential contaminating activities as listed in Table 2, Schedule D, O.Reg.153/04, as amended.

## 9 Conclusions and Recommendations

Based on the information obtained and evaluated in this Phase One ESA, a PCA was identified on-Site, which contributed to an APEC at the Site. Therefore, a Phase Two ESA is recommended to assess the environmental quality of the soil and/or groundwater at the APEC for potential contaminants of concern related to the contributing PCA.



## 10 Statement of Limitations

Englobe prepared this report for the use of **Angelo Cappucci**. The material in it reflects the judgement of Englobe in light of the information made available at the time of preparation. Any use which a Third Party makes of this report, or any reliance on discussions to be made based on it, is the responsibility of such Third Parties. Englobe accepts no responsibility for damages, if any, suffered by any Third Party because of decisions made or actions taken based on this report.

It should be noted that this Phase One Environmental Site Assessment was focused on observed environmental or waste management practices that have or potentially could have an adverse impact on the Site municipally described as **161 Wellington Avenue, Delhi, Ontario**. It was not intended to be a detailed audit of past and present operations and no intrusive investigations were carried out.

More exhaustive examinations including hydrogeological or subsurface investigations may encounter conditions not apparent at the time of this assessment. This assessment is subject to any restrictions placed by physical obstructions, precipitation, denied access, inaccessible areas including occupied tenant areas, time constraints, cost constraints, readily available documentation, safety considerations, confidentiality, and availability of knowledgeable individuals for interview purposes.

A reasonable site evaluation may not identify latent or hidden contamination or features. Information in this assessment may also change with time and thus only be accurate on the collection date.

It should be noted that assessments made throughout this environmental assignment rely heavily on information supplied by others. While every effort has been made to use reliable and multiple sources, Englobe makes no guarantee of the accuracy or completeness of this third-party information available to us at the time of preparing this report. This site assessment is a compilation and assessment of available data regarding the Site and in no way should be considered as a recommendation or rejection of a potential property purchase.



## REFERENCES

- Armstrong, D.K. and Dodge, J.E.P. 2007. Paleozoic Geology Map of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 219
- Barnett, P.J. 1992 Quaternary Geology of Ontario; in Geology of Ontario, Special Volume 4, Part 2, p. 1009-1088
- Chapman, L.J., Putman, D.F., 1984. The Physiography of Southern Ontario, Third Edition; Ontario Geological Survey, Special Volume 2
- Chapman, L.J. and Putnam, D.F. 2007. The Physiography of Southern Ontario; Ontario Geological Survey, Miscellaneous Release-Data 228
- Ontario Geological Survey, 1991. Quaternary Geology of Ontario, Southern Sheet, Map 2556, scale 1:1,000,000
- Ontario Geological Survey 2011. 1:250 000 scale bedrock geology of Ontario; Ontario Geological Survey, Miscellaneous Release – Data 126-Revision 1
- Ontario Geological Survey 2010, Surficial geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release-Data 128-Revised
- Ontario Ministry of the Environment (MOE), June 1991, Waste Disposal Site Inventory
- Ontario Ministry of the Environment (MOE), April 1987, Inventory of Coal Gasification Plant Waste Sites in Ontario
- Ontario Ministry of the Environment (MOE), November 1988, Inventory of Industrial Sites Using Coal Tars and Related Tars in Ontario
- Ontario Ministry of Natural Resources and Forestry

## **Appendix A Drawings**

10 cm

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3

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**NOTES :**

1-REFERENCES : © OpenStreetMap contributors (2021).

0 100 200 300 400 500 m

SCALE 1:15000

Project

## Phase One Environmental Site Assessment

161 Wellington Avenue, Delhi, Ontario

Title

### LOCATION PLAN



Englobe Corp.

353, Bridge Street East  
Kitchener (Ontario) N2K 2Y5  
Telephone : 519.741.1313  
Fax : 519.741.5422

Prepared **E.Ciochon**Drawn **E.Ciochon**Checked **C.Barnes**Discipline **ENVIRONMENTAL**Scale **1 : 15000**Date **2021-05-07**

Project manager

**C.Barnes**

Sequence no.

**01 of 06**

M. dept.

**09**

Project

**02103034.100**

Disc.

**SG**

Dwg no.

**00100**

Rev.

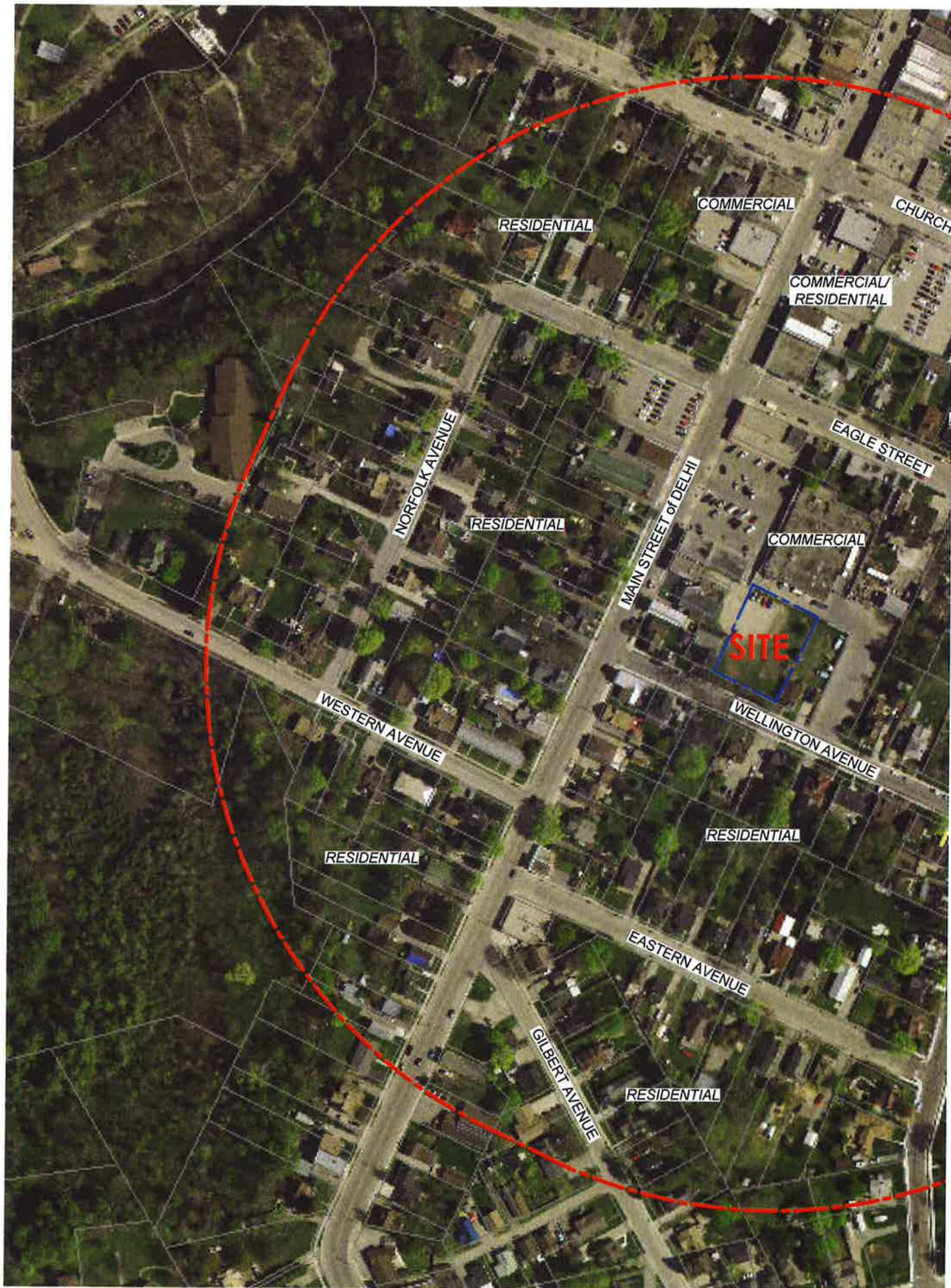
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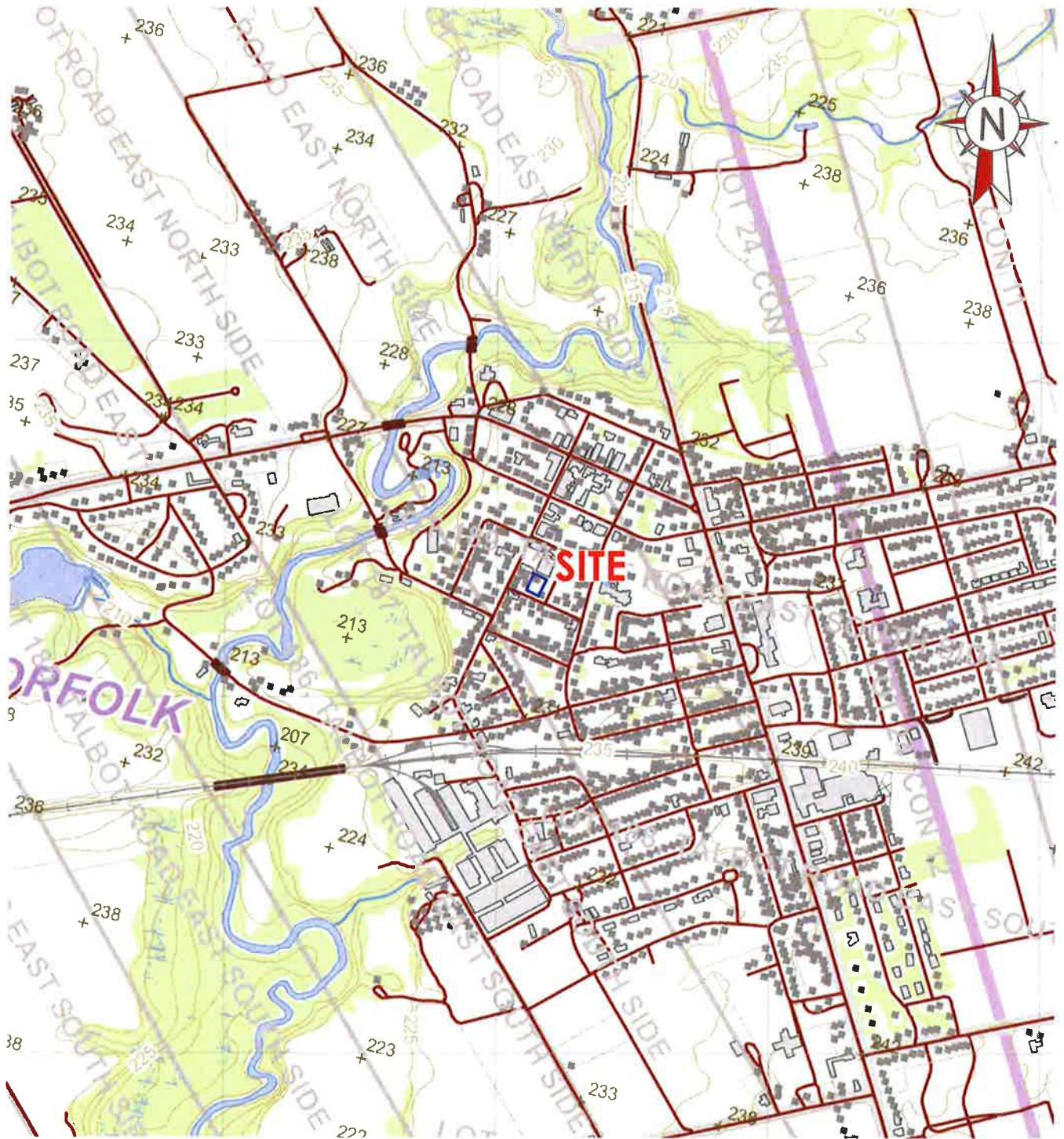
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**NOTES:**

1-REFERENCE: ONTARIO BASE MAP (OBM) Data, Order No.21041200420.

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SCALE 1:15000

Project

## Phase One Environmental Site Assessment

161 Wellington Avenue, Delhi, Ontario

Title

**ONTARIO BASE MAP**



Englobe Corp.

353, Bridge Street East  
Kitchener (Ontario) N2K 2Y5  
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Drawn **E.Ciochon**

Checked **C.Barnes**

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Scale **1 : 15000**

Date **2021-05-07**

Project manager

**C.Barnes**

Sequence no.

**04 of 06**

M. dept.

**09**

Project

**02103034.100**

Disc.

**SG**

Dwg no.

**00400**

Rev.

**00**



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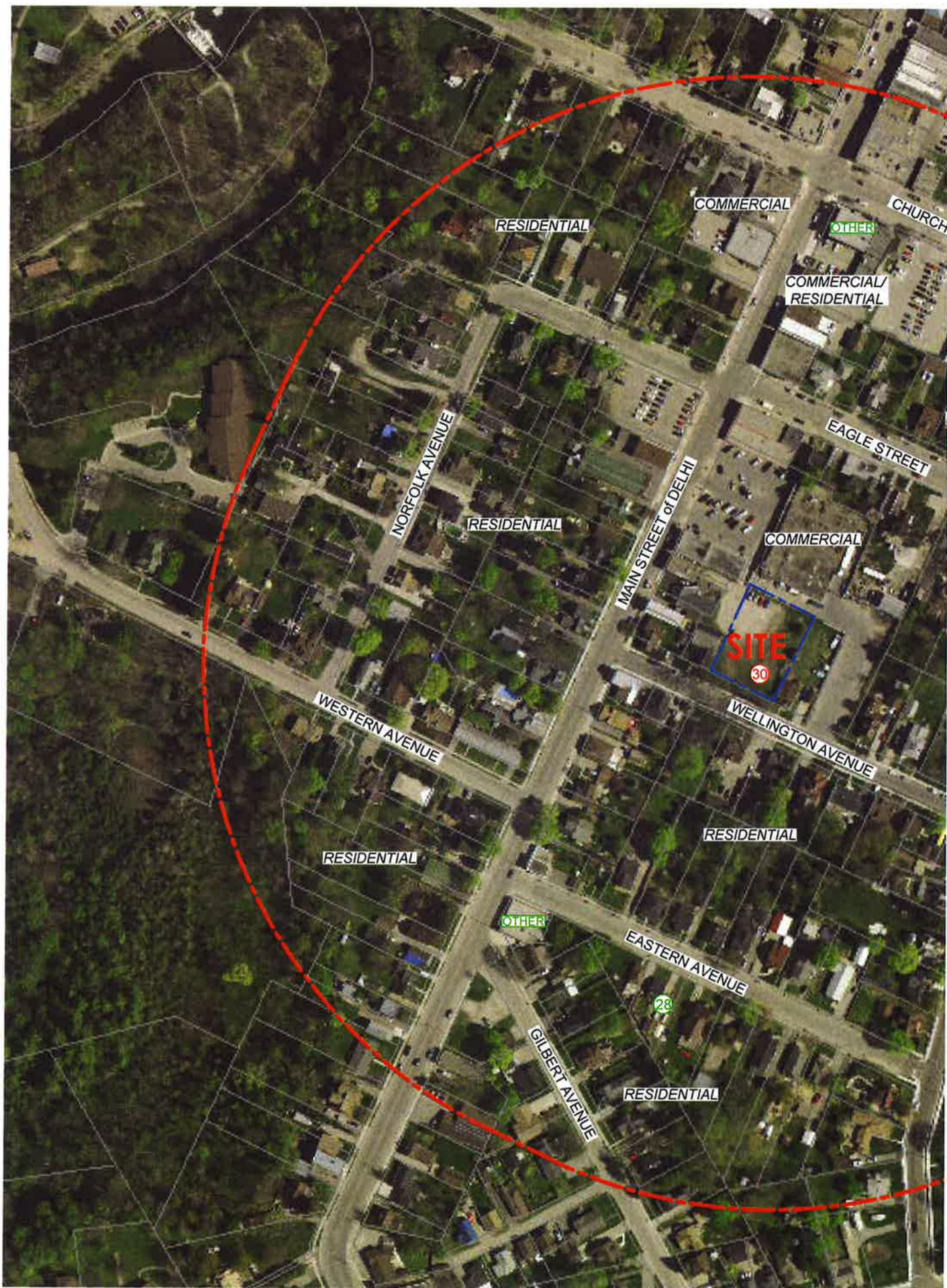
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RESIDENTIAL

COMMERCIAL

CHURCH

OTHER

COMMERCIAL/  
RESIDENTIAL

EAGLE STREET

COMMERCIAL

**SITE**

30

WELLINGTON AVENUE

RESIDENTIAL

EASTERN AVENUE

28

RESIDENTIAL

GILBERT AVENUE

RESIDENTIAL

NORFOLK AVENUE

WESTERN AVENUE

RESIDENTIAL

OTHER



10 cm

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## **Appendix B   Site Photographs**





**PHOTOGRAPH 1** — View of the Site looking South. The catch basin is located centrally on the Site. Adjacent residential properties to the south across Wellington Avenue are shown in the background. Photo taken facing south.



**PHOTOGRAPH 2** — View of the Site looking north. The areas of stressed vegetation can be seen in the foreground and in the northwest corner. The adjacent commercial (grocery store) property to the north can be seen in the background. Photo taken facing north.



PHOTOGRAPH 3 — View of the community building located west of the Site. Photo taken facing northeast.



PHOTOGRAPH 4 — View of the northwest corner of the Site (area of the former building). Sand and gravel fill was observed at the surface. Photo taken facing southeast.

## **Appendix C    Table of Current and Past Land Use**

**"Table of current and past uses of the phase one property"**  
**(Refer to clause 16(2)(b), Schedule D, O. Reg. 153/04)**

Year	Name of owner	Description of property use	Property use	Other observations photographs, fire insurance
1828	Daniel McCall	Residential	Residential Use	Limited information is available Property during this time
1837	Frederick Sovereign			
1851	George McClean			
1853	Abraham Anderson			
1855	Jacob Tice			
1856	James Wilson			
1860	John Nickerson			
1868	Warren H. Blake – Estate			
1872	Jacob Sovereign			
1891	Edmund Neale			
1921	George Neale & Edmund Neale			
1921	Thomas Matthews			
1932	Howard Hoover	Institutional	Institutional Use	Limited information is available Property during this time
1932	Robert W. Tisdale & Walter Barnard, Trustees of Young Peoples Society of The Delhi United Church			
1939 to present	The Municipal Corporation of The Village of Delhi	Community (rink)	Community Use	The 1949 fire insurance plan shows the property as a rink. So the 1949 and the 1976 aerial photographs show a small building was constructed at the northwest corner of the S. The building was destroyed between the 1976 and 1999 aerial photograph and has been replaced since this time.

**Notes:**

- 1 - For each owner, specify one of the following types of property use (as defined in O. Reg. 153/04) that applies:
- Agriculture or other use
  - Commercial use
  - Community use
  - Industrial use
  - Institutional use
  - Parkland use

Residential use

2 - When submitting a record of site condition for filing, a copy of this table must be attached

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## **Appendix D   ERIS Products**



# DATABASE REPORT

<b>Project Property:</b>	<i>Phase One ESA 161 Wellington Avenue Delhi ON N4B 1S4</i>
<b>Project No:</b>	
<b>Report Type:</b>	<i>Standard Report</i>
<b>Order No:</b>	<i>21041200420</i>
<b>Requested by:</b>	<i>Englobe Corp.</i>
<b>Date Completed:</b>	<i>April 15, 2021</i>

**Environmental Risk Information Services**

*A division of Glacier Media Inc.*

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# Executive Summary

## Property Information:

**Project Property:** *Phase One ESA  
161 Wellington Avenue Delhi ON N4B 1S4*

**Project No:**

## **Coordinates:**

**Latitude:** *42.852508*  
**Longitude:** *-80.498783*  
**UTM Northing:** *4,744,558.09*  
**UTM Easting:** *540,950.99*  
**UTM Zone:** *17T*

**Elevation:** *764 FT  
232.84 M*

## Order Information:

**Order No:** *21041200420*  
**Date Requested:** *April 12, 2021*  
**Requested by:** *Englobe Corp.*  
**Report Type:** *Standard Report*

## Historical/Products:

**Aerial Photographs** *Aerials - National Collection*  
**Insurance Products** *Fire Insurance Maps/Inspection Reports/Site Plans*  
**Land Title Search** *Historical Land Title Search*  
**Topographic Map** *Ontario Base Map (OBM)*

## Executive Summary: Report Summary

<i>Database</i>	<i>Name</i>	<i>Searched</i>	<i>Project Property</i>	<i>Within 0.25 km</i>	<i>Total</i>
AAGR	<i>Abandoned Aggregate Inventory</i>	Y	0	0	0
AGR	<i>Aggregate Inventory</i>	Y	0	0	0
AMIS	<i>Abandoned Mine Information System</i>	Y	0	0	0
ANDR	<i>Anderson's Waste Disposal Sites</i>	Y	0	0	0
AST	<i>Aboveground Storage Tanks</i>	Y	0	0	0
AUWR	<i>Automobile Wrecking &amp; Supplies</i>	Y	0	0	0
BORE	<i>Borehole</i>	Y	0	0	0
CA	<i>Certificates of Approval</i>	Y	0	2	2
CDRY	<i>Dry Cleaning Facilities</i>	Y	0	0	0
CFOT	<i>Commercial Fuel Oil Tanks</i>	Y	0	0	0
CHEM	<i>Chemical Manufacturers and Distributors</i>	Y	0	0	0
CHM	<i>Chemical Register</i>	Y	0	0	0
CNG	<i>Compressed Natural Gas Stations</i>	Y	0	0	0
COAL	<i>Inventory of Coal Gasification Plants and Coal Tar Sites</i>	Y	0	0	0
CONV	<i>Compliance and Convictions</i>	Y	0	0	0
CPU	<i>Certificates of Property Use</i>	Y	0	0	0
DRL	<i>Drill Hole Database</i>	Y	0	0	0
DTNK	<i>Delisted Fuel Tanks</i>	Y	0	0	0
EASR	<i>Environmental Activity and Sector Registry</i>	Y	0	0	0
EBR	<i>Environmental Registry</i>	Y	0	0	0
ECA	<i>Environmental Compliance Approval</i>	Y	0	10	10
EEM	<i>Environmental Effects Monitoring</i>	Y	0	0	0
EHS	<i>ERIS Historical Searches</i>	Y	0	5	5
EIIS	<i>Environmental Issues Inventory System</i>	Y	0	0	0
EMHE	<i>Emergency Management Historical Event</i>	Y	0	0	0
EPAR	<i>Environmental Penalty Annual Report</i>	Y	0	0	0
EXP	<i>List of Expired Fuels Safety Facilities</i>	Y	0	4	4
FCON	<i>Federal Convictions</i>	Y	0	0	0
FCS	<i>Contaminated Sites on Federal Land</i>	Y	0	0	0
FOFT	<i>Fisheries &amp; Oceans Fuel Tanks</i>	Y	0	0	0
FRST	<i>Federal Identification Registry for Storage Tank Systems (FIRSTS)</i>	Y	0	0	0
FST	<i>Fuel Storage Tank</i>	Y	0	4	4
FSTH	<i>Fuel Storage Tank - Historic</i>	Y	0	0	0
GEN	<i>Ontario Regulation 347 Waste Generators Summary</i>	Y	0	21	21
GHG	<i>Greenhouse Gas Emissions from Large Facilities</i>	Y	0	0	0
HINC	<i>TSSA Historic Incidents</i>	Y	0	0	0

<b>Database</b>	<b>Name</b>	<b>Searched</b>	<b>Project Property</b>	<b>Within 0.25 km</b>	<b>Total</b>
IAFT	Indian & Northern Affairs Fuel Tanks	Y	0	0	0
INC	Fuel Oil Spills and Leaks	Y	0	0	0
LIMO	Landfill Inventory Management Ontario	Y	0	0	0
MINE	Canadian Mine Locations	Y	0	0	0
MNR	Mineral Occurrences	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0	0	0
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defense & Canadian Forces Fuel Tanks	Y	0	0	0
NDSP	National Defense & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEBI	National Energy Board Pipeline Incidents	Y	0	0	0
NEBP	National Energy Board Wells	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	0	0
NPCB	National PCB Inventory	Y	0	0	0
NPRI	National Pollutant Release Inventory	Y	0	0	0
OGWE	Oil and Gas Wells	Y	0	0	0
OOGW	Ontario Oil and Gas Wells	Y	0	0	0
OPCB	Inventory of PCB Storage Sites	Y	0	0	0
ORD	Orders	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0	0	0
PES	Pesticide Register	Y	0	10	10
PINC	Pipeline Incidents	Y	0	8	8
PRT	Private and Retail Fuel Storage Tanks	Y	0	1	1
PTTW	Permit to Take Water	Y	0	0	0
REC	Ontario Regulation 347 Waste Receivers Summary	Y	0	0	0
RSC	Record of Site Condition	Y	0	0	0
RST	Retail Fuel Storage Tanks	Y	0	0	0
SCT	Scott's Manufacturing Directory	Y	0	1	1
SPL	Ontario Spills	Y	0	7	7
SRDS	Wastewater Discharger Registration Database	Y	0	0	0
TANK	Anderson's Storage Tanks	Y	0	0	0
TCFT	Transport Canada Fuel Storage Tanks	Y	0	0	0
VAR	Variances for Abandonment of Underground Storage Tanks	Y	0	0	0
WDS	Waste Disposal Sites - MOE CA Inventory	Y	0	0	0
WDSH	Waste Disposal Sites - MOE 1991 Historical Approval Inventory	Y	0	0	0
WWIS	Water Well Information System	Y	0	1	1
		<b>Total:</b>	<b>0</b>	<b>74</b>	<b>74</b>



# Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
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No records found in the selected databases for the project property.

## Executive Summary: Site Report Summary - Surrounding Properties

<b>Map Key</b>	<b>DB</b>	<b>Company/Site Name</b>	<b>Address</b>	<b>Dir/Dist (m)</b>	<b>Elev Diff (m)</b>	<b>Page Number</b>
<u>1</u>	SCT	Delhi News Record	237 Main Street of Delhi Delhi ON N4B 2M4	NW/50.7	0.00	<u>25</u>
<u>2</u>	EHS		223 to 235 Main Street Delhi ON	NNE/76.9	0.01	<u>25</u>
<u>3</u>	PINC	PIPELINE HIT - 1/2"	248 MAIN STREET OF DELHI,,DELHI,ON, N4B 2M5,CA ON	WNW/82.8	0.02	<u>25</u>
<u>4</u>	WWIS		233 MAIN STREET DELHI ON <i>Well ID: 7053881</i>	NNW/85.6	0.02	<u>26</u>
<u>5</u>	PES	2207885 ONT. LIMITED/WILKINSON'S YOUR INDEP. GROCER	227 MAIN ST DELHI ON N4B2N4	NNW/102.8	0.03	<u>28</u>
<u>5</u>	PES	NATIONAL GROGERS CO. LTD O/A DELHI YOUR INDEP GROGER	227 MAIN ST DELHI ON N4B2N4	NNW/102.8	0.03	<u>29</u>
<u>5</u>	PES	2207885 ONT. LIMITED/WILKINSON'S YOUR INDEP. GROCER	227 MAIN ST DELHI ON N4B 2N4	NNW/102.8	0.03	<u>29</u>
<u>5</u>	EHS		227 Main St Of Delhi Norfolk County ON N4B2M4	NNW/102.8	0.03	<u>29</u>
<u>5</u>	PES	2207885 ONT. LIMITED/WILKINSON'S YOUR INDEP. GROCER	227 MAIN ST DELHI ON N4B2N4	NNW/102.8	0.03	<u>30</u>
<u>5</u>	PES	NATIONAL GROGERS CO. LTD O/A DELHI YOUR INDEP GROGER	227 MAIN ST DELHI ON N4B2N4	NNW/102.8	0.03	<u>30</u>
<u>6</u>	GEN	DELHI PHARMASAVE	221 MAIN STREET DELHI ON N4B 2M4	N/111.7	0.02	<u>30</u>

<b>Map Key</b>	<b>DB</b>	<b>Company/Site Name</b>	<b>Address</b>	<b>Dir/Dist (m)</b>	<b>Elev Diff (m)</b>	<b>Page Number</b>
<a href="#"><u>6</u></a>	GEN	Cattle & Cole Drugs Limited	221 Main st Delhi ON N4B 2M4	N/111.7	0.02	<a href="#"><u>31</u></a>
<a href="#"><u>6</u></a>	GEN	John Stanczyk Drug Ltd.	221 Main st Delhi ON N4B 2M4	N/111.7	0.02	<a href="#"><u>31</u></a>
<a href="#"><u>6</u></a>	GEN	John Stanczyk Drug Ltd.	221 Main st Delhi ON N4B 2M4	N/111.7	0.02	<a href="#"><u>31</u></a>
<a href="#"><u>6</u></a>	GEN	Cattle & Cole Drugs Limited	221 Main st Delhi ON N4B 2M4	N/111.7	0.02	<a href="#"><u>32</u></a>
<a href="#"><u>7</u></a>	PINC	RONALD W LADELL	232 QUEEN ST,,DELHI,ON,N4B 2K7,CA ON	E/115.5	0.17	<a href="#"><u>32</u></a>
<a href="#"><u>7</u></a>	SPL		232 Queen St Delhi ON	E/115.5	0.17	<a href="#"><u>32</u></a>
<a href="#"><u>8</u></a>	PINC	RONALD W LADELL	276 QUEEN ST,,DELHI,ON,N4B 2K8,CA ON	SE/140.4	-0.99	<a href="#"><u>33</u></a>
<a href="#"><u>8</u></a>	SPL	Union Gas Limited	276 Queen Street, Delhi Norfolk ON	SE/140.4	-0.99	<a href="#"><u>33</u></a>
<a href="#"><u>9</u></a>	PINC	RONALD W LADELL	QUEEN ST AND WELLINGTON AVE,, DELHI,ON,,CA ON	ESE/142.4	0.01	<a href="#"><u>34</u></a>
<a href="#"><u>10</u></a>	GEN	George Burnett Ltd.	303 Main Street Courtland ON N0J 1E0	WSW/153.2	-1.54	<a href="#"><u>34</u></a>
<a href="#"><u>10</u></a>	GEN	George Burnett Ltd.	303 Main Street Courtland ON N0J 1E0	WSW/153.2	-1.54	<a href="#"><u>35</u></a>
<a href="#"><u>10</u></a>	GEN	George Burnett Ltd.	303 Main Street Courtland ON N0J 1E0	WSW/153.2	-1.54	<a href="#"><u>35</u></a>
<a href="#"><u>10</u></a>	GEN	George Burnett Ltd.	303 Main Street Courtland ON N0J 1E0	WSW/153.2	-1.54	<a href="#"><u>35</u></a>

<b>Map Key</b>	<b>DB</b>	<b>Company/Site Name</b>	<b>Address</b>	<b>Dir/Dist (m)</b>	<b>Elev Diff (m)</b>	<b>Page Number</b>
<a href="#"><u>11</u></a>	GEN	NORFOLK BOARD OF EDUCATION	227 QUEEN ST., DELHI PUBLIC SCHOOL P.O. BOX 486, SIMCOE ON N3Y 4K2	E/156.0	1.01	<a href="#"><u>35</u></a>
<a href="#"><u>12</u></a>	SPL	Enbridge Energy Distribution Inc.	182 Eastern Ave, Delhi Norfolk ON	SSW/164.4	-2.06	<a href="#"><u>36</u></a>
<a href="#"><u>12</u></a>	PINC	ENBRIDGE GAS INC	182 EASTERN AVE., DELHI, ON, N4B 1R7, CA ON	SSW/164.4	-2.06	<a href="#"><u>36</u></a>
<a href="#"><u>13</u></a>	EHS		201-203 Main St of Delhi Delhi ON N4B 2M3	N/167.8	0.02	<a href="#"><u>37</u></a>
<a href="#"><u>13</u></a>	EHS		201-203 Main St of Delhi Delhi ON N4B 2M3	N/167.8	0.02	<a href="#"><u>37</u></a>
<a href="#"><u>13</u></a>	EHS		201-203 Main Street Delhi ON N4B 2M3	N/167.8	0.02	<a href="#"><u>37</u></a>
<a href="#"><u>14</u></a>	CA	DELHI TOWNSHIP	QUEEN ST./EAGLE ST. DELHI TWP. ON	ENE/169.2	1.01	<a href="#"><u>37</u></a>
<a href="#"><u>15</u></a>	PRT	EARL JOHNSON	263 QUEEN ST DELHI ON N4B 2K6	ESE/179.7	0.01	<a href="#"><u>38</u></a>
<a href="#"><u>16</u></a>	SPL		325 Gilbert Avenue Norfolk ON	SW/189.5	-1.99	<a href="#"><u>38</u></a>
<a href="#"><u>17</u></a>	CA	The Corporation of Norfolk County	Gilbert Avenue and Main Street Norfolk ON	SW/197.8	-1.87	<a href="#"><u>38</u></a>
<a href="#"><u>18</u></a>	ECA	1498745 Ontario Ltd.	210 Queen St Norfolk ON N3R 3J3	ENE/199.8	1.01	<a href="#"><u>38</u></a>
<a href="#"><u>19</u></a>	GEN	DELHI, (SEE & USE ON0318500)	183 MAIN STREET DELHI ON	N/202.6	-0.11	<a href="#"><u>39</u></a>
<a href="#"><u>19</u></a>	GEN	DELHI, TOWNSHIP OF (SEE & USE ON0318500)	183 MAIN STREET DELHI ON N4B 2W9	N/202.6	-0.11	<a href="#"><u>39</u></a>

<b>Map Key</b>	<b>DB</b>	<b>Company/Site Name</b>	<b>Address</b>	<b>Dir/Dist (m)</b>	<b>Elev Diff (m)</b>	<b>Page Number</b>
<a href="#"><u>19</u></a>	ECA	The Corporation of Norfolk County	183 Main Steet of Delhi Norfolk ON N4B 2M3	N/202.6	-0.11	<a href="#"><u>40</u></a>
<a href="#"><u>19</u></a>	ECA	The Corporation of Norfolk County	183 Main Steet of Delhi Norfolk ON N4B 2W6	N/202.6	-0.11	<a href="#"><u>40</u></a>
<a href="#"><u>20</u></a>	ECA	The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW/204.7	-1.86	<a href="#"><u>40</u></a>
<a href="#"><u>20</u></a>	ECA	The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW/204.7	-1.86	<a href="#"><u>41</u></a>
<a href="#"><u>20</u></a>	ECA	The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW/204.7	-1.86	<a href="#"><u>41</u></a>
<a href="#"><u>20</u></a>	ECA	The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW/204.7	-1.86	<a href="#"><u>41</u></a>
<a href="#"><u>20</u></a>	ECA	The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW/204.7	-1.86	<a href="#"><u>41</u></a>
<a href="#"><u>20</u></a>	ECA	The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW/204.7	-1.86	<a href="#"><u>41</u></a>
<a href="#"><u>20</u></a>	ECA	The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW/204.7	-1.86	<a href="#"><u>42</u></a>
<a href="#"><u>21</u></a>	PES	LAMPMAN'S MARKET LTD.	80 CHURCH STREET WEST DELHI ON N4B1V8	NE/221.3	1.01	<a href="#"><u>42</u></a>
<a href="#"><u>21</u></a>	PES	NATIONAL GROCERS CO. LTD O/A DELHI VALU-MART	80 CHURCH ST W DELHI ON N4B 1V8	NE/221.3	1.01	<a href="#"><u>42</u></a>
<a href="#"><u>21</u></a>	PES	NATIONAL GROCERS CO. LTD O/A DELHI VALU-MART	80 CHURCH ST W DELHI ON N4B 1V8	NE/221.3	1.01	<a href="#"><u>43</u></a>
<a href="#"><u>21</u></a>	PES	NATIONAL GROCERS CO. LTD O/A DELHI VALU-MART	80 CHURCH ST W DELHI ON N4B1V8	NE/221.3	1.01	<a href="#"><u>43</u></a>
<a href="#"><u>21</u></a>	PES	LAMPMAN'S MARKET LTD.	80 CHURCH STREET WEST DELHI ON N4B1V8	NE/221.3	1.01	<a href="#"><u>44</u></a>

<b>Map Key</b>	<b>DB</b>	<b>Company/Site Name</b>	<b>Address</b>	<b>Dir/Dist (m)</b>	<b>Elev Diff (m)</b>	<b>Page Number</b>
<u>22</u>	GEN	Barnes/Cowbrough Veterinary Pro. Corp	334 Gilbert St. Delhi ON N4B2L5	SW/230.1	-1.99	<u>44</u>
<u>22</u>	GEN	Barnes/Cowbrough Veterinary Pro. Corp	334 Gilbert St. Delhi ON N4B2L5	SW/230.1	-1.99	<u>44</u>
<u>22</u>	GEN	Barnes/Cowbrough Veterinary Pro. Corp	334 Gilbert St. Delhi ON N4B2L5	SW/230.1	-1.99	<u>45</u>
<u>22</u>	GEN	Delhi Animal Office Delhi Animal Office	334 Gilbert St. Delhi ON N4B2L5	SW/230.1	-1.99	<u>45</u>
<u>23</u>	ECA	The Corporation of Norfolk County	Lot 18 Block 104 Norfolk ON N4B 2M3	WNW/231.3	-1.77	<u>45</u>
<u>24</u>	GEN	Wilkinson Veterinary Professional Corp	70 Church St West Delhi ON N4B 1V7	ENE/241.1	1.01	<u>45</u>
<u>24</u>	GEN	Wilkinson Veterinary Professional Corp	70 Church St West Delhi ON N4B 1V7	ENE/241.1	1.01	<u>46</u>
<u>24</u>	GEN	Wilkinson Veterinary Professional Corp	70 Church St West Delhi ON N4B 1V7	ENE/241.1	1.01	<u>46</u>
<u>24</u>	GEN	Wilkinson Veterinary Professional Corp	70 Church St West Delhi ON N4B 1V7	ENE/241.1	1.01	<u>46</u>
<u>24</u>	GEN	Wilkinson Veterinary Professional Corp	70 Church St West Delhi ON N4B 1V7	ENE/241.1	1.01	<u>47</u>
<u>25</u>	SPL		76 Park Avenue Delhi, Norfolk ON	ESE/249.5	1.01	<u>47</u>
<u>25</u>	PINC	PIPELINE HIT 1/2"	76 PARK AVENUE,,DELHI,ON,N4B 1R6, CA ON	ESE/249.5	1.01	<u>48</u>
<u>25</u>	PINC	PIPELINE HIT 1/2"	76 PARK AVENUE,,DELHI,ON,N4B 1R6, CA ON	ESE/249.5	1.01	<u>48</u>



<b>Map Key</b>	<b>DB</b>	<b>Company/Site Name</b>	<b>Address</b>	<b>Dir/Dist (m)</b>	<b>Elev Diff (m)</b>	<b>Page Number</b>
<u>26</u>	SPL	Norfolk Disposal Services Limited	158 Church St. West, Delhi Norfolk ON	NNW/249.6	-0.85	<u>48</u>
<u>27</u>	EXP	BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW/249.6	-2.87	<u>49</u>
<u>27</u>	EXP	BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW/249.6	-2.87	<u>49</u>
<u>27</u>	EXP	BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW/249.6	-2.87	<u>50</u>
<u>27</u>	EXP	D BRADSHAW HOLDINGS	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW/249.6	-2.87	<u>50</u>
<u>27</u>	FST	BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW/249.6	-2.87	<u>50</u>
<u>27</u>	FST	D BRADSHAW HOLDINGS	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW/249.6	-2.87	<u>51</u>
<u>27</u>	FST	BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW/249.6	-2.87	<u>51</u>
<u>27</u>	FST	BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW/249.6	-2.87	<u>52</u>
<u>28</u>	PINC	CORPORATION OF THE CITY OF STRAFORD	100 PINE STREET,,DELHI,ON,N4B 1N9, CA ON	SE/249.9	0.01	<u>52</u>
<u>28</u>	SPL	Union Gas Limited	100 Pine Street, Delhi Norfolk ON	SE/249.9	0.01	<u>53</u>

## Executive Summary: Summary By Data Source

### **CA - Certificates of Approval**

A search of the CA database, dated 1985-Oct 30, 2011\* has found that there are 2 CA site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
DELHI TOWNSHIP	QUEEN ST./EAGLE ST. DELHI TWP. ON	ENE	169.18	<a href="#">14</a>

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
The Corporation of Norfolk County	Gilbert Avenue and Main Street Norfolk ON	SW	197.85	<a href="#">17</a>

### **ECA - Environmental Compliance Approval**

A search of the ECA database, dated Oct 2011- Feb 28, 2021 has found that there are 10 ECA site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
1498745 Ontario Ltd.	210 Queen St Norfolk ON N3R 3J3	ENE	199.81	<a href="#">18</a>

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
The Corporation of Norfolk County	183 Main Street of Delhi Norfolk ON N4B 2M3	N	202.61	<a href="#">19</a>
The Corporation of Norfolk County	183 Main Street of Delhi Norfolk ON N4B 2W6	N	202.61	<a href="#">19</a>
The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW	204.70	<a href="#">20</a>

The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW	204.70	<a href="#">20</a>
The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW	204.70	<a href="#">20</a>
The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW	204.70	<a href="#">20</a>
The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW	204.70	<a href="#">20</a>
The Corporation of Norfolk County	329 Main Street Norfolk ON N4B 2M3	SW	204.70	<a href="#">20</a>
The Corporation of Norfolk County	Lot 18 Block 104 Norfolk ON N4B 2M3	WNW	231.26	<a href="#">23</a>

### **EHS - ERIS Historical Searches**

A search of the EHS database, dated 1999-Jan 31, 2021 has found that there are 5 EHS site(s) within approximately 0.25 kilometers of the project property.

<b><u>Equal/Higher Elevation</u></b>	<b><u>Address</u></b>	<b><u>Direction</u></b>	<b><u>Distance (m)</u></b>	<b><u>Map Key</u></b>
	223 to 235 Main Street Delhi ON	NNE	76.94	<a href="#">2</a>
	227 Main St Of Delhi Norfolk County ON N4B2M4	NNW	102.80	<a href="#">5</a>
	201-203 Main Street Delhi ON N4B 2M3	N	167.76	<a href="#">13</a>
	201-203 Main St of Delhi Delhi ON N4B 2M3	N	167.76	<a href="#">13</a>
	201-203 Main St of Delhi Delhi ON N4B 2M3	N	167.76	<a href="#">13</a>

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
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### **EXP - List of Expired Fuels Safety Facilities**

A search of the EXP database, dated Jul 31, 2020 has found that there are 4 EXP site(s) within approximately 0.25 kilometers of the project property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW	249.62	<u>27</u>
BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW	249.62	<u>27</u>
BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW	249.62	<u>27</u>
D BRADSHAW HOLDINGS	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW	249.62	<u>27</u>

### **FST - Fuel Storage Tank**

A search of the FST database, dated Jul 31, 2020 has found that there are 4 FST site(s) within approximately 0.25 kilometers of the project property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW	249.62	<u>27</u>
BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW	249.62	<u>27</u>
BRADSHAW BROS PETROLEUM LTD	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW	249.62	<u>27</u>
D BRADSHAW HOLDINGS	328 MAIN ST WATERFORD N0E 1V0 ON CA ON	SW	249.62	<u>27</u>

## **GEN - Ontario Regulation 347 Waste Generators Summary**

A search of the GEN database, dated 1986-Jan 31, 2021 has found that there are 21 GEN site(s) within approximately 0.25 kilometers of the project property.

<b><u>Equal/Higher Elevation</u></b>	<b><u>Address</u></b>	<b><u>Direction</u></b>	<b><u>Distance (m)</u></b>	<b><u>Map Key</u></b>
DELHI PHARMASAVE	221 MAIN STREET DELHI ON N4B 2M4	N	111.67	<u>6</u>
John Stanczyk Drug Ltd.	221 Main st Delhi ON N4B 2M4	N	111.67	<u>6</u>
John Stanczyk Drug Ltd.	221 Main st Delhi ON N4B 2M4	N	111.67	<u>6</u>
Cattle & Cole Drugs Limited	221 Main st Delhi ON N4B 2M4	N	111.67	<u>6</u>
Cattle & Cole Drugs Limited	221 Main st Delhi ON N4B 2M4	N	111.67	<u>6</u>
NORFOLK BOARD OF EDUCATION	227 QUEEN ST., DELHI PUBLIC SCHOOL P.O. BOX 486, SIMCOE ON N3Y 4K2	E	156.00	<u>11</u>
Wilkinson Veterinary Professional Corp	70 Church St West Delhi ON N4B 1V7	ENE	241.09	<u>24</u>
Wilkinson Veterinary Professional Corp	70 Church St West Delhi ON N4B 1V7	ENE	241.09	<u>24</u>
Wilkinson Veterinary Professional Corp	70 Church St West Delhi ON N4B 1V7	ENE	241.09	<u>24</u>
Wilkinson Veterinary Professional Corp	70 Church St West Delhi ON N4B 1V7	ENE	241.09	<u>24</u>
Wilkinson Veterinary Professional Corp	70 Church St West Delhi ON N4B 1V7	ENE	241.09	<u>24</u>

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
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<u>Lower Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
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George Burnett Ltd.	303 Main Street Courtland ON N0J 1E0	WSW	153.19	<u>10</u>
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George Burnett Ltd.	303 Main Street Courtland ON N0J 1E0	WSW	153.19	<u>10</u>
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George Burnett Ltd.	303 Main Street Courtland ON N0J 1E0	WSW	153.19	<u>10</u>
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George Burnett Ltd.	303 Main Street Courtland ON N0J 1E0	WSW	153.19	<u>10</u>
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DELHI, (SEE & USE ON0318500)	183 MAIN STREET DELHI ON	N	202.61	<u>19</u>
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DELHI, TOWNSHIP OF (SEE & USE ON0318500)	183 MAIN STREET DELHI ON N4B 2W9	N	202.61	<u>19</u>
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Barnes/Cowbrough Veterinary Pro. Corp	334 Gilbert St. Delhi ON N4B2L5	SW	230.15	<u>22</u>
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Barnes/Cowbrough Veterinary Pro. Corp	334 Gilbert St. Delhi ON N4B2L5	SW	230.15	<u>22</u>
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Barnes/Cowbrough Veterinary Pro. Corp	334 Gilbert St. Delhi ON N4B2L5	SW	230.15	<u>22</u>
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Delhi Animal Office Delhi Animal Office	334 Gilbert St. Delhi ON N4B2L5	SW	230.15	<u>22</u>
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## **PES - Pesticide Register**

A search of the PES database, dated Oct 2011-Feb 28, 2021 has found that there are 10 PES site(s) within approximately 0.25



kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
2207885 ONT. LIMITED/WILKINSON'S YOUR INDEP. GROCER	227 MAIN ST DELHI ON N4B2N4	NNW	102.80	<u>5</u>
NATIONAL GROGERS CO. LTD O/A DELHI YOUR INDEP GROGER	227 MAIN ST DELHI ON N4B2N4	NNW	102.80	<u>5</u>
2207885 ONT. LIMITED/WILKINSON'S YOUR INDEP. GROCER	227 MAIN ST DELHI ON N4B2N4	NNW	102.80	<u>5</u>
NATIONAL GROGERS CO. LTD O/A DELHI YOUR INDEP GROGER	227 MAIN ST DELHI ON N4B2N4	NNW	102.80	<u>5</u>
2207885 ONT. LIMITED/WILKINSON'S YOUR INDEP. GROCER	227 MAIN ST DELHI ON N4B 2N4	NNW	102.80	<u>5</u>
NATIONAL GROCERS CO. LTD O/A DELHI VALU-MART	80 CHURCH ST W DELHI ON N4B1V8	NE	221.31	<u>21</u>
NATIONAL GROCERS CO. LTD O/A DELHI VALU-MART	80 CHURCH ST W DELHI ON N4B 1V8	NE	221.31	<u>21</u>
NATIONAL GROCERS CO. LTD O/A DELHI VALU-MART	80 CHURCH ST W DELHI ON N4B 1V8	NE	221.31	<u>21</u>
LAMPMAN'S MARKET LTD.	80 CHURCH STREET WEST DELHI ON N4B1V8	NE	221.31	<u>21</u>
LAMPMAN'S MARKET LTD.	80 CHURCH STREET WEST DELHI ON N4B1V8	NE	221.31	<u>21</u>

## **PINC - Pipeline Incidents**

A search of the PINC database, dated Oct 31, 2020 has found that there are 8 PINC site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
PIPELINE HIT - 1/2"	248 MAIN STREET OF DELHI,,DELHI, ON,N4B 2M5,CA ON	WNW	82.82	<u>3</u>
RONALD W LADELL	232 QUEEN ST,,DELHI,ON,N4B 2K7, CA ON	E	115.51	<u>7</u>
RONALD W LADELL	QUEEN ST AND WELLINGTON AVE,, DELHI,ON,,CA ON	ESE	142.39	<u>9</u>
PIPELINE HIT 1/2"	76 PARK AVENUE,,DELHI,ON,N4B 1R6,CA ON	ESE	249.48	<u>25</u>
PIPELINE HIT 1/2"	76 PARK AVENUE,,DELHI,ON,N4B 1R6,CA ON	ESE	249.48	<u>25</u>
CORPORATION OF THE CITY OF STRAFORD	100 PINE STREET,,DELHI,ON,N4B 1N9,CA ON	SE	249.91	<u>28</u>

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
RONALD W LADELL	276 QUEEN ST,,DELHI,ON,N4B 2K8, CA ON	SE	140.36	<u>8</u>
ENBRIDGE GAS INC	182 EASTERN AVE,,DELHI,ON,N4B 1R7,CA ON	SSW	164.39	<u>12</u>

### **PRT - Private and Retail Fuel Storage Tanks**

A search of the PRT database, dated 1989-1996\* has found that there are 1 PRT site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
EARL JOHNSON	263 QUEEN ST DELHI ON N4B 2K6	ESE	179.70	<u>15</u>

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
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### **SCT - Scott's Manufacturing Directory**

A search of the SCT database, dated 1992-Mar 2011\* has found that there are 1 SCT site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
Delhi News Record	237 Main Street of Delhi Delhi ON N4B 2M4	NW	50.66	<u>1</u>

### **SPL - Ontario Spills**

A search of the SPL database, dated 1988-Mar 2020; Jul 2020 - Aug 2020 has found that there are 7 SPL site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
	232 Queen St Delhi ON	E	115.51	<u>7</u>
	76 Park Avenue Delhi, Norfolk ON	ESE	249.48	<u>25</u>
Union Gas Limited	100 Pine Street, Delhi Norfolk ON	SE	249.91	<u>28</u>

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
Union Gas Limited	276 Queen Street, Delhi Norfolk ON	SE	140.36	<u>8</u>
Enbridge Energy Distribution Inc.	182 Eastern Ave, Delhi Norfolk ON	SSW	164.39	<u>12</u>
	325 Gilbert Avenue Norfolk ON	SW	189.46	<u>16</u>

### **WWIS - Water Well Information System**

A search of the WWIS database, dated Apr 30, 2020 has found that there are 1 WWIS site(s) within approximately 0.25 kilometers of the project property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction</u>	<u>Distance (m)</u>	<u>Map Key</u>
	233 MAIN STREET DELHI ON	NNW	85.61	<u>4</u>
	<i>Well ID: 7053881</i>			

80°30'W

Big Creek

KING ST

CHURCH ST W

EAGLE ST

EAGLE ST

NORFOLK AVE

WESTERN AVE

WELLINGTON AVE

QUEEN ST

PARK AVE

ST GEORGE LANE

PINE ST

EASTERN AVE

GILBERT AVE

MAIN ST OF DELHI

MASS LANE

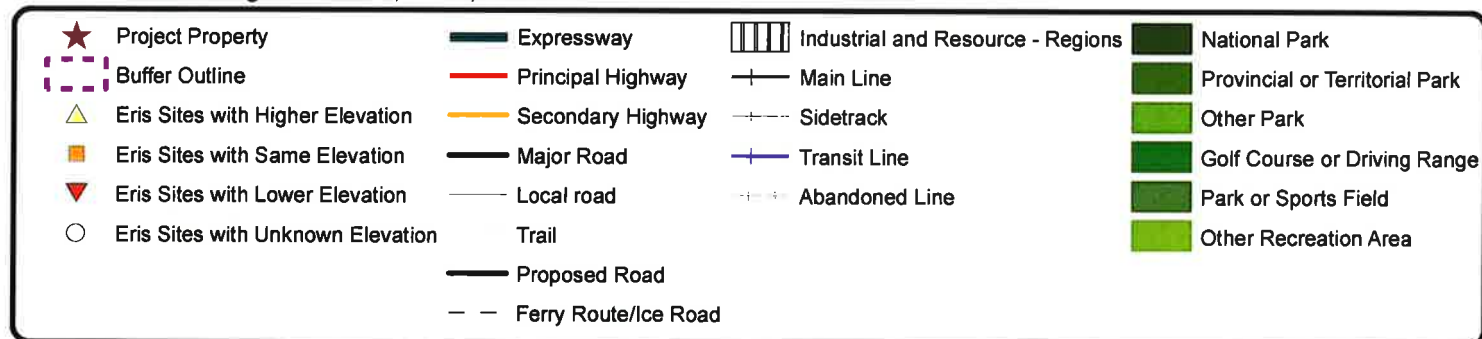
WILLIAM ST 1:2900

80 40 0

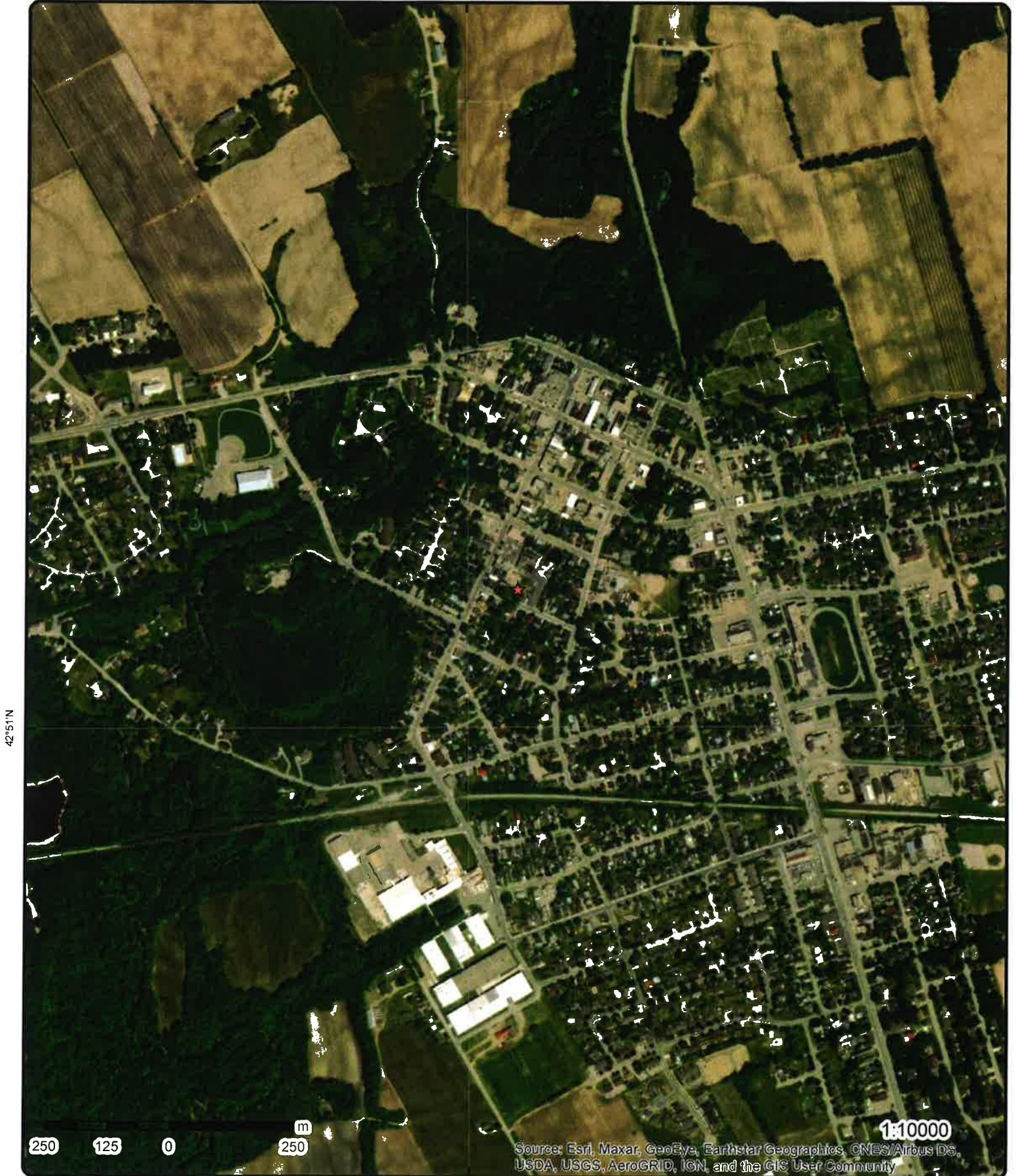
## Map: 0.25 Kilometer Radius

Order Number: 21041200420

Address: 161 Wellington Avenue, Delhi, ON







42°51'N

42°51'N

250 125 0 250 m

1:10000  
Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS,  
USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Aerial** Year: 2016

Order Number: 21041200420

**Address: 161 Wellington Avenue, Delhi, ON**



Source: ESRI World Imagery

© ERIS Information Limited Partnership



42°52'30"N

42°52'30"N

42°51'N

42°51'N



# Topographic Map

Address: 161 Wellington Avenue, ON

Source: ESRI World Topographic Map

Order Number: 21041200420



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## Detail Report

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>1</u>	1 of 1	NW/50.7	232.8 / 0.00	Delhi News Record 237 Main Street of Delhi Delhi ON N4B 2M4	SCT
Established: Plant Size (ft²): Employment:		01-AUG-39			
--Details--					
Description:		Newspaper Publishers			
SIC/NAICS Code:		511110			
<u>2</u>	1 of 1	NNE/76.9	232.8 / 0.01	223 to 235 Main Street Delhi ON	EHS
Order No:		20060825017		Nearest Intersection:	
Status:		C		Municipality:	
Report Type:		Basic Report		Client Prov/State: ON	
Report Date:		8/29/2006		Search Radius (km): 0.25	
Date Received:		8/25/2006		X: -80.498565	
Previous Site Name:				Y: 42.853182	
Lot/Building Size:					
Additional Info Ordered:					
<u>3</u>	1 of 1	WNW/82.8	232.9 / 0.02	PIPELINE HIT - 1/2" 248 MAIN STREET OF DELHI,,DELHI,ON,N4B 2M5,CA ON	PINC
Incident ID:				Fuel Category:	
Incident No:		1777496		Health Impact:	
Incident Reported Dt:		12/29/2015		Environment Impact:	
Type:		FS-Pipeline Incident		Property Damage:	
Status Code:				Service Interrupt:	
Customer Acct Name:		PIPELINE HIT - 1/2"		Enforce Policy:	
Incident Address:		248 MAIN STREET OF DELHI,,DELHI,ON, N4B 2M5,CA		Public Relation:	
Tank Status:		Non Mandated		Pipeline System:	
Task No:				Depth:	
Spills Action Centre:				Pipe Material:	
Fuel Type:				PSIG:	
Fuel Occurrence Tp:				Attribute Category:	
Date of Occurrence:				Regulator Location:	
Occurrence Start Dt:				Method Details:	
Operation Type:					
Pipeline Type:					
Regulator Type:					
Summary:					
Reported By:					
Affiliation:					
Occurrence Desc:					
Damage Reason:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Notes:					
4	1 of 1	NNW/85.6	232.9 / 0.02	233 MAIN STREET DELHI ON	WWIS
Well ID: 7053881		Data Entry Status:			
Construction Date:		Data Src:			
Primary Water Use:		Date Received:		12/13/2007	
Sec. Water Use:		Selected Flag:		Yes	
Final Well Status: Observation Wells		Abandonment Rec:			
Water Type:		Contractor:		7190	
Casing Material:		Form Version:		3	
Audit No: Z49975		Owner:			
Tag: A047940		Street Name:		233 MAIN STREET	
Construction Method:		County:		NORFOLK	
Elevation (m):		Municipality:		DELHI TOWN	
Elevation Reliability:		Site Info:			
Depth to Bedrock:		Lot:			
Well Depth:		Concession:			
Overburden/Bedrock:		Concession Name:			
Pump Rate:		Easting NAD83:			
Static Water Level:		Northing NAD83:			
Flowing (Y/N):		Zone:			
Flow Rate:		UTM Reliability:			
Clear/Cloudy:					
PDF URL (Map):		https://d2khazk8e83rdv.cloudfront.net/moe_mapping/downloads/2Water/Wells_pdfs/705\7053881.pdf			
<u>Bore Hole Information</u>					
Bore Hole ID: 23053881		Elevation:		231.434371	
DP2BR:		Elevrc:			
Spatial Status:		Zone:		17	
Code OB:		East83:		540934	
Code OB Desc:		North83:		4744642	
Open Hole:		Org CS:		UTM83	
Cluster Kind:		UTMRC:		3	
Date Completed: 10/9/2007		UTMRC Desc:		margin of error : 10 - 30 m	
Remarks:		Location Method:		wwr	
Elevrc Desc:					
Location Source Date:					
Improvement Location Source:					
Improvement Location Method:					
Source Revision Comment:					
Supplier Comment:					
<u>Overburden and Bedrock</u>					
<u>Materials Interval</u>					
Formation ID: 30253881					
Layer: 2					
Color: 6					
General Color: BROWN					
Mat1: 28					
Most Common Material: SAND					
Mat2:					
Mat2 Desc:					
Mat3:					
Mat3 Desc:					
Formation Top Depth: .46					
Formation End Depth: 3.8					
Formation End Depth UOM: m					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>Overburden and Bedrock Materials Interval</u>					
Formation ID:		30353881			
Layer:		3			
Color:		6			
General Color:		BROWN			
Mat1:		29			
Most Common Material:		FINE GRAVEL			
Mat2:					
Mat2 Desc:					
Mat3:					
Mat3 Desc:					
Formation Top Depth:		3.8			
Formation End Depth:		6.1			
Formation End Depth UOM:		m			
<u>Overburden and Bedrock Materials Interval</u>					
Formation ID:		30153881			
Layer:		1			
Color:		6			
General Color:		BROWN			
Mat1:		28			
Most Common Material:		SAND			
Mat2:					
Mat2 Desc:					
Mat3:					
Mat3 Desc:					
Formation Top Depth:		0			
Formation End Depth:		.46			
Formation End Depth UOM:		m			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		44008409			
Layer:		2			
Plug From:		3.1			
Plug To:		6.1			
Plug Depth UOM:		m			
<u>Annular Space/Abandonment Sealing Record</u>					
Plug ID:		44008408			
Layer:		1			
Plug From:		0			
Plug To:		3.1			
Plug Depth UOM:		m			
<u>Method of Construction &amp; Well Use</u>					
Method Construction ID:		25953881			
Method Construction Code:		6			
Method Construction:		Boring			
Other Method Construction:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b><u>Pipe Information</u></b>					
Pipe ID:		29053881			
Casing No:		0			
Comment:					
Alt Name:					
<b><u>Construction Record - Casing</u></b>					
Casing ID:		42153881			
Layer:		1			
Material:		5			
Open Hole or Material:		PLASTIC			
Depth From:		0			
Depth To:		3.1			
Casing Diameter:					
Casing Diameter UOM:		cm			
Casing Depth UOM:		m			
<b><u>Construction Record - Screen</u></b>					
Screen ID:		43153881			
Layer:		1			
Slot:					
Screen Top Depth:		3.1			
Screen End Depth:		6.1			
Screen Material:		5			
Screen Depth UOM:		m			
Screen Diameter UOM:		cm			
Screen Diameter:					
<b><u>Hole Diameter</u></b>					
Hole ID:		46006506			
Diameter:		16			
Depth From:		0			
Depth To:		6.1			
Hole Depth UOM:		m			
Hole Diameter UOM:		cm			
<b>5</b>	<b>1 of 6</b>	<b>NNW/102.8</b>	<b>232.9 / 0.03</b>	<b>2207885 ONT. LIMITED/WILKINSON'S YOUR INDEP. GROCER 227 MAIN ST DELHI ON N4B2N4</b>	<b>PES</b>
Detail Licence No:				Operator Box:	
Licence No:				Operator Class:	
Status:				Operator No:	
Approval Date:				Operator Type:	
Report Source:				Oper Area Code:	
Licence Type:	Vendor			Oper Phone No:	
Licence Type Code:				Operator Ext:	
Licence Class:				Operator Lot:	
Licence Control:				Oper Concession:	
Latitude:				Operator Region:	
Longitude:				Operator District:	
Lot:				Operator County:	
Concession:				Op Municipality:	
Region:				Post Office Box:	
District:				MOE District:	
County:				SWP Area Name:	
Trade Name:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
PDF Link:					
<u>5</u>	2 of 6	NNW/102.8	232.9 / 0.03	NATIONAL GROGERS CO. LTD O/A DELHI YOUR INDEP GROGER 227 MAIN ST DELHI ON N4B2N4	PES
Detail Licence No: Licence No: Status: Approval Date: Report Source: Licence Type: Vendor Licence Type Code: Licence Class: Licence Control: Latitude: Longitude: Lot: Concession: Region: District: County: Trade Name: PDF Link:		Operator Box: Operator Class: Operator No: Operator Type: Oper Area Code: Oper Phone No: Operator Ext: Operator Lot: Oper Concession: Operator Region: Operator District: Operator County: Op Municipality: Post Office Box: MOE District: SWP Area Name:			
<u>5</u>	3 of 6	NNW/102.8	232.9 / 0.03	2207885 ONT. LIMITED/WILKINSON'S YOUR INDEP. GROCER 227 MAIN ST DELHI ON N4B 2N4	PES
Detail Licence No: 23-01-14844-0 Licence No: Status: Approval Date: Report Source: Licence Type: LIMITED Licence Type Code: Licence Class: Licence Control: Latitude: Longitude: Lot: Concession: Region: District: County: Trade Name: PDF Link:		Operator Box: Operator Class: Operator No: Operator Type: Oper Area Code: Oper Phone No: Operator Ext: Operator Lot: Oper Concession: Operator Region: Operator District: Operator County: Op Municipality: Post Office Box: MOE District: SWP Area Name:			
<u>5</u>	4 of 6	NNW/102.8	232.9 / 0.03	227 Main St Of Delhi Norfolk County ON N4B2M4	EHS
Order No: 20140130039 Status: C Report Type: Custom Report Report Date: 06-FEB-14 Date Received: 30-JAN-14 Previous Site Name: Lot/Building Size:		Nearest Intersection: Municipality: Client Prov/State: ON Search Radius (km): .25 X: -80.499074 Y: 42.853398			



Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Additional Info Ordered:</b>					
<u>5</u>	5 of 6	NNW/102.8	232.9 / 0.03	2207885 ONT. LIMITED/WILKINSON'S YOUR INDEP. GROCER 227 MAIN ST DELHI ON N4B2N4	PES
<b>Detail Licence No:</b> <b>Licence No:</b> 14844 <b>Status:</b> <b>Approval Date:</b> <b>Report Source:</b> Legacy Licenses (Excluding TS) <b>Licence Type:</b> Limited Vendor <b>Licence Type Code:</b> 23 <b>Licence Class:</b> 01 <b>Licence Control:</b> <b>Latitude:</b> <b>Longitude:</b> <b>Lot:</b> <b>Concession:</b> <b>Region:</b> <b>District:</b> <b>County:</b> <b>Trade Name:</b> <b>PDF Link:</b>		<b>Operator Box:</b> <b>Operator Class:</b> <b>Operator No:</b> <b>Operator Type:</b> <b>Oper Area Code:</b> 519 <b>Oper Phone No:</b> 5820864 <b>Operator Ext:</b> <b>Operator Lot:</b> <b>Oper Concession:</b> <b>Operator Region:</b> <b>Operator District:</b> <b>Operator County:</b> <b>Op Municipality:</b> <b>Post Office Box:</b> <b>MOE District:</b> <b>SWP Area Name:</b>			
<u>5</u>	6 of 6	NNW/102.8	232.9 / 0.03	NATIONAL GROGERS CO. LTD O/A DELHI YOUR INDEP GROGER 227 MAIN ST DELHI ON N4B2N4	PES
<b>Detail Licence No:</b> <b>Licence No:</b> 14713 <b>Status:</b> <b>Approval Date:</b> <b>Report Source:</b> Legacy Licenses (Excluding TS) <b>Licence Type:</b> Limited Vendor <b>Licence Type Code:</b> 23 <b>Licence Class:</b> 01 <b>Licence Control:</b> <b>Latitude:</b> <b>Longitude:</b> <b>Lot:</b> <b>Concession:</b> <b>Region:</b> <b>District:</b> <b>County:</b> <b>Trade Name:</b> <b>PDF Link:</b>		<b>Operator Box:</b> <b>Operator Class:</b> <b>Operator No:</b> <b>Operator Type:</b> <b>Oper Area Code:</b> 519 <b>Oper Phone No:</b> 5820864 <b>Operator Ext:</b> <b>Operator Lot:</b> <b>Oper Concession:</b> <b>Operator Region:</b> <b>Operator District:</b> <b>Operator County:</b> <b>Op Municipality:</b> <b>Post Office Box:</b> <b>MOE District:</b> <b>SWP Area Name:</b>			
<u>6</u>	1 of 5	N/111.7	232.9 / 0.02	DELHI PHARMASAVE 221 MAIN STREET DELHI ON N4B 2M4	GEN
<b>Generator No:</b> ON1842424 <b>Status:</b> <b>Approval Years:</b> 00,01 <b>Contam. Facility:</b> <b>MHSW Facility:</b> <b>SIC Code:</b> 6031		<b>PO Box No:</b> <b>Country:</b> <b>Choice of Contact:</b> <b>Co Admin:</b> <b>Phone No Admin:</b>			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
SIC Description:		PHARMACIES			
Detail(s)					
Waste Class:	261				
Waste Class Desc:	PHARMACEUTICALS				
Waste Class:	312				
Waste Class Desc:	PATHOLOGICAL WASTES				
6	2 of 5	N/111.7	232.9 / 0.02	Cattle & Cole Drugs Limited 221 Main st Delhi ON N4B 2M4	GEN
Generator No:	ON6097443			PO Box No:	
Status:				Country:	Canada
Approval Years:	2016			Choice of Contact:	CO_ADMIN
Contam. Facility:	No			Co Admin:	Stacey Cole
MHSW Facility:	No			Phone No Admin:	519-582-1530 Ext.
SIC Code:	446110				
SIC Description:	446110				
Detail(s)					
Waste Class:	261				
Waste Class Desc:	PHARMACEUTICALS				
Waste Class:	312				
Waste Class Desc:	PATHOLOGICAL WASTES				
6	3 of 5	N/111.7	232.9 / 0.02	John Stanczyk Drug Ltd. 221 Main st Delhi ON N4B 2M4	GEN
Generator No:	ON6097443			PO Box No:	
Status:				Country:	Canada
Approval Years:	2015			Choice of Contact:	CO_ADMIN
Contam. Facility:	No			Co Admin:	Claudette Coderre
MHSW Facility:	No			Phone No Admin:	519-582-1530 Ext.
SIC Code:	446110				
SIC Description:	446110				
Detail(s)					
Waste Class:	261				
Waste Class Desc:	PHARMACEUTICALS				
Waste Class:	312				
Waste Class Desc:	PATHOLOGICAL WASTES				
6	4 of 5	N/111.7	232.9 / 0.02	John Stanczyk Drug Ltd. 221 Main st Delhi ON N4B 2M4	GEN
Generator No:	ON6097443			PO Box No:	
Status:				Country:	Canada
Approval Years:	2014			Choice of Contact:	CO_ADMIN
Contam. Facility:	No			Co Admin:	Claudette Coderre
MHSW Facility:	No			Phone No Admin:	519-582-1530 Ext.
SIC Code:	446110				
SIC Description:	446110				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b><u>Detail(s)</u></b>					
<b>Waste Class:</b>	261				
<b>Waste Class Desc:</b>	PHARMACEUTICALS				
<b>6</b>	<b>5 of 5</b>	<b>N/111.7</b>	<b>232.9 / 0.02</b>	<b>Cattle &amp; Cole Drugs Limited 221 Main st Delhi ON N4B 2M4</b>	<b>GEN</b>
<b>Generator No:</b>	ON6097443			<b>PO Box No:</b>	
<b>Status:</b>	Registered			<b>Country:</b>	Canada
<b>Approval Years:</b>	As of Dec 2018			<b>Choice of Contact:</b>	
<b>Contam. Facility:</b>				<b>Co Admin:</b>	
<b>MHSW Facility:</b>				<b>Phone No Admin:</b>	
<b>SIC Code:</b>					
<b>SIC Description:</b>					
<b><u>Detail(s)</u></b>					
<b>Waste Class:</b>	261 A				
<b>Waste Class Desc:</b>	Pharmaceuticals				
<b>Waste Class:</b>	312 P				
<b>Waste Class Desc:</b>	Pathological wastes				
<b>7</b>	<b>1 of 2</b>	<b>E/115.5</b>	<b>233.0 / 0.17</b>	<b>RONALD W LADELL 232 QUEEN ST.,DELHI,ON,N4B 2K7,CA ON</b>	<b>PINC</b>
<b>Incident ID:</b>				<b>Fuel Category:</b>	Natural Gas
<b>Incident No:</b>	1456236			<b>Health Impact:</b>	
<b>Incident Reported Dt:</b>	8/11/2014			<b>Environment Impact:</b>	
<b>Type:</b>	FS-Pipeline Incident			<b>Property Damage:</b>	No
<b>Status Code:</b>				<b>Service Interrupt:</b>	
<b>Customer Acct Name:</b>	RONALD W LADELL			<b>Enforce Policy:</b>	Yes
<b>Incident Address:</b>	232 QUEEN ST.,DELHI,ON,N4B 2K7,CA			<b>Public Relation:</b>	
<b>Tank Status:</b>	Pipeline Damage Reason Est			<b>Pipeline System:</b>	
<b>Task No:</b>	5134620			<b>Depth:</b>	
<b>Spills Action Centre:</b>				<b>Pipe Material:</b>	
<b>Fuel Type:</b>				<b>PSIG:</b>	
<b>Fuel Occurrence Tp:</b>				<b>Attribute Category:</b>	FS-Perform P-line Inc Invest
<b>Date of Occurrence:</b>				<b>Regulator Location:</b>	
<b>Occurrence Start Dt:</b>	2014/08/12			<b>Method Details:</b>	E-mail
<b>Operation Type:</b>					
<b>Pipeline Type:</b>					
<b>Regulator Type:</b>					
<b>Summary:</b>	232 QUEEN ST, DELHI - PIPELINE HIT - 1 1/4"				
<b>Reported By:</b>	Tim McKenzie - Union Gas				
<b>Affiliation:</b>					
<b>Occurrence Desc:</b>					
<b>Damage Reason:</b>	Excavation practices not sufficient				
<b>Notes:</b>					
<b>7</b>	<b>2 of 2</b>	<b>E/115.5</b>	<b>233.0 / 0.17</b>	<b>232 Queen St Delhi ON</b>	<b>SPL</b>
<b>Ref No:</b>	8371-9MVPAR			<b>Discharger Report:</b>	
<b>Site No:</b>	NA			<b>Material Group:</b>	
<b>Incident Dt:</b>	2014/08/11			<b>Health/Env Conseq:</b>	
<b>Year:</b>				<b>Client Type:</b>	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Incident Cause:</b> Unknown / N/A <b>Incident Event:</b> <b>Contaminant Code:</b> 35 <b>Contaminant Name:</b> NATURAL GAS (METHANE) <b>Contaminant Limit 1:</b> <b>Contam Limit Freq 1:</b> <b>Contaminant UN No 1:</b> <b>Environment Impact:</b> Not Anticipated <b>Nature of Impact:</b> Air Pollution <b>Receiving Medium:</b> <b>Receiving Env:</b> <b>MOE Response:</b> Referral to others <b>Dt MOE Arvl on Scn:</b> <b>MOE Reported Dt:</b> 2014/08/11 <b>Dt Document Closed:</b> 2014/09/03 <b>Incident Reason:</b> Unknown / N/A <b>Site Name:</b> Street<UNOFFICIAL> <b>Site County/District:</b> <b>Site Geo Ref Meth:</b> <b>Incident Summary:</b> TSSA 1.25 Strike, 2 loss service <b>Contaminant Qty:</b> 0 other - see incident description					
<b>Sector Type:</b> Pipeline/Components <b>Agency Involved:</b> <b>Nearest Watercourse:</b> <b>Site Address:</b> 232 Queen St <b>Site District Office:</b> <b>Site Postal Code:</b> <b>Site Region:</b> <b>Site Municipality:</b> Delhi <b>Site Lot:</b> <b>Site Conc:</b> <b>Northing:</b> <b>Easting:</b> <b>Site Geo Ref Accu:</b> <b>Site Map Datum:</b> <b>SAC Action Class:</b> Air Spills - Gases and Vapours <b>Source Type:</b>					
<u>8</u>	1 of 2	SE/140.4	231.8 / -0.99	RONALD W LADELL 276 QUEEN ST., DELHI, ON, N4B 2K8, CA ON	PINC
<b>Incident ID:</b> <b>Incident No:</b> 1464146 <b>Incident Reported Dt:</b> 8/21/2014 <b>Type:</b> FS-Pipeline Incident <b>Status Code:</b> <b>Customer Acct Name:</b> RONALD W LADELL <b>Incident Address:</b> 276 QUEEN ST., DELHI, ON, N4B 2K8, CA <b>Tank Status:</b> Pipeline Damage Reason Est <b>Task No:</b> 5149342 <b>Spills Action Centre:</b> <b>Fuel Type:</b> <b>Fuel Occurrence Tp:</b> <b>Date of Occurrence:</b> <b>Occurrence Start Dt:</b> 2014/09/24 <b>Operation Type:</b> <b>Pipeline Type:</b> <b>Regulator Type:</b> <b>Summary:</b> 276 QUEEN ST, DELHI - PIPELINE HIT - 1 1/4" <b>Reported By:</b> Veronica Visser-Martinuk - Union Gas <b>Affiliation:</b> <b>Occurrence Desc:</b> <b>Damage Reason:</b> Excavation practices not sufficient <b>Notes:</b>					
<b>Fuel Category:</b> Natural Gas <b>Health Impact:</b> <b>Environment Impact:</b> <b>Property Damage:</b> Yes <b>Service Interrupt:</b> <b>Enforce Policy:</b> Yes <b>Public Relation:</b> <b>Pipeline System:</b> <b>Depth:</b> <b>Pipe Material:</b> <b>PSIG:</b> <b>Attribute Category:</b> FS-Perform P-line Inc Invest <b>Regulator Location:</b> <b>Method Details:</b> E-mail					
<u>8</u>	2 of 2	SE/140.4	231.8 / -0.99	Union Gas Limited 276 Queen Street, Delhi Norfolk ON	SPL
<b>Ref No:</b> 1844-9MQLKV <b>Site No:</b> NA <b>Incident Dt:</b> 2014/08/06 <b>Year:</b> <b>Incident Cause:</b> Leak/Break <b>Incident Event:</b> <b>Contaminant Code:</b> 35 <b>Contaminant Name:</b> NATURAL GAS (METHANE)					
<b>Discharger Report:</b> <b>Material Group:</b> <b>Health/Env Conseq:</b> <b>Client Type:</b> <b>Sector Type:</b> Pipeline/Components <b>Agency Involved:</b> <b>Nearest Watercourse:</b> <b>Site Address:</b> 276 Queen Street, Delhi					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<div> <div> <b>Contaminant Limit 1:</b>  <b>Contam Limit Freq 1:</b>  <b>Contaminant UN No 1:</b>  <b>Environment Impact:</b> Not Anticipated  <b>Nature of Impact:</b> Air Pollution  <b>Receiving Medium:</b>  <b>Receiving Env:</b>  <b>MOE Response:</b> Not Moe mandate  <b>Dt MOE Arvl on Scn:</b>  <b>MOE Reported Dt:</b> 2014/08/06  <b>Dt Document Closed:</b> 2014/08/08  <b>Incident Reason:</b> Operator/Human Error  <b>Site Name:</b> private residence&lt;UNOFFICIAL&gt;  <b>Site County/District:</b>  <b>Site Geo Ref Meth:</b>  <b>Incident Summary:</b> TSSA FSB: ½ inpl IP gas srvc dmrgd; made safe  <b>Contaminant Qty:</b> 0 other - see incident description </div> <div> <b>Site District Office:</b>  <b>Site Postal Code:</b>  <b>Site Region:</b>  <b>Site Municipality:</b> Norfolk  <b>Site Lot:</b>  <b>Site Conc:</b>  <b>Northings:</b>  <b>Easting:</b>  <b>Site Geo Ref Accu:</b>  <b>Site Map Datum:</b>  <b>SAC Action Class:</b> Air Spills - Gases and Vapours  <b>Source Type:</b> </div> </div>					
9	1 of 1	ESE/142.4	232.8 / 0.01	RONALD W LADELL QUEEN ST AND WELLINGTON AVE,,DELHI,ON,, CA ON	PINC
<div> <div> <b>Incident ID:</b>  <b>Incident No:</b> 1431716  <b>Incident Reported Dt:</b> 7/9/2014  <b>Type:</b> FS-Pipeline Incident  <b>Status Code:</b>  <b>Customer Acct Name:</b> RONALD W LADELL  <b>Incident Address:</b> QUEEN ST AND WELLINGTON AVE,,DELHI, ON,,CA  <b>Tank Status:</b> Pipeline Damage Reason Est  <b>Task No:</b> 5092262  <b>Spills Action Centre:</b>  <b>Fuel Type:</b>  <b>Fuel Occurrence Tp:</b>  <b>Date of Occurrence:</b>  <b>Occurrence Start Dt:</b> 2014/09/24  <b>Operation Type:</b>  <b>Pipeline Type:</b>  <b>Regulator Type:</b>  <b>Summary:</b> QUEEN STREET &amp; WELLINGTON AVE, DELHI - PIPELINE HIT - 2"  <b>Reported By:</b> Jeremy Reimer - Union Gas  <b>Affiliation:</b>  <b>Occurrence Desc:</b>  <b>Damage Reason:</b> Excavation practices not sufficient  <b>Notes:</b> </div> <div> <b>Fuel Category:</b> Natural Gas  <b>Health Impact:</b>  <b>Environment Impact:</b>  <b>Property Damage:</b> Yes  <b>Service Interrupt:</b>  <b>Enforce Policy:</b> Yes  <b>Public Relation:</b>  <b>Pipeline System:</b>  <b>Depth:</b>  <b>Pipe Material:</b>  <b>PSIG:</b>  <b>Attribute Category:</b> FS-Perform P-line Inc Invest  <b>Regulator Location:</b>  <b>Method Details:</b> E-mail </div> </div>					
10	1 of 4	WSW/153.2	231.3 / -1.54	George Burnett Ltd. 303 Main Street Courtland ON N0J 1E0	GEN
<div> <div> <b>Generator No:</b> ON6260064  <b>Status:</b>  <b>Approval Years:</b> 2016  <b>Contam. Facility:</b> No  <b>MHSW Facility:</b> No  <b>SIC Code:</b> 238910  <b>SIC Description:</b> SITE PREPARATION CONTRACTORS </div> <div> <b>PO Box No:</b>  <b>Country:</b> Canada  <b>Choice of Contact:</b> CO_ADMIN  <b>Co Admin:</b> Huoh A Shepherd  <b>Phone No Admin:</b> 519-688-2133 Ext. </div> </div>					

Detail(s)

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Waste Class:		252			
Waste Class Desc:		WASTE OILS & LUBRICANTS			
<u>10</u>	2 of 4	WSW/153.2	231.3 / -1.54	George Burnett Ltd. 303 Main Street Courtland ON N0J 1E0	GEN
Generator No:		ON6260064		PO Box No:	
Status:				Country:	Canada
Approval Years:		2015		Choice of Contact:	CO_ADMIN
Contam. Facility:		No		Co Admin:	Huoh A Shepherd
MHSW Facility:		No		Phone No Admin:	519-688-2133 Ext.
SIC Code:		238910			
SIC Description:		SITE PREPARATION CONTRACTORS			
<u>Detail(s)</u>					
Waste Class:		252			
Waste Class Desc:		WASTE OILS & LUBRICANTS			
<u>10</u>	3 of 4	WSW/153.2	231.3 / -1.54	George Burnett Ltd. 303 Main Street Courtland ON N0J 1E0	GEN
Generator No:		ON6260064		PO Box No:	
Status:				Country:	Canada
Approval Years:		2014		Choice of Contact:	CO_ADMIN
Contam. Facility:		No		Co Admin:	Huoh A Shepherd
MHSW Facility:		No		Phone No Admin:	519-688-2133 Ext.
SIC Code:		238910			
SIC Description:		SITE PREPARATION CONTRACTORS			
<u>Detail(s)</u>					
Waste Class:		252			
Waste Class Desc:		WASTE OILS & LUBRICANTS			
<u>10</u>	4 of 4	WSW/153.2	231.3 / -1.54	George Burnett Ltd. 303 Main Street Courtland ON N0J 1E0	GEN
Generator No:		ON6260064		PO Box No:	
Status:		Registered		Country:	Canada
Approval Years:		As of Dec 2018		Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No Admin:	
SIC Code:					
SIC Description:					
<u>Detail(s)</u>					
Waste Class:		252 L			
Waste Class Desc:		Waste crankcase oils and lubricants			
<u>11</u>	1 of 1	E/156.0	233.8 / 1.01	NORFOLK BOARD OF EDUCATION 227 QUEEN ST.,DELHI PUBLIC SCHOOL P.O. BOX 486, SIMCOE ON N3Y 4K2	GEN



Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Generator No:</b> ON0449509 <b>Status:</b> <b>Approval Years:</b> 94 <b>Contam. Facility:</b> <b>MHSW Facility:</b> <b>SIC Code:</b> 0000 <b>SIC Description:</b> *** NOT DEFINED ***					
<b>PO Box No:</b> <b>Country:</b> <b>Choice of Contact:</b> <b>Co Admin:</b> <b>Phone No Admin:</b>					
12	1 of 2	SSW/164.4	230.8 / -2.06	Enbridge Energy Distribution Inc. 182 Eastern Ave, Delhi Norfolk ON	SPL
<b>Ref No:</b> 4375-BGJLFB <b>Site No:</b> NA <b>Incident Dt:</b> 10/1/2019 <b>Year:</b> <b>Incident Cause:</b> <b>Incident Event:</b> Leak/Break <b>Contaminant Code:</b> 35 <b>Contaminant Name:</b> NATURAL GAS (METHANE) <b>Contaminant Limit 1:</b> <b>Contam Limit Freq 1:</b> <b>Contaminant UN No 1:</b> 1075 <b>Environment Impact:</b> <b>Nature of Impact:</b> <b>Receiving Medium:</b> <b>Receiving Env:</b> Air <b>MOE Response:</b> No <b>Dt MOE Arvl on Scn:</b> <b>MOE Reported Dt:</b> 10/1/2019 <b>Dt Document Closed:</b> 10/24/2019 <b>Incident Reason:</b> Operator/Human Error <b>Site Name:</b> Residential<UNOFFICIAL> <b>Site County/District:</b> <b>Site Geo Ref Meth:</b> <b>Incident Summary:</b> TSSA FSB: 1.25" plastic IP main linestrike, made safe <b>Contaminant Qty:</b> 0 other - see incident description					
<b>Discharger Report:</b> <b>Material Group:</b> <b>Health/Env Conseq:</b> 2 - Minor Environment <b>Client Type:</b> Corporation <b>Sector Type:</b> Miscellaneous Communal <b>Agency Involved:</b> <b>Nearest Watercourse:</b> <b>Site Address:</b> 182 Eastern Ave, Delhi <b>Site District Office:</b> Hamilton - District <b>Site Postal Code:</b> <b>Site Region:</b> West Central <b>Site Municipality:</b> Norfolk <b>Site Lot:</b> <b>Site Conc:</b> <b>Northing:</b> <b>Easting:</b> <b>Site Geo Ref Accu:</b> <b>Site Map Datum:</b> <b>SAC Action Class:</b> TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill <b>Source Type:</b> Pipeline/Components					
12	2 of 2	SSW/164.4	230.8 / -2.06	ENBRIDGE GAS INC 182 EASTERN AVE.,DELHI,ON,N4B 1R7,CA ON	PINC
<b>Incident ID:</b> <b>Incident No:</b> 2692754 <b>Incident Reported Dt:</b> 10/1/2019 <b>Type:</b> FS-Pipeline Incident <b>Status Code:</b> <b>Customer Acct Name:</b> ENBRIDGE GAS INC <b>Incident Address:</b> 182 EASTERN AVE.,DELHI,ON,N4B 1R7,CA <b>Tank Status:</b> Pipeline Damage Reason Est <b>Task No:</b> <b>Spills Action Centre:</b> <b>Fuel Type:</b> <b>Fuel Occurrence Tp:</b> <b>Date of Occurrence:</b> <b>Occurrence Start Dt:</b> <b>Operation Type:</b> <b>Pipeline Type:</b> <b>Regulator Type:</b> <b>Summary:</b> <b>Reported By:</b> <b>Affiliation:</b>					
<b>Fuel Category:</b> <b>Health Impact:</b> <b>Environment Impact:</b> <b>Property Damage:</b> <b>Service Interrupt:</b> <b>Enforce Policy:</b> <b>Public Relation:</b> <b>Pipeline System:</b> <b>Depth:</b> <b>Pipe Material:</b> <b>PSIG:</b> <b>Attribute Category:</b> <b>Regulator Location:</b> <b>Method Details:</b>					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Occurrence Desc:</b> <b>Damage Reason:</b> <b>Notes:</b>					
<u>13</u>	1 of 3	N/167.8	232.9 / 0.02	201-203 Main St of Delhi Delhi ON N4B 2M3	EHS
<b>Order No:</b> 20080311018 <b>Status:</b> C <b>Report Type:</b> Complete Report <b>Report Date:</b> 3/19/2008 <b>Date Received:</b> 3/11/2008 <b>Previous Site Name:</b> <b>Lot/Building Size:</b> <b>Additional Info Ordered:</b>					
<b>Nearest Intersection:</b> King St and James St <b>Municipality:</b> Norfolk County <b>Client Prov/State:</b> ON <b>Search Radius (km):</b> 0.25 <b>X:</b> -80.49866 <b>Y:</b> 42.854016					
<u>13</u>	2 of 3	N/167.8	232.9 / 0.02	201-203 Main St of Delhi Delhi ON N4B 2M3	EHS
<b>Order No:</b> 20080415031 <b>Status:</b> C <b>Report Type:</b> Custom Report <b>Report Date:</b> 4/17/2008 <b>Date Received:</b> 4/15/2008 <b>Previous Site Name:</b> <b>Lot/Building Size:</b> <b>Additional Info Ordered:</b>					
<b>Nearest Intersection:</b> <b>Municipality:</b> <b>Client Prov/State:</b> ON <b>Search Radius (km):</b> 2 <b>X:</b> -80.49866 <b>Y:</b> 42.854016					
<u>13</u>	3 of 3	N/167.8	232.9 / 0.02	201-203 Main Street Delhi ON N4B 2M3	EHS
<b>Order No:</b> 20101020009 <b>Status:</b> C <b>Report Type:</b> Standard Report <b>Report Date:</b> 10/28/2010 <b>Date Received:</b> 10/20/2010 10:54:15 AM <b>Previous Site Name:</b> <b>Lot/Building Size:</b> <b>Additional Info Ordered:</b> Fire Insur. Maps and/or Site Plans					
<b>Nearest Intersection:</b> Main and Church Street <b>Municipality:</b> County of Norfolk <b>Client Prov/State:</b> ON <b>Search Radius (km):</b> 0.25 <b>X:</b> -80.498535 <b>Y:</b> 42.853945					
<u>14</u>	1 of 1	ENE/169.2	233.8 / 1.01	DELHI TOWNSHIP QUEEN ST./EAGLE ST. DELHI TWP. ON	CA
<b>Certificate #:</b> 3-1287-93- <b>Application Year:</b> 93 <b>Issue Date:</b> 11/10/1993 <b>Approval Type:</b> Municipal sewage <b>Status:</b> Approved <b>Application Type:</b> <b>Client Name:</b> <b>Client Address:</b> <b>Client City:</b> <b>Client Postal Code:</b> <b>Project Description:</b> <b>Contaminants:</b> <b>Emission Control:</b>					

38 [erisinfo.com](http://erisinfo.com) | Environmental Risk Information Services Order No: 21041200420

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
				210 Queen St Norfolk ON N3R 3J3	
Approval No:	8500-BYBJT2			MOE District:	
Approval Date:	2021-02-22			City:	
Status:	Approved			Longitude:	
Record Type:	ECA			Latitude:	
Link Source:	IDS			Geometry X:	
SWP Area Name:				Geometry Y:	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS				
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS				
Business Name:	1498745 Ontario Ltd.				
Address:	210 Queen St				
Full Address:					
Full PDF Link:	<a href="https://www.accessenvironment.ene.gov.on.ca/instruments/8532-BXAPQB-14.pdf">https://www.accessenvironment.ene.gov.on.ca/instruments/8532-BXAPQB-14.pdf</a>				

<u>19</u>	1 of 4	N/202.6	232.7 / -0.11	DELHI, (SEE & USE ON0318500) 183 MAIN STREET DELHI ON	GEN
Generator No:	ON0318502			PO Box No:	
Status:				Country:	
Approval Years:	95,96,97			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No Admin:	
SIC Code:	8359				
SIC Description:	OTHER GEN. ADMIN.				
<u>Detail(s)</u>					
Waste Class:	145				
Waste Class Desc:	PAINT/PIGMENT/COATING RESIDUES				
Waste Class:	148				
Waste Class Desc:	INORGANIC LABORATORY CHEMICALS				
Waste Class:	213				
Waste Class Desc:	PETROLEUM DISTILLATES				
Waste Class:	221				
Waste Class Desc:	LIGHT FUELS				
Waste Class:	263				
Waste Class Desc:	ORGANIC LABORATORY CHEMICALS				

19	2 of 4	N/202.6	232.7 / -0.11	DELHI, TOWNSHIP OF (SEE & USE ON0318500) 183 MAIN STREET DELHI ON N4B 2W9	GEN
Generator No:	ON0318502			PO Box No:	
Status:				Country:	
Approval Years:	98			Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No Admin:	
SIC Code:	8359				
SIC Description:	OTHER GEN. ADMIN.				
<u>Detail(s)</u>					
Waste Class:	145				
Waste Class Desc:	PAINT/PIGMENT/COATING RESIDUES				

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<hr/>					
Waste Class:		148			
Waste Class Desc:		INORGANIC LABORATORY CHEMICALS			
Waste Class:		213			
Waste Class Desc:		PETROLEUM DISTILLATES			
Waste Class:		221			
Waste Class Desc:		LIGHT FUELS			
Waste Class:		263			
Waste Class Desc:		ORGANIC LABORATORY CHEMICALS			
<hr/>					
<u>19</u>	3 of 4	N/202.6	232.7 / -0.11	The Corporation of Norfolk County 183 Main Steet of Delhi Norfolk ON N4B 2M3	ECA
Approval No:	3958-9AUQYL			MOE District:	Hamilton
Approval Date:	2014-01-02			City:	
Status:	Revoked and/or Replaced			Longitude:	-80.50113
Record Type:	ECA			Latitude:	42.853672
Link Source:	IDS			Geometry X:	
SWP Area Name:	Long Point			Geometry Y:	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS				
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS				
Business Name:	The Corporation of Norfolk County				
Address:	183 Main Steet of Delhi				
Full Address:					
Full PDF Link:	<a href="https://www.accessenvironment.ene.gov.on.ca/instruments/1103-99ARAP-14.pdf">https://www.accessenvironment.ene.gov.on.ca/instruments/1103-99ARAP-14.pdf</a>				
<hr/>					
<u>19</u>	4 of 4	N/202.6	232.7 / -0.11	The Corporation of Norfolk County 183 Main Steet of Delhi Norfolk ON N4B 2W6	ECA
Approval No:	0604-9QDRC9			MOE District:	Hamilton
Approval Date:	2014-11-21			City:	
Status:	Revoked and/or Replaced			Longitude:	-80.50113
Record Type:	ECA			Latitude:	42.853672
Link Source:	IDS			Geometry X:	
SWP Area Name:	Long Point			Geometry Y:	
Approval Type:	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS				
Project Type:	MUNICIPAL AND PRIVATE SEWAGE WORKS				
Business Name:	The Corporation of Norfolk County				
Address:	183 Main Steet of Delhi				
Full Address:					
Full PDF Link:	<a href="https://www.accessenvironment.ene.gov.on.ca/instruments/0451-9NYKZM-14.pdf">https://www.accessenvironment.ene.gov.on.ca/instruments/0451-9NYKZM-14.pdf</a>				
<hr/>					
<u>20</u>	1 of 6	SW/204.7	231.0 / -1.86	The Corporation of Norfolk County 329 Main Street Norfolk ON N4B 2M3	ECA
Approval No:	2635-56WPEL			MOE District:	Hamilton
Approval Date:	2003-09-12			City:	
Status:	Revoked and/or Replaced			Longitude:	-80.20421999999999
Record Type:	ECA			Latitude:	42.78644
Link Source:	IDS			Geometry X:	
SWP Area Name:	Long Point			Geometry Y:	
Approval Type:	ECA-Municipal Drinking Water Systems				
Project Type:	Municipal Drinking Water Systems				
Business Name:	The Corporation of Norfolk County				
Address:	329 Main Street				
Full Address:					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Full PDF Link:</b>					
<u>20</u>	2 of 6	SW/204.7	231.0 / -1.86	<b>The Corporation of Norfolk County 329 Main Street Norfolk ON N4B 2M3</b>	ECA
<b>Approval No:</b> 7986-636GET <b>Approval Date:</b> 2004-08-06 <b>Status:</b> Revoked and/or Replaced <b>Record Type:</b> ECA <b>Link Source:</b> IDS <b>SWP Area Name:</b> Long Point <b>Approval Type:</b> ECA-Municipal Drinking Water Systems <b>Project Type:</b> Municipal Drinking Water Systems <b>Business Name:</b> The Corporation of Norfolk County <b>Address:</b> 329 Main Street <b>Full Address:</b> <b>Full PDF Link:</b>		<b>MOE District:</b> Hamilton <b>City:</b> <b>Longitude:</b> -80.20421999999999 <b>Latitude:</b> 42.78644 <b>Geometry X:</b> <b>Geometry Y:</b>			
<u>20</u>	3 of 6	SW/204.7	231.0 / -1.86	<b>The Corporation of Norfolk County 329 Main Street Norfolk ON N4B 2M3</b>	ECA
<b>Approval No:</b> 4854-55KKAH <b>Approval Date:</b> 2002-01-31 <b>Status:</b> Revoked and/or Replaced <b>Record Type:</b> ECA <b>Link Source:</b> IDS <b>SWP Area Name:</b> Long Point <b>Approval Type:</b> ECA-Municipal and Private Water Works <b>Project Type:</b> Municipal and Private Water Works <b>Business Name:</b> The Corporation of Norfolk County <b>Address:</b> 329 Main Street <b>Full Address:</b> <b>Full PDF Link:</b>		<b>MOE District:</b> Hamilton <b>City:</b> <b>Longitude:</b> -80.20421999999999 <b>Latitude:</b> 42.78644 <b>Geometry X:</b> <b>Geometry Y:</b>			
<u>20</u>	4 of 6	SW/204.7	231.0 / -1.86	<b>The Corporation of Norfolk County 329 Main Street Norfolk ON N4B 2M3</b>	ECA
<b>Approval No:</b> 2635-56WPEL <b>Approval Date:</b> 2002-01-31 <b>Status:</b> Revoked and/or Replaced <b>Record Type:</b> ECA <b>Link Source:</b> IDS <b>SWP Area Name:</b> Long Point <b>Approval Type:</b> ECA-Municipal and Private Water Works <b>Project Type:</b> Municipal and Private Water Works <b>Business Name:</b> The Corporation of Norfolk County <b>Address:</b> 329 Main Street <b>Full Address:</b> <b>Full PDF Link:</b>		<b>MOE District:</b> Hamilton <b>City:</b> <b>Longitude:</b> -80.20421999999999 <b>Latitude:</b> 42.78644 <b>Geometry X:</b> <b>Geometry Y:</b>			
<u>20</u>	5 of 6	SW/204.7	231.0 / -1.86	<b>The Corporation of Norfolk County 329 Main Street Norfolk ON N4B 2M3</b>	ECA
<b>Approval No:</b> 8032-5R9KYS <b>Approval Date:</b> 2003-09-17		<b>MOE District:</b> Hamilton <b>City:</b>			



Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Status:</b> Revoked and/or Replaced <b>Record Type:</b> ECA <b>Link Source:</b> IDS <b>SWP Area Name:</b> Long Point <b>Approval Type:</b> ECA-Municipal Drinking Water Systems <b>Project Type:</b> Municipal Drinking Water Systems <b>Business Name:</b> The Corporation of Norfolk County <b>Address:</b> 329 Main Street <b>Full Address:</b> <b>Full PDF Link:</b>					
<b>Longitude:</b> -80.20421999999999 <b>Latitude:</b> 42.78644 <b>Geometry X:</b> <b>Geometry Y:</b>					
<u>20</u>	6 of 6	SW/204.7	231.0 / -1.86	The Corporation of Norfolk County 329 Main Street Norfolk ON N4B 2M3	ECA
<b>Approval No:</b> 0527-6ACHAD <b>Approval Date:</b> 2005-04-15 <b>Status:</b> Revoked and/or Replaced <b>Record Type:</b> ECA <b>Link Source:</b> IDS <b>SWP Area Name:</b> Long Point <b>Approval Type:</b> ECA-Municipal Drinking Water Systems <b>Project Type:</b> Municipal Drinking Water Systems <b>Business Name:</b> The Corporation of Norfolk County <b>Address:</b> 329 Main Street <b>Full Address:</b> <b>Full PDF Link:</b>					
<b>MOE District:</b> Hamilton <b>City:</b> <b>Longitude:</b> -80.20421999999999 <b>Latitude:</b> 42.78644 <b>Geometry X:</b> <b>Geometry Y:</b>					
<u>21</u>	1 of 5	NE/221.3	233.8 / 1.01	LAMPMAN'S MARKET LTD. 80 CHURCH STREET WEST DELHI ON N4B1V8	PES
<b>Detail Licence No:</b> 23-01-10751-0 <b>Licence No:</b> 10751 <b>Status:</b> <b>Approval Date:</b> <b>Report Source:</b> Legacy Licenses (Excluding TS) <b>Licence Type:</b> Limited Vendor <b>Licence Type Code:</b> 23 <b>Licence Class:</b> 01 <b>Licence Control:</b> 0 <b>Latitude:</b> <b>Longitude:</b> <b>Lot:</b> <b>Concession:</b> <b>Region:</b> 2 <b>District:</b> 1 <b>County:</b> 44 <b>Trade Name:</b> <b>PDF Link:</b>					
<b>Operator Box:</b> <b>Operator Class:</b> <b>Operator No:</b> <b>Operator Type:</b> <b>Oper Area Code:</b> 519 <b>Oper Phone No:</b> 5824261 <b>Operator Ext:</b> <b>Operator Lot:</b> <b>Oper Concession:</b> <b>Operator Region:</b> 2 <b>Operator District:</b> 1 <b>Operator County:</b> 44 <b>Op Municipality:</b> <b>Post Office Box:</b> <b>MOE District:</b> <b>SWP Area Name:</b>					
<u>21</u>	2 of 5	NE/221.3	233.8 / 1.01	NATIONAL GROCERS CO. LTD O/A DELHI VALU-MART 80 CHURCH ST W DELHI ON N4B 1V8	PES
<b>Detail Licence No:</b> <b>Licence No:</b> <b>Status:</b> <b>Approval Date:</b>					
<b>Operator Box:</b> <b>Operator Class:</b> <b>Operator No:</b> <b>Operator Type:</b>					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Report Source:</b> <b>Licence Type:</b> Limited Vendor <b>Licence Type Code:</b> 23 <b>Licence Class:</b> <b>Licence Control:</b> <b>Latitude:</b> <b>Longitude:</b> <b>Lot:</b> <b>Concession:</b> <b>Region:</b> <b>District:</b> <b>County:</b> <b>Trade Name:</b> <b>PDF Link:</b>					
<b>Oper Area Code:</b> <b>Oper Phone No:</b> <b>Operator Ext:</b> <b>Operator Lot:</b> <b>Oper Concession:</b> <b>Operator Region:</b> <b>Operator District:</b> <b>Operator County:</b> <b>Op Municipality:</b> <b>Post Office Box:</b> <b>MOE District:</b> <b>SWP Area Name:</b>					
<u>21</u>	3 of 5	NE/221.3	233.8 / 1.01	NATIONAL GROCERS CO. LTD O/A DELHI VALU-MART 80 CHURCH ST W DELHI ON N4B 1V8	PES
<b>Detail Licence No:</b> <b>Licence No:</b> <b>Status:</b> <b>Approval Date:</b> <b>Report Source:</b> <b>Licence Type:</b> Vendor <b>Licence Type Code:</b> <b>Licence Class:</b> <b>Licence Control:</b> <b>Latitude:</b> <b>Longitude:</b> <b>Lot:</b> <b>Concession:</b> <b>Region:</b> <b>District:</b> <b>County:</b> <b>Trade Name:</b> <b>PDF Link:</b>					
<b>Operator Box:</b> <b>Operator Class:</b> <b>Operator No:</b> <b>Operator Type:</b> <b>Oper Area Code:</b> <b>Oper Phone No:</b> <b>Operator Ext:</b> <b>Operator Lot:</b> <b>Oper Concession:</b> <b>Operator Region:</b> <b>Operator District:</b> <b>Operator County:</b> <b>Op Municipality:</b> <b>Post Office Box:</b> <b>MOE District:</b> <b>SWP Area Name:</b>					
<u>21</u>	4 of 5	NE/221.3	233.8 / 1.01	NATIONAL GROCERS CO. LTD O/A DELHI VALU-MART 80 CHURCH ST W DELHI ON N4B1V8	PES
<b>Detail Licence No:</b> <b>Licence No:</b> 13665 <b>Status:</b> <b>Approval Date:</b> <b>Report Source:</b> Legacy Licenses (Excluding TS) <b>Licence Type:</b> Limited Vendor <b>Licence Type Code:</b> 23 <b>Licence Class:</b> 01 <b>Licence Control:</b> <b>Latitude:</b> <b>Longitude:</b> <b>Lot:</b> <b>Concession:</b> <b>Region:</b> <b>District:</b> <b>County:</b> <b>Trade Name:</b> <b>PDF Link:</b>					
<b>Operator Box:</b> <b>Operator Class:</b> <b>Operator No:</b> <b>Operator Type:</b> <b>Oper Area Code:</b> 519 <b>Oper Phone No:</b> 5823220 <b>Operator Ext:</b> <b>Operator Lot:</b> <b>Oper Concession:</b> <b>Operator Region:</b> <b>Operator District:</b> <b>Operator County:</b> <b>Op Municipality:</b> <b>Post Office Box:</b> <b>MOE District:</b> <b>SWP Area Name:</b>					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>21</u>	5 of 5	NE/221.3	233.8 / 1.01	LAMPMAN'S MARKET LTD. 80 CHURCH STREET WEST DELHI ON N4B1V8	PES
<b>Detail Licence No:</b> <b>Licence No:</b> 10751 <b>Status:</b> <b>Approval Date:</b> <b>Report Source:</b> Legacy Licenses (Excluding TS) <b>Licence Type:</b> Retail Vendor Class 03 <b>Licence Type Code:</b> 21 <b>Licence Class:</b> 03 <b>Licence Control:</b> <b>Latitude:</b> <b>Longitude:</b> <b>Lot:</b> <b>Concession:</b> <b>Region:</b> <b>District:</b> <b>County:</b> <b>Trade Name:</b> <b>PDF Link:</b>		<b>Operator Box:</b> <b>Operator Class:</b> <b>Operator No:</b> <b>Operator Type:</b> <b>Oper Area Code:</b> 519 <b>Oper Phone No:</b> 5824261 <b>Operator Ext:</b> <b>Operator Lot:</b> <b>Oper Concession:</b> <b>Operator Region:</b> <b>Operator District:</b> <b>Operator County:</b> <b>Op Municipality:</b> <b>Post Office Box:</b> <b>MOE District:</b> <b>SWP Area Name:</b>			
<u>22</u>	1 of 4	SW/230.1	230.8 / -1.99	Barnes/Cowbrough Veterinary Pro. Corp 334 Gilbert St. Delhi ON N4B2L5	GEN
<b>Generator No:</b> ON4359285 <b>Status:</b> <b>Approval Years:</b> 2016 <b>Contam. Facility:</b> No <b>MHSW Facility:</b> No <b>SIC Code:</b> 541940 <b>SIC Description:</b> VETERINARY SERVICES		<b>PO Box No:</b> <b>Country:</b> Canada <b>Choice of Contact:</b> CO_OFFICIAL <b>Co Admin:</b> Rebecca Garinger <b>Phone No Admin:</b> 5198633836 Ext.			
<b><u>Detail(s)</u></b>					
<b>Waste Class:</b> 312 <b>Waste Class Desc:</b> PATHOLOGICAL WASTES					
<b>Waste Class:</b> 261 <b>Waste Class Desc:</b> PHARMACEUTICALS					
<u>22</u>	2 of 4	SW/230.1	230.8 / -1.99	Barnes/Cowbrough Veterinary Pro. Corp 334 Gilbert St. Delhi ON N4B2L5	GEN
<b>Generator No:</b> ON4359285 <b>Status:</b> <b>Approval Years:</b> 2015 <b>Contam. Facility:</b> No <b>MHSW Facility:</b> No <b>SIC Code:</b> 541940 <b>SIC Description:</b> VETERINARY SERVICES		<b>PO Box No:</b> <b>Country:</b> Canada <b>Choice of Contact:</b> CO_OFFICIAL <b>Co Admin:</b> Deb Austin <b>Phone No Admin:</b> 5198633836 Ext.			
<b><u>Detail(s)</u></b>					
<b>Waste Class:</b> 261 <b>Waste Class Desc:</b> PHARMACEUTICALS					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Waste Class:</b> <b>Waste Class Desc:</b>		312 PATHOLOGICAL WASTES			
<u>22</u>	3 of 4	SW/230.1	230.8 / -1.99	Barnes/Cowbrough Veterinary Pro. Corp 334 Gilbert St. Delhi ON N4B2L5	GEN
<b>Generator No:</b> <b>Status:</b> <b>Approval Years:</b> <b>Contam. Facility:</b> <b>MHSW Facility:</b> <b>SIC Code:</b> <b>SIC Description:</b>		ON4359285 Registered As of Dec 2018		<b>PO Box No:</b> <b>Country:</b> <b>Choice of Contact:</b> <b>Co Admin:</b> <b>Phone No Admin:</b>	Canada
<u>Detail(s)</u>					
<b>Waste Class:</b> <b>Waste Class Desc:</b>		312 P Pathological wastes			
<u>22</u>	4 of 4	SW/230.1	230.8 / -1.99	Delhi Animal Office Delhi Animal Office 334 Gilbert St. Delhi ON N4B2L5	GEN
<b>Generator No:</b> <b>Status:</b> <b>Approval Years:</b> <b>Contam. Facility:</b> <b>MHSW Facility:</b> <b>SIC Code:</b> <b>SIC Description:</b>		ON4359285 Registered As of Jul 2020		<b>PO Box No:</b> <b>Country:</b> <b>Choice of Contact:</b> <b>Co Admin:</b> <b>Phone No Admin:</b>	Canada
<u>Detail(s)</u>					
<b>Waste Class:</b> <b>Waste Class Desc:</b>		312 P Pathological wastes			
<u>23</u>	1 of 1	WNW/231.3	231.1 / -1.77	The Corporation of Norfolk County Lot 18 Block 104 Norfolk ON N4B 2M3	ECA
<b>Approval No:</b> <b>Approval Date:</b> <b>Status:</b> <b>Record Type:</b> <b>Link Source:</b> <b>SWP Area Name:</b> <b>Approval Type:</b> <b>Project Type:</b> <b>Business Name:</b> <b>Address:</b> <b>Full Address:</b> <b>Full PDF Link:</b>		6734-56HRXS 2002-01-21 Approved ECA IDS Long Point ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS MUNICIPAL AND PRIVATE SEWAGE WORKS The Corporation of Norfolk County Lot 18 Block 104  <a href="https://www.accessenvironment.ene.gov.on.ca/instruments/8532-56HM56-14.pdf">https://www.accessenvironment.ene.gov.on.ca/instruments/8532-56HM56-14.pdf</a>		<b>MOE District:</b> <b>City:</b> <b>Longitude:</b> <b>Latitude:</b> <b>Geometry X:</b> <b>Geometry Y:</b>	Hamilton  -80.50113 42.853672
<u>24</u>	1 of 5	ENE/241.1	233.8 / 1.01	Wilkinson Veterinary Professional Corp 70 Church St West Delhi ON N4B 1V7	GEN
<b>Generator No:</b>		ON3493654		<b>PO Box No:</b>	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Status:</b> <b>Approval Years:</b> 2016 <b>Contam. Facility:</b> No <b>MHSW Facility:</b> No <b>SIC Code:</b> 541940 <b>SIC Description:</b> VETERINARY SERVICES					
				<b>Country:</b> Canada <b>Choice of Contact:</b> CO_ADMIN <b>Co Admin:</b> Anna Williams <b>Phone No Admin:</b> 519-582-7280 Ext.	
<u>Detail(s)</u>					
<b>Waste Class:</b>		261			
<b>Waste Class Desc:</b>		PHARMACEUTICALS			
<b>Waste Class:</b>		312			
<b>Waste Class Desc:</b>		PATHOLOGICAL WASTES			
<u>24</u>	2 of 5	ENE/241.1	233.8 / 1.01	Wilkinson Veterinary Professional Corp 70 Church St West Delhi ON N4B 1V7	GEN
<b>Generator No:</b> ON3493654 <b>Status:</b> <b>Approval Years:</b> 2015 <b>Contam. Facility:</b> No <b>MHSW Facility:</b> No <b>SIC Code:</b> 541940 <b>SIC Description:</b> VETERINARY SERVICES					
				<b>PO Box No:</b> <b>Country:</b> Canada <b>Choice of Contact:</b> CO_ADMIN <b>Co Admin:</b> Anna Williams <b>Phone No Admin:</b> 519-582-7280 Ext.	
<u>Detail(s)</u>					
<b>Waste Class:</b>		261			
<b>Waste Class Desc:</b>		PHARMACEUTICALS			
<b>Waste Class:</b>		312			
<b>Waste Class Desc:</b>		PATHOLOGICAL WASTES			
<u>24</u>	3 of 5	ENE/241.1	233.8 / 1.01	Wilkinson Veterinary Professional Corp 70 Church St West Delhi ON N4B 1V7	GEN
<b>Generator No:</b> ON3493654 <b>Status:</b> Registered <b>Approval Years:</b> As of Dec 2018 <b>Contam. Facility:</b> <b>MHSW Facility:</b> <b>SIC Code:</b> <b>SIC Description:</b>					
				<b>PO Box No:</b> <b>Country:</b> Canada <b>Choice of Contact:</b> <b>Co Admin:</b> <b>Phone No Admin:</b>	
<u>Detail(s)</u>					
<b>Waste Class:</b>		261 A			
<b>Waste Class Desc:</b>		Pharmaceuticals			
<b>Waste Class:</b>		312 P			
<b>Waste Class Desc:</b>		Pathological wastes			
<u>24</u>	4 of 5	ENE/241.1	233.8 / 1.01	Wilkinson Veterinary Professional Corp 70 Church St West Delhi ON N4B 1V7	GEN
<b>Generator No:</b> ON3493654 <b>Status:</b> Registered					
				<b>PO Box No:</b> <b>Country:</b> Canada	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
Approval Years:		As of Jul 2020		Choice of Contact:	
Contam. Facility:				Co Admin:	
MHSW Facility:				Phone No Admin:	
SIC Code:					
SIC Description:					
<u>Detail(s)</u>					
Waste Class:		261 A			
Waste Class Desc:		Pharmaceuticals			
Waste Class:		312 P			
Waste Class Desc:		Pathological wastes			
<u>24</u>	5 of 5	ENE/241.1	233.8 / 1.01	Wilkinson Veterinary Professional Corp 70 Church St West Delhi ON N4B 1V7	GEN
Generator No:		ON3493654		PO Box No:	
Status:		Registered		Country:	
Approval Years:		As of Jan 2021		Canada	
Contam. Facility:				Choice of Contact:	
MHSW Facility:				Co Admin:	
SIC Code:				Phone No Admin:	
SIC Description:					
<u>Detail(s)</u>					
Waste Class:		312 P			
Waste Class Desc:		Pathological wastes			
Waste Class:		261 A			
Waste Class Desc:		Pharmaceuticals			
<u>25</u>	1 of 3	ESE/249.5	233.8 / 1.01	76 Park Avenue Delhi, Norfolk ON	SPL
Ref No:		5363-ADSPES		Discharger Report:	
Site No:		NA		Material Group:	
Incident Dt:		9/14/2016		Health/Env Conseq:	
Year:				Client Type:	
Incident Cause:				Sector Type:	
Incident Event:		Leak/Break		Miscellaneous Industrial	
Contaminant Code:		35		Agency Involved:	
Contaminant Name:		NATURAL GAS (METHANE)		Nearest Watercourse:	
Contaminant Limit 1:				Site Address:	
Contam Limit Freq 1:				76 Park Avenue	
Contaminant UN No 1:				Site District Office:	
Environment Impact:				Site Postal Code:	
Nature of Impact:				Site Region:	
Receiving Medium:				Site Municipality:	
Receiving Env:		Air		Delhi, Norfolk	
MOE Response:				Site Lot:	
Dt MOE Arvl on Scn:				Site Conc:	
MOE Reported Dt:		9/14/2016		Northing:	
Dt Document Closed:				Easting:	
Incident Reason:		Operator/Human Error		Site Geo Ref Accu:	
Site Name:		Residence<UNOFFICIAL>		Site Map Datum:	
Site County/District:				SAC Action Class:	
Site Geo Ref Meth:				TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill	
Incident Summary:		TSSA: 1/2" plastic line strike, made safe		Source Type:	
Contaminant Qty:		0 other - see incident description			



Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<u>25</u>	2 of 3	ESE/249.5	233.8 / 1.01	PIPELINE HIT 1/2" 76 PARK AVENUE,,DELHI,ON,N4B 1R6,CA ON	PINC
<b>Incident ID:</b> <b>Incident No:</b> 1941852 <b>Incident Reported Dt:</b> 9/14/2016 <b>Type:</b> FS-Pipeline Incident <b>Status Code:</b> <b>Customer Acct Name:</b> PIPELINE HIT 1/2" <b>Incident Address:</b> 76 PARK AVENUE,,DELHI,ON,N4B 1R6,CA <b>Tank Status:</b> Cancelled <b>Task No:</b> <b>Spills Action Centre:</b> <b>Fuel Type:</b> <b>Fuel Occurrence Tp:</b> <b>Date of Occurrence:</b> <b>Occurrence Start Dt:</b> <b>Operation Type:</b> <b>Pipeline Type:</b> <b>Regulator Type:</b> <b>Summary:</b> <b>Reported By:</b> <b>Affiliation:</b> <b>Occurrence Desc:</b> <b>Damage Reason:</b> <b>Notes:</b>		<b>Fuel Category:</b> <b>Health Impact:</b> <b>Environment Impact:</b> <b>Property Damage:</b> <b>Service Interrupt:</b> <b>Enforce Policy:</b> <b>Public Relation:</b> <b>Pipeline System:</b> <b>Depth:</b> <b>Pipe Material:</b> <b>PSIG:</b> <b>Attribute Category:</b> <b>Regulator Location:</b> <b>Method Details:</b>			
<u>25</u>	3 of 3	ESE/249.5	233.8 / 1.01	PIPELINE HIT 1/2" 76 PARK AVENUE,,DELHI,ON,N4B 1R6,CA ON	PINC
<b>Incident ID:</b> <b>Incident No:</b> 1941882 <b>Incident Reported Dt:</b> 9/14/2016 <b>Type:</b> FS-Pipeline Incident <b>Status Code:</b> <b>Customer Acct Name:</b> PIPELINE HIT 1/2" <b>Incident Address:</b> 76 PARK AVENUE,,DELHI,ON,N4B 1R6,CA <b>Tank Status:</b> Non Mandated <b>Task No:</b> <b>Spills Action Centre:</b> <b>Fuel Type:</b> <b>Fuel Occurrence Tp:</b> <b>Date of Occurrence:</b> <b>Occurrence Start Dt:</b> <b>Operation Type:</b> <b>Pipeline Type:</b> <b>Regulator Type:</b> <b>Summary:</b> <b>Reported By:</b> <b>Affiliation:</b> <b>Occurrence Desc:</b> <b>Damage Reason:</b> <b>Notes:</b>		<b>Fuel Category:</b> <b>Health Impact:</b> <b>Environment Impact:</b> <b>Property Damage:</b> <b>Service Interrupt:</b> <b>Enforce Policy:</b> <b>Public Relation:</b> <b>Pipeline System:</b> <b>Depth:</b> <b>Pipe Material:</b> <b>PSIG:</b> <b>Attribute Category:</b> <b>Regulator Location:</b> <b>Method Details:</b>			
<u>26</u>	1 of 1	NNW/249.6	232.0 / -0.85	Norfolk Disposal Services Limited 158 Church St. West, Delhi Norfolk ON	SPL

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<div> <div> <b>Ref No:</b> 0267-BCVHUK  <b>Site No:</b> NA  <b>Incident Dt:</b> 6/6/2019  <b>Year:</b>  <b>Incident Cause:</b>  <b>Incident Event:</b> Leak/Break  <b>Contaminant Code:</b> 15  <b>Contaminant Name:</b> HYDRAULIC OIL  <b>Contaminant Limit 1:</b>  <b>Contam Limit Freq 1:</b>  <b>Contaminant UN No 1:</b> n/a  <b>Environment Impact:</b>  <b>Nature of Impact:</b>  <b>Receiving Medium:</b>  <b>Receiving Env:</b> Land  <b>MOE Response:</b> Yes  <b>Dt MOE Arvl on Scn:</b> 6/12/2019  <b>MOE Reported Dt:</b> 6/6/2019  <b>Dt Document Closed:</b>  <b>Incident Reason:</b> Material Failure - Poor Design/Substandard Material   <b>Site Name:</b> Hydraulic Oil Spill Site from Municipal Waste Truck&lt;UNOFFICIAL&gt;  <b>Site County/District:</b>  <b>Site Geo Ref Meth:</b>  <b>Incident Summary:</b> Norfolk Disposal Services: 100L Hydraulic Oil to Ground, Contained  <b>Contaminant Qty:</b> 100 L </div> <div> <b>Discharger Report:</b>  <b>Material Group:</b>  <b>Health/Env Conseq:</b> 2 - Minor Environment Corporation  <b>Client Type:</b> Miscellaneous Communal  <b>Sector Type:</b>  <b>Agency Involved:</b>  <b>Nearest Watercourse:</b>  <b>Site Address:</b> 158 Church St. West, Delhi  <b>Site District Office:</b> Hamilton - District  <b>Site Postal Code:</b>  <b>Site Region:</b> West Central  <b>Site Municipality:</b> Norfolk  <b>Site Lot:</b>  <b>Site Conc:</b>  <b>Northing:</b> 4744794.47  <b>Easting:</b> 541820.06  <b>Site Geo Ref Accu:</b>  <b>Site Map Datum:</b>  <b>SAC Action Class:</b> Land Spills  <b>Source Type:</b> Motor Vehicle </div> </div>					
27	1 of 8	SW/249.6	230.0 / -2.87	BRADSHAW BROS PETROLEUM LTD 328 MAIN ST WATERFORD N0E 1V0 ON CA ON	EXP
<div> <div> <b>Instance No:</b> 11037148  <b>Status:</b> EXPIRED  <b>Instance ID:</b>  <b>Instance Type:</b>  <b>Instance Creation Dt:</b> 4/29/1992  <b>Instance Install Dt:</b> 4/29/1992  <b>Item:</b>  <b>Item Description:</b> FS Liquid Fuel Tank  <b>Facility Type:</b> FS LIQUID FUEL TANK  <b>Overfill Prot Type:</b> NULL  <b>Creation Date:</b> 7/5/2009 1:23:20 AM  <b>Expired Date:</b>  <b>Manufacturer:</b> NULL  <b>Source:</b> FS Liquid Fuel Tank  <b>Description:</b> UNDERGROUND TANK  <b>Serial No:</b> NULL  <b>Ulc Standard:</b> NULL  <b>Facility Location:</b> 328 MAIN ST WATERFORD N0E 1V0 ON CA </div> <div> <b>Model:</b> NULL  <b>Quantity:</b> 1  <b>Unit of Measure:</b> EA  <b>Fuel Type2:</b> NULL  <b>Fuel Type3:</b> NULL  <b>Piping Steel:</b>  <b>Piping Galvanized:</b>  <b>Tank Single Wall St:</b>  <b>Piping Underground:</b>  <b>Tank Underground:</b>  <b>Panam Related:</b> NULL  <b>Panam Venue Nm:</b> NULL </div> </div>					
27	2 of 8	SW/249.6	230.0 / -2.87	BRADSHAW BROS PETROLEUM LTD 328 MAIN ST WATERFORD N0E 1V0 ON CA ON	EXP
<div> <div> <b>Instance No:</b> 11037118  <b>Status:</b> EXPIRED  <b>Instance ID:</b>  <b>Instance Type:</b>  <b>Instance Creation Dt:</b> 4/29/1992  <b>Instance Install Dt:</b> 4/29/1992  <b>Item:</b> </div> <div> <b>Model:</b> NULL  <b>Quantity:</b> 1  <b>Unit of Measure:</b> EA  <b>Fuel Type2:</b> NULL  <b>Fuel Type3:</b> NULL  <b>Piping Steel:</b>  <b>Piping Galvanized:</b> </div> </div>					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Item Description:</b> FS Liquid Fuel Tank <b>Facility Type:</b> FS LIQUID FUEL TANK <b>Overfill Prot Type:</b> NULL <b>Creation Date:</b> 7/5/2009 1:23:20 AM <b>Expired Date:</b> <b>Manufacturer:</b> NULL <b>Source:</b> FS Liquid Fuel Tank <b>Description:</b> UNDERGROUND TANK <b>Serial No:</b> NULL <b>Ulc Standard:</b> NULL <b>Facility Location:</b> 328 MAIN ST WATERFORD N0E 1V0 ON CA <b>Tank Single Wall St:</b> <b>Piping Underground:</b> <b>Tank Underground:</b> <b>Panam Related:</b> NULL <b>Panam Venue Nm:</b> NULL					
<u>27</u>	3 of 8	SW/249.6	230.0 / -2.87	BRADSHAW BROS PETROLEUM LTD 328 MAIN ST WATERFORD N0E 1V0 ON CA ON	EXP
<b>Instance No:</b> 11037134 <b>Status:</b> EXPIRED <b>Instance ID:</b> <b>Instance Type:</b> <b>Instance Creation Dt:</b> 4/29/1992 <b>Instance Install Dt:</b> 4/29/1992 <b>Item:</b> <b>Item Description:</b> FS Liquid Fuel Tank <b>Facility Type:</b> FS LIQUID FUEL TANK <b>Overfill Prot Type:</b> NULL <b>Creation Date:</b> 7/5/2009 1:23:25 AM <b>Expired Date:</b> <b>Manufacturer:</b> NULL <b>Source:</b> FS Liquid Fuel Tank <b>Description:</b> UNDERGROUND TANK <b>Serial No:</b> NULL <b>Ulc Standard:</b> NULL <b>Facility Location:</b> 328 MAIN ST WATERFORD N0E 1V0 ON CA <b>Model:</b> NULL <b>Quantity:</b> 1 <b>Unit of Measure:</b> EA <b>Fuel Type2:</b> NULL <b>Fuel Type3:</b> NULL <b>Piping Steel:</b> <b>Piping Galvanized:</b> <b>Tank Single Wall St:</b> <b>Piping Underground:</b> <b>Tank Underground:</b> <b>Panam Related:</b> NULL <b>Panam Venue Nm:</b> NULL					
<u>27</u>	4 of 8	SW/249.6	230.0 / -2.87	D BRADSHAW HOLDINGS 328 MAIN ST WATERFORD N0E 1V0 ON CA ON	EXP
<b>Instance No:</b> 11450380 <b>Status:</b> EXPIRED <b>Instance ID:</b> <b>Instance Type:</b> <b>Instance Creation Dt:</b> 6/17/1996 <b>Instance Install Dt:</b> 6/17/1996 <b>Item:</b> <b>Item Description:</b> FS Liquid Fuel Tank <b>Facility Type:</b> FS LIQUID FUEL TANK <b>Overfill Prot Type:</b> NULL <b>Creation Date:</b> 7/5/2009 1:25:28 AM <b>Expired Date:</b> <b>Manufacturer:</b> NULL <b>Source:</b> FS Liquid Fuel Tank <b>Description:</b> NULL <b>Serial No:</b> NULL <b>Ulc Standard:</b> NULL <b>Facility Location:</b> 328 MAIN ST WATERFORD N0E 1V0 ON CA <b>Model:</b> NULL <b>Quantity:</b> 1 <b>Unit of Measure:</b> EA <b>Fuel Type2:</b> NULL <b>Fuel Type3:</b> NULL <b>Piping Steel:</b> <b>Piping Galvanized:</b> <b>Tank Single Wall St:</b> <b>Piping Underground:</b> <b>Tank Underground:</b> <b>Panam Related:</b> NULL <b>Panam Venue Nm:</b> NULL					
<u>27</u>	5 of 8	SW/249.6	230.0 / -2.87	BRADSHAW BROS PETROLEUM LTD 328 MAIN ST WATERFORD N0E 1V0 ON CA	FST

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<hr/>					
ON					
<b>Instance No:</b>	11037118			<b>Manufacturer:</b>	
<b>Status:</b>				<b>Serial No:</b>	
<b>Cont Name:</b>				<b>Ulc Standard:</b>	
<b>Instance Type:</b>				<b>Quantity:</b>	
<b>Item:</b>	FS LIQUID FUEL TANK			<b>Unit of Measure:</b>	
<b>Item Description:</b>	FS Liquid Fuel Tank			<b>Fuel Type:</b>	Gasoline
<b>Tank Type:</b>	Liquid Fuel Single Wall UST			<b>Fuel Type2:</b>	NULL
<b>Install Date:</b>	4/29/1992			<b>Fuel Type3:</b>	NULL
<b>Install Year:</b>	1987			<b>Piping Steel:</b>	
<b>Years in Service:</b>				<b>Piping Galvanized:</b>	
<b>Model:</b>	NULL			<b>Tanks Single Wall St:</b>	
<b>Description:</b>				<b>Piping Underground:</b>	
<b>Capacity:</b>	18184			<b>Num Underground:</b>	
<b>Tank Material:</b>	Fiberglass (FRP)			<b>Panam Related:</b>	
<b>Corrosion Protect:</b>				<b>Panam Venue:</b>	
<b>Overfill Protect:</b>					
<b>Facility Type:</b>	FS Liquid Fuel Tank				
<b>Parent Facility Type:</b>					
<b>Facility Location:</b>					
<b>Device Installed Location:</b>	328 MAIN ST WATERFORD N0E 1V0 ON CA				
 <u>Fuel Storage Tank Details</u>					
<b>Owner Account Name:</b>	BRADSHAW BROS PETROLEUM LTD				
<hr/>					
27	6 of 8	SW/249.6	230.0 / -2.87	D BRADSHAW HOLDINGS 328 MAIN ST WATERFORD N0E 1V0 ON CA ON	FST
<b>Instance No:</b>	11450380			<b>Manufacturer:</b>	
<b>Status:</b>				<b>Serial No:</b>	
<b>Cont Name:</b>				<b>Ulc Standard:</b>	
<b>Instance Type:</b>				<b>Quantity:</b>	
<b>Item:</b>	FS LIQUID FUEL TANK			<b>Unit of Measure:</b>	
<b>Item Description:</b>	FS Liquid Fuel Tank			<b>Fuel Type:</b>	Gasoline
<b>Tank Type:</b>	Liquid Fuel Single Wall UST			<b>Fuel Type2:</b>	NULL
<b>Install Date:</b>	6/17/1996			<b>Fuel Type3:</b>	NULL
<b>Install Year:</b>	1990			<b>Piping Steel:</b>	
<b>Years in Service:</b>				<b>Piping Galvanized:</b>	
<b>Model:</b>	NULL			<b>Tanks Single Wall St:</b>	
<b>Description:</b>				<b>Piping Underground:</b>	
<b>Capacity:</b>	1000			<b>Num Underground:</b>	
<b>Tank Material:</b>	Steel			<b>Panam Related:</b>	
<b>Corrosion Protect:</b>				<b>Panam Venue:</b>	
<b>Overfill Protect:</b>					
<b>Facility Type:</b>	FS Liquid Fuel Tank				
<b>Parent Facility Type:</b>					
<b>Facility Location:</b>					
<b>Device Installed Location:</b>	328 MAIN ST WATERFORD N0E 1V0 ON CA				
 <u>Fuel Storage Tank Details</u>					
<b>Owner Account Name:</b>	D BRADSHAW HOLDINGS				
<hr/>					
27	7 of 8	SW/249.6	230.0 / -2.87	BRADSHAW BROS PETROLEUM LTD 328 MAIN ST WATERFORD N0E 1V0 ON CA ON	FST
<b>Instance No:</b>	11037134			<b>Manufacturer:</b>	
<b>Status:</b>				<b>Serial No:</b>	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Cont Name:</b> <b>Instance Type:</b> <b>Item:</b> FS LIQUID FUEL TANK <b>Item Description:</b> FS Liquid Fuel Tank <b>Tank Type:</b> Liquid Fuel Single Wall UST <b>Install Date:</b> 4/29/1992 <b>Install Year:</b> 1987 <b>Years in Service:</b> <b>Model:</b> NULL <b>Description:</b> <b>Capacity:</b> 22730 <b>Tank Material:</b> Fiberglass (FRP) <b>Corrosion Protect:</b> <b>Overfill Protect:</b> <b>Facility Type:</b> FS Liquid Fuel Tank <b>Parent Facility Type:</b> <b>Facility Location:</b> <b>Device Installed Location:</b> 328 MAIN ST WATERFORD N0E 1V0 ON CA					
<b>Ulc Standard:</b> <b>Quantity:</b> <b>Unit of Measure:</b> <b>Fuel Type:</b> Gasoline <b>Fuel Type2:</b> NULL <b>Fuel Type3:</b> NULL <b>Piping Steel:</b> <b>Piping Galvanized:</b> <b>Tanks Single Wall St:</b> <b>Piping Underground:</b> <b>Num Underground:</b> <b>Panam Related:</b> <b>Panam Venue:</b>					

#### Fuel Storage Tank Details

**Owner Account Name:** BRADSHAW BROS PETROLEUM LTD

<u>27</u>	8 of 8	SW/249.6	230.0 / -2.87	BRADSHAW BROS PETROLEUM LTD 328 MAIN ST WATERFORD N0E 1V0 ON CA ON	FST
<b>Instance No:</b> 11037148 <b>Status:</b> <b>Cont Name:</b> <b>Instance Type:</b> <b>Item:</b> FS LIQUID FUEL TANK <b>Item Description:</b> FS Liquid Fuel Tank <b>Tank Type:</b> Liquid Fuel Single Wall UST <b>Install Date:</b> 4/29/1992 <b>Install Year:</b> 1987 <b>Years in Service:</b> <b>Model:</b> NULL <b>Description:</b> <b>Capacity:</b> 36368 <b>Tank Material:</b> Fiberglass (FRP) <b>Corrosion Protect:</b> <b>Overfill Protect:</b> <b>Facility Type:</b> FS Liquid Fuel Tank <b>Parent Facility Type:</b> <b>Facility Location:</b> <b>Device Installed Location:</b> 328 MAIN ST WATERFORD N0E 1V0 ON CA					
<b>Manufacturer:</b> <b>Serial No:</b> <b>Ulc Standard:</b> <b>Quantity:</b> <b>Unit of Measure:</b> <b>Fuel Type:</b> Gasoline <b>Fuel Type2:</b> NULL <b>Fuel Type3:</b> NULL <b>Piping Steel:</b> <b>Piping Galvanized:</b> <b>Tanks Single Wall St:</b> <b>Piping Underground:</b> <b>Num Underground:</b> <b>Panam Related:</b> <b>Panam Venue:</b>					

#### Fuel Storage Tank Details

**Owner Account Name:** BRADSHAW BROS PETROLEUM LTD

<u>28</u>	1 of 2	SE/249.9	232.8 / 0.01	CORPORATION OF THE CITY OF STRAFORD 100 PINE STREET,,DELHI,ON,N4B 1N9,CA ON	PINC
<b>Incident ID:</b> <b>Incident No:</b> 1696058 <b>Incident Reported Dt:</b> 8/6/2015 <b>Type:</b> FS-Pipeline Incident <b>Status Code:</b> <b>Customer Acct Name:</b> CORPORATION OF THE CITY OF STRAFORD					
<b>Fuel Category:</b> Natural Gas <b>Health Impact:</b> <b>Environment Impact:</b> <b>Property Damage:</b> Yes <b>Service Interrupt:</b> <b>Enforce Policy:</b> Yes					

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
<b>Incident Address:</b> 100 PINE STREET,,DELHI,ON,N4B 1N9,CA <b>Tank Status:</b> Pipeline Damage Reason Est <b>Task No:</b> 5815984 <b>Spills Action Centre:</b> <b>Fuel Type:</b> <b>Fuel Occurrence Tp:</b> <b>Date of Occurrence:</b> <b>Occurrence Start Dt:</b> 2016/01/27 <b>Operation Type:</b> <b>Pipeline Type:</b> <b>Regulator Type:</b> <b>Summary:</b> 100 PINE STREET, DELHI - PIPELINE HIT - 1 1/4" <b>Reported By:</b> Jeremy Reimer - UNION GAS <b>Affiliation:</b> <b>Occurrence Desc:</b> <b>Damage Reason:</b> Excavation practices not sufficient <b>Notes:</b>					
<b>Public Relation:</b> <b>Pipeline System:</b> <b>Depth:</b> <b>Pipe Material:</b> <b>PSIG:</b> <b>Attribute Category:</b> FS-Perform P-line Inc Invest <b>Regulator Location:</b> <b>Method Details:</b> E-mail					
<u>28</u>	2 of 2	SE/249.9	232.8 / 0.01	Union Gas Limited 100 Pine Street, Delhi Norfolk ON	SPL
<b>Ref No:</b> 0372-9Z536F <b>Site No:</b> NA <b>Incident Dt:</b> 8/5/2015 <b>Year:</b> <b>Incident Cause:</b> <b>Incident Event:</b> <b>Contaminant Code:</b> 35 <b>Contaminant Name:</b> NATURAL GAS (METHANE) <b>Contaminant Limit 1:</b> <b>Contam Limit Freq 1:</b> <b>Contaminant UN No 1:</b> <b>Environment Impact:</b> <b>Nature of Impact:</b> <b>Receiving Medium:</b> <b>Receiving Env:</b> <b>MOE Response:</b> No <b>Dt MOE Arvl on Scn:</b> <b>MOE Reported Dt:</b> 8/5/2015 <b>Dt Document Closed:</b> 10/3/2015 <b>Incident Reason:</b> Operator/Human Error <b>Site Name:</b> 23 houses without natural gas due to main struck.<UNOFFICIAL> <b>Site County/District:</b> <b>Site Geo Ref Meth:</b> <b>Incident Summary:</b> Union Gas: 1 1/4" main damaged. 23 Cx's w/o gas. SAFE <b>Contaminant Qty:</b> 1 other - see incident description					
<b>Discharger Report:</b> <b>Material Group:</b> <b>Health/Env Conseq:</b> <b>Client Type:</b> <b>Sector Type:</b> Miscellaneous Industrial <b>Agency Involved:</b> <b>Nearest Watercourse:</b> <b>Site Address:</b> 100 Pine Street, Delhi <b>Site District Office:</b> <b>Site Postal Code:</b> <b>Site Region:</b> <b>Site Municipality:</b> Norfolk <b>Site Lot:</b> <b>Site Conc:</b> <b>Northing:</b> <b>Easting:</b> <b>Site Geo Ref Accu:</b> <b>Site Map Datum:</b> <b>SAC Action Class:</b> TSSA - Fuel Safety Branch - Hydrocarbon Fuel Release/Spill					
<b>Source Type:</b>					

## Unplottable Summary

Total: **21** Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
CA	DELHI TOWNSHIP	CHURCH ST./QUEEN ST./JAMES ST.	DELHI TWP. ON	
CA		Western Avenue	Norfolk ON	
CA	The Corporation of Norfolk County	Nelson St from St. George Street to Main Street, Port Dover	Norfolk ON	
CA	R.M. OF HALDIMAND-NORFOLK	QUEEN ST./CHURCH ST./EAGLE ST.	DELHI TWP. ON	
CA		Western Avenue	Norfolk ON	
CA	R.M. OF HALDIMAND-NORFOLK	CHURCH ST./MAIN ST./QUEEN ST.	DELHI TWP. ON	
CA	R.M. OF HALDIMAND-NORFOLK	QUEEN ST./CHURCH ST./EAGLE ST.	DELHI TWP. ON	
CA	DELHI TOWNSHIP	CHURCH ST./MAIN ST./QUEEN ST.	DELHI TWP. ON	
CA	R.M. OF HALDIMAND-NORFOLK	EAGLE ST.	DELHI TWP. ON	
ECA	The Corporation of Norfolk County	Queen St from William Street to Eagle Street	Norfolk ON	N4B 2M3
ECA	The Corporation of Norfolk County	Park Ave St. George Lane. to east end of Park Avenue, Delhi	Norfolk ON	N4B 2M3
ECA	The Corporation of Norfolk County	Church St from Main Street to Mill Street	Norfolk ON	N4B 2M3
ECA	The Corporation of Norfolk County	Pine St (from Queen Street to James Street) and East Street (from Pine Street to Park Avenue)	Norfolk ON	N4B 2M3
FST	GEORGE BURNETT LTD	ADDRESS NOT SPECIFIED COURTLAND N0J 1E0 ON CA ADDRESS NOT SPECIFIED COURTLAND N0J 1E0 ON CA	ON	
FST	GEORGE BURNETT LTD	ADDRESS NOT SPECIFIED COURTLAND N0J 1E0 ON CA ADDRESS NOT SPECIFIED COURTLAND N0J 1E0 ON CA	ON	
FST	GEORGE BURNETT LTD	ADDRESS NOT SPECIFIED COURTLAND N0J 1E0 ON CA ADDRESS NOT SPECIFIED COURTLAND N0J 1E0 ON CA	ON	



FSTH	GEORGE BURNETT LTD		COURTLAND ONT ON
FSTH	GEORGE BURNETT LTD		COURTLAND ON
PRT	GEORGE BURNETT LTD		COURTLAND ONT ON
SPL	NORFOLK DISPOSAL	DOWLE CREST AND CHURCH ST., DELHI	NORFOLK COUNTY ON
SPL	FARM	CHURCH STREET MOTOR VEHICLE (OPERATING FLUID)	NORFOLK TOWNSHIP ON

# Unplottable Report

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**Site:** DELHI TOWNSHIP  
CHURCH ST/QUEEN ST/JAMES ST. DELHI TWP. ON

**Database:**  
CA

**Certificate #:** 3-0318-95-  
**Application Year:** 95  
**Issue Date:** 4/3/1995  
**Approval Type:** Municipal sewage  
**Status:** Approved  
**Application Type:**  
**Client Name:**  
**Client Address:**  
**Client City:**  
**Client Postal Code:**  
**Project Description:**  
**Contaminants:**  
**Emission Control:**

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**Site:** Western Avenue Norfolk ON

**Database:**  
CA

**Certificate #:** 5606-582JAA  
**Application Year:** 02  
**Issue Date:** 3/8/02  
**Approval Type:** Municipal & Private water  
**Status:** Approved  
**Application Type:** New Certificate of Approval  
**Client Name:** The Corporation of Norfolk County  
**Client Address:** 50 Colborne Street South  
**Client City:** Simcoe  
**Client Postal Code:** N3Y 4N5  
**Project Description:** This application is for approval to install watermains on Western Avenue  
**Contaminants:**  
**Emission Control:**

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**Site:** The Corporation of Norfolk County  
Nelson St from St. George Street to Main Street, Port Dover Norfolk ON

**Database:**  
CA

**Certificate #:** 0567-7P4SLH  
**Application Year:** 2009  
**Issue Date:** 2/10/2009  
**Approval Type:** Municipal and Private Sewage Works  
**Status:** Approved  
**Application Type:**  
**Client Name:**  
**Client Address:**  
**Client City:**  
**Client Postal Code:**  
**Project Description:**  
**Contaminants:**  
**Emission Control:**

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**Site:** R.M. OF HALDIMAND-NORFOLK  
QUEEN ST./CHURCH ST./EAGLE ST. DELHI TWP. ON

**Database:**  
CA

**Certificate #:** 7-0998-93-  
**Application Year:** 93

**Issue Date:** 11/10/1993  
**Approval Type:** Municipal water  
**Status:** Approved  
**Application Type:**  
**Client Name:**  
**Client Address:**  
**Client City:**  
**Client Postal Code:**  
**Project Description:**  
**Contaminants:**  
**Emission Control:**

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**Site:** Western Avenue Norfolk ON

**Database:**  
CA

**Certificate #:** 9296-582JDF  
**Application Year:** 02  
**Issue Date:** 3/8/02  
**Approval Type:** Municipal & Private sewage  
**Status:** Approved  
**Application Type:** New Certificate of Approval  
**Client Name:** The Corporation of Norfolk County  
**Client Address:** 50 Colborne Street South  
**Client City:** Simcoe  
**Client Postal Code:** N3Y 4N5  
**Project Description:** This application is for approval to install storm and sanitary sewers on Western Avenue  
**Contaminants:**  
**Emission Control:**

---

**Site:** R.M. OF HALDIMAND-NORFOLK  
CHURCH ST./MAIN ST./QUEEN ST. DELHI TWP. ON

**Database:**  
CA

**Certificate #:** 7-0006-93-  
**Application Year:** 93  
**Issue Date:** 1/13/1993  
**Approval Type:** Municipal water  
**Status:** Approved  
**Application Type:**  
**Client Name:**  
**Client Address:**  
**Client City:**  
**Client Postal Code:**  
**Project Description:**  
**Contaminants:**  
**Emission Control:**

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**Site:** R.M. OF HALDIMAND-NORFOLK  
QUEEN ST./CHURCH ST./EAGLE ST. DELHI TWP. ON

**Database:**  
CA

**Certificate #:** 3-1286-93-  
**Application Year:** 93  
**Issue Date:** 11/10/1993  
**Approval Type:** Municipal sewage  
**Status:** Approved  
**Application Type:**  
**Client Name:**  
**Client Address:**  
**Client City:**  
**Client Postal Code:**  
**Project Description:**  
**Contaminants:**  
**Emission Control:**

**Site:** DELHI TOWNSHIP  
CHURCH ST./MAIN ST./QUEEN ST. DELHI TWP. ON

**Database:**  
CA

**Certificate #:** 3-0008-93-  
**Application Year:** 93  
**Issue Date:** 1/13/1993  
**Approval Type:** Municipal sewage  
**Status:** Approved  
**Application Type:**  
**Client Name:**  
**Client Address:**  
**Client City:**  
**Client Postal Code:**  
**Project Description:**  
**Contaminants:**  
**Emission Control:**

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**Site:** R.M. OF HALDIMAND-NORFOLK  
EAGLE ST. DELHI TWP. ON

**Database:**  
CA

**Certificate #:** 3-1897-89-  
**Application Year:** 89  
**Issue Date:** 10/30/1989  
**Approval Type:** Municipal sewage  
**Status:** Approved  
**Application Type:**  
**Client Name:**  
**Client Address:**  
**Client City:**  
**Client Postal Code:**  
**Project Description:**  
**Contaminants:**  
**Emission Control:**

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**Site:** The Corporation of Norfolk County  
Queen St from William Street to Eagle Street Norfolk ON N4B 2M3

**Database:**  
ECA

**Approval No:** 2868-9HXJ6P  
**Approval Date:** 2014-04-11  
**Status:** Approved  
**Record Type:** ECA  
**Link Source:** IDS  
**SWP Area Name:**  
**Approval Type:** ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS  
**Project Type:** MUNICIPAL AND PRIVATE SEWAGE WORKS  
**Business Name:** The Corporation of Norfolk County  
**Address:** Queen St from William Street to Eagle Street  
**Full Address:**  
**Full PDF Link:** <https://www.accessenvironment.ene.gov.on.ca/instruments/3539-9HQN9Q-14.pdf>

**MOE District:**  
**City:**  
**Longitude:**  
**Latitude:**  
**Geometry X:**  
**Geometry Y:**

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**Site:** The Corporation of Norfolk County  
Park Ave St. George Lane. to east end of Park Avenue, Delhi Norfolk ON N4B 2M3

**Database:**  
ECA

**Approval No:** 2752-A92K9Y  
**Approval Date:** 2016-04-19  
**Status:** Approved  
**Record Type:** ECA  
**Link Source:** IDS  
**SWP Area Name:**  
**Approval Type:** ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS  
**Project Type:** MUNICIPAL AND PRIVATE SEWAGE WORKS  
**Business Name:** The Corporation of Norfolk County  
**Address:** Park Ave St. George Lane. to east end of Park Avenue, Delhi  
**Full Address:**  
**Full PDF Link:** <https://www.accessenvironment.ene.gov.on.ca/instruments/0215-A8XLEJ-14.pdf>

**MOE District:**  
**City:**  
**Longitude:**  
**Latitude:**  
**Geometry X:**  
**Geometry Y:**

**Site:** The Corporation of Norfolk County  
Church St from Main Street to Mill Street Norfolk ON N4B 2M3

**Database:**  
ECA

<b>Approval No:</b>	6834-ALJLF5	<b>MOE District:</b>	
<b>Approval Date:</b>	2017-04-21	<b>City:</b>	
<b>Status:</b>	Approved	<b>Longitude:</b>	
<b>Record Type:</b>	ECA	<b>Latitude:</b>	
<b>Link Source:</b>	IDS	<b>Geometry X:</b>	
<b>SWP Area Name:</b>		<b>Geometry Y:</b>	
<b>Approval Type:</b>	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
<b>Project Type:</b>	MUNICIPAL AND PRIVATE SEWAGE WORKS		
<b>Business Name:</b>	The Corporation of Norfolk County		
<b>Address:</b>	Church St from Main Street to Mill Street		
<b>Full Address:</b>			
<b>Full PDF Link:</b>	<a href="https://www.accessenvironment.ene.gov.on.ca/instruments/5304-ALDKP4-14.pdf">https://www.accessenvironment.ene.gov.on.ca/instruments/5304-ALDKP4-14.pdf</a>		

**Site:** The Corporation of Norfolk County  
Pine St (from Queen Street to James Street) and East Street (from Pine Street to Park Avenue) Norfolk ON N4B 2M3

**Database:**  
ECA

<b>Approval No:</b>	3210-9WHRKS	<b>MOE District:</b>	
<b>Approval Date:</b>	2015-05-19	<b>City:</b>	
<b>Status:</b>	Approved	<b>Longitude:</b>	
<b>Record Type:</b>	ECA	<b>Latitude:</b>	
<b>Link Source:</b>	IDS	<b>Geometry X:</b>	
<b>SWP Area Name:</b>		<b>Geometry Y:</b>	
<b>Approval Type:</b>	ECA-MUNICIPAL AND PRIVATE SEWAGE WORKS		
<b>Project Type:</b>	MUNICIPAL AND PRIVATE SEWAGE WORKS		
<b>Business Name:</b>	The Corporation of Norfolk County		
<b>Address:</b>	Pine St (from Queen Street to James Street) and East Street (from Pine Street to Park Avenue)		
<b>Full Address:</b>			
<b>Full PDF Link:</b>	<a href="https://www.accessenvironment.ene.gov.on.ca/instruments/5563-9VSQBV-14.pdf">https://www.accessenvironment.ene.gov.on.ca/instruments/5563-9VSQBV-14.pdf</a>		

**Site:** GEORGE BURNETT LTD  
ADDRESS NOT SPECIFIED COURTLAND N0J 1E0 ON CA ADDRESS NOT SPECIFIED COURTLAND N0J 1E0 ON CA ON

**Database:**  
FST

<b>Instance No:</b>	10711721	<b>Manufacturer:</b>	NULL
<b>Status:</b>	Active	<b>Serial No:</b>	NULL
<b>Cont Name:</b>		<b>Ulc Standard:</b>	NULL
<b>Instance Type:</b>	FS Liquid Fuel Tank	<b>Quantity:</b>	1
<b>Item:</b>	FS LIQUID FUEL TANK	<b>Unit of Measure:</b>	EA
<b>Item Description:</b>	FS Liquid Fuel Tank	<b>Fuel Type:</b>	Gasoline
<b>Tank Type:</b>	Single Wall UST	<b>Fuel Type2:</b>	NULL
<b>Install Date:</b>	10/3/1990	<b>Fuel Type3:</b>	NULL
<b>Install Year:</b>	1990	<b>Piping Steel:</b>	
<b>Years in Service:</b>	20.5	<b>Piping Galvanized:</b>	
<b>Model:</b>	NULL	<b>Tanks Single Wall St:</b>	
<b>Description:</b>		<b>Piping Underground:</b>	
<b>Capacity:</b>	5400	<b>Num Underground:</b>	
<b>Tank Material:</b>	Steel	<b>Panam Related:</b>	NULL
<b>Corrosion Protect:</b>	Impressed Current	<b>Panam Venue:</b>	NULL
<b>Overfill Protect:</b>			
<b>Facility Type:</b>	FS Liquid Fuel Tank		
<b>Parent Facility Type:</b>	Fuels Safety Private Fuel Outlet - Self Serve		
<b>Facility Location:</b>	ADDRESS NOT SPECIFIED COURTLAND N0J 1E0 ON CA		
<b>Device Installed Location:</b>	ADDRESS NOT SPECIFIED COURTLAND N0J 1E0 ON CA		

#### Fuel Storage Tank Details

**Owner Account Name:** GEORGE BURNETT LTD

### Liquid Fuel Tank Details

Overfill Protection: NULL  
Owner Account Name: GEORGE BURNETT LTD

Site: GEORGE BURNETT LTD  
ADDRESS NOT SPECIFIED COURTLAND NOJ 1E0 ON CA ADDRESS NOT SPECIFIED COURTLAND NOJ 1E0 ON CA  
ON

Database:  
FST

Instance No:	10711873	Manufacturer:	NULL
Status:	Active	Serial No:	NULL
Cont Name:		Ulc Standard:	NULL
Instance Type:	FS Liquid Fuel Tank	Quantity:	1
Item:	FS LIQUID FUEL TANK	Unit of Measure:	EA
Item Description:	FS Liquid Fuel Tank	Fuel Type:	Diesel
Tank Type:	Single Wall UST	Fuel Type2:	NULL
Install Date:	10/3/1990	Fuel Type3:	NULL
Install Year:	1990	Piping Steel:	
Years in Service:	20.5	Piping Galvanized:	
Model:	NULL	Tanks Single Wall St:	
Description:		Piping Underground:	
Capacity:	4500	Num Underground:	
Tank Material:	Steel	Panam Related:	NULL
Corrosion Protect:	Impressed Current	Panam Venue:	NULL
Overfill Protect:			
Facility Type:	FS Liquid Fuel Tank		
Parent Facility Type:	Fuels Safety Private Fuel Outlet - Self Serve		
Facility Location:	ADDRESS NOT SPECIFIED COURTLAND NOJ 1E0 ON CA		
Device Installed Location:	ADDRESS NOT SPECIFIED COURTLAND NOJ 1E0 ON CA		

### Fuel Storage Tank Details

Owner Account Name: GEORGE BURNETT LTD

### Liquid Fuel Tank Details

Overfill Protection: NULL  
Owner Account Name: GEORGE BURNETT LTD

Site: GEORGE BURNETT LTD  
ADDRESS NOT SPECIFIED COURTLAND NOJ 1E0 ON CA ADDRESS NOT SPECIFIED COURTLAND NOJ 1E0 ON CA  
ON

Database:  
FST

Instance No:	10711801	Manufacturer:	NULL
Status:	Active	Serial No:	NULL
Cont Name:		Ulc Standard:	NULL
Instance Type:	FS Liquid Fuel Tank	Quantity:	1
Item:	FS LIQUID FUEL TANK	Unit of Measure:	EA
Item Description:	FS Liquid Fuel Tank	Fuel Type:	Diesel
Tank Type:	Single Wall UST	Fuel Type2:	NULL
Install Date:	10/3/1990	Fuel Type3:	NULL
Install Year:	1990	Piping Steel:	
Years in Service:	20.5	Piping Galvanized:	
Model:	NULL	Tanks Single Wall St:	
Description:		Piping Underground:	
Capacity:	4500	Num Underground:	
Tank Material:	Steel	Panam Related:	NULL
Corrosion Protect:	Impressed Current	Panam Venue:	NULL
Overfill Protect:			
Facility Type:	FS Liquid Fuel Tank		
Parent Facility Type:	Fuels Safety Private Fuel Outlet - Self Serve		
Facility Location:	ADDRESS NOT SPECIFIED COURTLAND NOJ 1E0 ON CA		
Device Installed Location:	ADDRESS NOT SPECIFIED COURTLAND NOJ 1E0 ON CA		

### Fuel Storage Tank Details

Owner Account Name: GEORGE BURNETT LTD

Liquid Fuel Tank Details

Overfill Protection: NULL  
Owner Account Name: GEORGE BURNETT LTD

Site: GEORGE BURNETT LTD  
COURTLAND ONT ON

Database:  
FSTH

License Issue Date: 10/22/1990  
Tank Status: Licensed  
Tank Status As Of: August 2007  
Operation Type: Private Fuel Outlet  
Facility Type: Gasoline Station - Self Serve

--Details--

Status: Active  
Year of Installation: 1990  
Corrosion Protection:  
Capacity: 5400  
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Active  
Year of Installation: 1990  
Corrosion Protection:  
Capacity: 4500  
Tank Fuel Type: Liquid Fuel Single Wall UST - Diesel

Status: Active  
Year of Installation: 1990  
Corrosion Protection:  
Capacity: 4500  
Tank Fuel Type: Liquid Fuel Single Wall UST - Diesel

Site: GEORGE BURNETT LTD  
COURTLAND ON

Database:  
FSTH

License Issue Date: 10/22/1990  
Tank Status: Licensed  
Tank Status As Of: December 2008  
Operation Type: Private Fuel Outlet  
Facility Type: Gasoline Station - Self Serve

--Details--

Status: Active  
Year of Installation: 1990  
Corrosion Protection:  
Capacity: 5400  
Tank Fuel Type: Liquid Fuel Single Wall UST - Gasoline

Status: Active  
Year of Installation: 1990  
Corrosion Protection:  
Capacity: 4500  
Tank Fuel Type: Liquid Fuel Single Wall UST - Diesel

Status: Active  
Year of Installation: 1990  
Corrosion Protection:  
Capacity: 4500  
Tank Fuel Type: Liquid Fuel Single Wall UST - Diesel



**Site:** GEORGE BURNETT LTD  
COURTLAND ONT ON

**Database:**  
PRT

**Location ID:** 3633  
**Type:** private  
**Expiry Date:**  
**Capacity (L):** 14400.00  
**Licence #:** 0001033713

**Site:** NORFOLK DISPOSAL  
DOWLE CREST AND CHURCH ST., DELHI NORFOLK COUNTY ON

**Database:**  
SPL

<b>Ref No:</b>	233161	<b>Discharger Report:</b>	
<b>Site No:</b>		<b>Material Group:</b>	
<b>Incident Dt:</b>	7/24/2002	<b>Health/Env Conseq:</b>	
<b>Year:</b>		<b>Client Type:</b>	
<b>Incident Cause:</b>	PIPE/HOSE LEAK	<b>Sector Type:</b>	
<b>Incident Event:</b>		<b>Agency Involved:</b>	
<b>Contaminant Code:</b>		<b>Nearest Watercourse:</b>	
<b>Contaminant Name:</b>		<b>Site Address:</b>	
<b>Contaminant Limit 1:</b>		<b>Site District Office:</b>	
<b>Contam Limit Freq 1:</b>		<b>Site Postal Code:</b>	
<b>Contaminant UN No 1:</b>		<b>Site Region:</b>	
<b>Environment Impact:</b>	POSSIBLE	<b>Site Municipality:</b>	12404
<b>Nature of Impact:</b>	Water course or lake	<b>Site Lot:</b>	
<b>Receiving Medium:</b>	LAND, WATER	<b>Site Conc:</b>	
<b>Receiving Env:</b>		<b>Northing:</b>	
<b>MOE Response:</b>		<b>Easting:</b>	
<b>Dt MOE Arvl on Scn:</b>		<b>Site Geo Ref Accu:</b>	
<b>MOE Reported Dt:</b>	7/24/2002	<b>Site Map Datum:</b>	
<b>Dt Document Closed:</b>		<b>SAC Action Class:</b>	
<b>Incident Reason:</b>	EQUIPMENT FAILURE	<b>Source Type:</b>	
<b>Site Name:</b>			
<b>Site County/District:</b>			
<b>Site Geo Ref Meth:</b>			
<b>Incident Summary:</b>	NORFOLK: TRUCK BLEW LINE- 40 LITERS OF HYDRAULIC OIL ONTO ROAD.CLEANING.		
<b>Contaminant Qty:</b>			

**Site:** FARM  
CHURCH STREET MOTOR VEHICLE (OPERATING FLUID) NORFOLK TOWNSHIP ON

**Database:**  
SPL

<b>Ref No:</b>	85802	<b>Discharger Report:</b>	
<b>Site No:</b>		<b>Material Group:</b>	
<b>Incident Dt:</b>	5/19/1993	<b>Health/Env Conseq:</b>	
<b>Year:</b>		<b>Client Type:</b>	
<b>Incident Cause:</b>	UNKNOWN	<b>Sector Type:</b>	
<b>Incident Event:</b>		<b>Agency Involved:</b>	
<b>Contaminant Code:</b>		<b>Nearest Watercourse:</b>	
<b>Contaminant Name:</b>		<b>Site Address:</b>	
<b>Contaminant Limit 1:</b>		<b>Site District Office:</b>	
<b>Contam Limit Freq 1:</b>		<b>Site Postal Code:</b>	
<b>Contaminant UN No 1:</b>		<b>Site Region:</b>	
<b>Environment Impact:</b>	NOT ANTICIPATED	<b>Site Municipality:</b>	12602
<b>Nature of Impact:</b>		<b>Site Lot:</b>	
<b>Receiving Medium:</b>	LAND	<b>Site Conc:</b>	
<b>Receiving Env:</b>		<b>Northing:</b>	
<b>MOE Response:</b>		<b>Easting:</b>	
<b>Dt MOE Arvl on Scn:</b>		<b>Site Geo Ref Accu:</b>	
<b>MOE Reported Dt:</b>	5/19/1993	<b>Site Map Datum:</b>	
<b>Dt Document Closed:</b>		<b>SAC Action Class:</b>	
<b>Incident Reason:</b>	UNKNOWN	<b>Source Type:</b>	
<b>Site Name:</b>			
<b>Site County/District:</b>			
<b>Site Geo Ref Meth:</b>			
<b>Incident Summary:</b>	FARM-125 KG AMMONIUM NITRATE & POTASH TO ROAD,CONTAINED,CLEANED-UP.		
<b>Contaminant Qty:</b>			

## Appendix: Database Descriptions

*Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. **Note:** Databases denoted with " \* " indicates that the database will no longer be updated. See the individual database description for more information.*

### Abandoned Aggregate Inventory:

Provincial **AAGR**

The MAAP Program maintains a database of abandoned pits and quarries. Please note that the database is only referenced by lot and concession and city/town location. The database provides information regarding the location, type, size, land use, status and general comments.\*

**Government Publication Date: Sept 2002\***

### Aggregate Inventory:

Provincial **AGR**

The Ontario Ministry of Natural Resources maintains a database of all active pits and quarries. The database provides information regarding the registered owner/operator, location name, operation type, approval type, and maximum annual tonnage.

**Government Publication Date: Up to Sep 2020**

### Abandoned Mine Information System:

Provincial **AMIS**

The Abandoned Mines Information System contains data on known abandoned and inactive mines located on both Crown and privately held lands. The information was provided by the Ministry of Northern Development and Mines (MNDM), with the following disclaimer: "the database provided has been compiled from various sources, and the Ministry of Northern Development and Mines makes no representation and takes no responsibility that such information is accurate, current or complete". Reported information includes official mine name, status, background information, mine start/end date, primary commodity, mine features, hazards and remediation.

**Government Publication Date: 1800-Oct 2018**

### Anderson's Waste Disposal Sites:

Private **ANDR**

The information provided in this database was collected by examining various historical documents which aimed to characterize the likely position of former waste disposal sites from 1860 to present. The research initiative behind the creation of this database was to identify those sites that are missing from the Ontario MOE Waste Disposal Site Inventory, as well as to provide revisions and corrections to the positions and descriptions of sites currently listed in the MOE inventory. In addition to historic waste disposal facilities, the database also identifies certain auto wreckers and scrap yards that have been extrapolated from documentary sources. Please note that the data is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

**Government Publication Date: 1860s-Present**

### Aboveground Storage Tanks:

Provincial **AST**

Historical listing of aboveground storage tanks made available by the Department of Natural Resources and Forestry. Includes tanks used to hold water or petroleum. This dataset has been retired as of September 25, 2014 and will no longer be updated.

**Government Publication Date: May 31, 2014**

### Automobile Wrecking & Supplies:

Private **AUWR**

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

**Government Publication Date: 1999-Dec 31, 2020**

### Borehole:

Provincial **BORE**

A borehole is the generalized term for any narrow shaft drilled in the ground, either vertically or horizontally. The information here includes geotechnical investigations or environmental site assessments, mineral exploration, or as a pilot hole for installing piers or underground utilities. Information is from many sources such as the Ministry of Transportation (MTO) boreholes from engineering reports and projects from the 1950 to 1990's in Southern Ontario. Boreholes from the Ontario Geological Survey (OGS) including The Urban Geology Analysis Information System (UGAIS) and the York Peel Durham Toronto (YPDT) database of the Conservation Authority Moraine Coalition. This database will include fields such as location, stratigraphy, depth, elevation, year drilled, etc. For all water well data or oil and gas well data for Ontario please refer to WWIS and OOGW.

**Government Publication Date: 1875-Jul 2018**

**Certificates of Approval:**

Provincial CA

This database contains the following types of approvals: Air & Noise, Industrial Sewage, Municipal & Private Sewage, Waste Management Systems and Renewable Energy Approvals. The MOE in Ontario states that any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste, must have a Certificate of Approval before it can operate lawfully. Fields include approval number, business name, address, approval date, approval type and status. This database will no longer be updated, as CoFA's have been replaced by either Environmental Activity and Sector Registry (EASR) or Environmental Compliance Approval (ECA). Please refer to those individual databases for any information after Oct.31, 2011.

**Government Publication Date: 1985-Oct 30, 2011\***

**Dry Cleaning Facilities:**

Federal CDRY

List of dry cleaning facilities made available by Environment and Climate Change Canada. Environment and Climate Change Canada's Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations (SOR/2003-79) are intended to reduce releases of tetrachloroethylene to the environment from dry cleaning facilities.

**Government Publication Date: Jan 2004-Dec 2018**

**Commercial Fuel Oil Tanks:**

Provincial CFOT

Locations of commercial underground fuel oil tanks. This is not a comprehensive or complete inventory of commercial fuel tanks in the province; this listing is a copy of records of registered commercial underground fuel oil tanks obtained under Access to Public Information.

Note that the following types of tanks do not require registration: waste oil tanks in apartments, office buildings, residences, etc.; aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

**Government Publication Date: Jul 31, 2020**

**Chemical Manufacturers and Distributors:**

Private CHEM

This database includes information from both a one time study conducted in 1992 and private source and is a listing of facilities that manufacture or distribute chemicals. The production of these chemical substances may involve one or more chemical reactions and/or chemical separation processes (i.e. fractionation, solvent extraction, crystallization, etc.).

**Government Publication Date: 1999-Jan 31, 2020**

**Chemical Register:**

Private CHM

This database includes a listing of locations of facilities within the Province or Territory that either manufacture and/or distributes chemicals.

**Government Publication Date: 1999-Dec 31, 2020**

**Compressed Natural Gas Stations:**

Private CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

**Government Publication Date: Dec 2012 -Dec 2020**

**Inventory of Coal Gasification Plants and Coal Tar Sites:**

Provincial COAL

This inventory includes both the "Inventory of Coal Gasification Plant Waste Sites in Ontario-April 1987" and the Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario-November 1988) collected by the MOE. It identifies industrial sites that produced and continue to produce or use coal tar and other related tars. Detailed information is available and includes: facility type, size, land use, information on adjoining properties, soil condition, site operators/occupants, site description, potential environmental impacts and historic maps available. This was a one-time inventory.\*

**Government Publication Date: Apr 1987 and Nov 1988\***

**Compliance and Convictions:**

Provincial CONV

This database summarizes the fines and convictions handed down by the Ontario courts beginning in 1989. Companies and individuals named here have been found guilty of environmental offenses in Ontario courts of law.

**Government Publication Date: 1989-Nov 2020**

**Certificates of Property Use:**

Provincial CPU

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all CPU's on the registry such as (EPA s. 168.6) - Certificate of Property Use.

**Government Publication Date: 1994-Feb 28, 2021**

**Drill Hole Database:**Provincial **DRL**

The Ontario Drill Hole Database contains information on more than 113,000 percussion, overburden, sonic and diamond drill holes from assessment files on record with the department of Mines and Minerals. Please note that limited data is available for southern Ontario, as it was the last area to be completed. The database was created when surveys submitted to the Ministry were converted in the Assessment File Research Image Database (AFRI) project. However, the degree of accuracy (coordinates) as to the exact location of drill holes is dependent upon the source document submitted to the MNDM. Levels of accuracy used to locate holes are: centering on the mining claim; a sketch of the mining claim; a 1:50,000 map; a detailed company map; or from submitted a "Report of Work".

**Government Publication Date: 1886 - Sep 2020**

**Delisted Fuel Tanks:**Provincial **DTNK**

List of fuel storage tank sites that were once found in - and have since been removed from - the list of fuel storage tanks made available by the regulatory agency under Access to Public Information.

**Government Publication Date: Jul 31, 2020**

**Environmental Activity and Sector Registry:**Provincial **EASR**

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. The EASR allows businesses to register certain activities with the ministry, rather than apply for an approval. The registry is available for common systems and processes, to which preset rules of operation can be applied. The EASR is currently available for: heating systems, standby power systems and automotive refinishing. Businesses whose activities aren't subject to the EASR may apply for an ECA (Environmental Compliance Approval). Please see our ECA database.

**Government Publication Date: Oct 2011-Feb 28, 2021**

**Environmental Registry:**Provincial **EBR**

The Environmental Registry lists proposals, decisions and exceptions regarding policies, Acts, instruments, or regulations that could significantly affect the environment. Through the Registry, thirteen provincial ministries notify the public of upcoming proposals and invite their comments. For example, if a local business is requesting a permit, license, or certificate of approval to release substances into the air or water; these are notified on the registry. Data includes: Approval for discharge into the natural environment other than water (i.e. Air) - EPA s. 9, Approval for sewage works - OWRA s. 53(1), and EPA s. 27 - Approval for a waste disposal site. For information regarding Permit to Take Water (PTTW), Certificate of Property Use (CPU) and (ORD) Orders please refer to those individual databases.

**Government Publication Date: 1994-Feb 28, 2021**

**Environmental Compliance Approval:**Provincial **ECA**

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. In the past, a business had to apply for multiple approvals (known as certificates of approval) for individual processes and pieces of equipment. Today, a business either registers itself, or applies for a single approval, depending on the types of activities it conducts. Businesses whose activities aren't subject to the EASR may apply for an ECA. A single ECA addresses all of a business's emissions, discharges and wastes. Separate approvals for air, noise and waste are no longer required. This database will also include Renewable Energy Approvals. For certificates of approval prior to Nov 1st, 2011, please refer to the CA database. For all Waste Disposal Sites please refer to the WDS database.

**Government Publication Date: Oct 2011- Feb 28, 2021**

**Environmental Effects Monitoring:**Federal **EEM**

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

**Government Publication Date: 1992-2007\***

**ERIS Historical Searches:**Private **EHS**

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

**Government Publication Date: 1999-Jan 31, 2021**

**Environmental Issues Inventory System:**Federal **EIIS**

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

**Government Publication Date: 1992-2001\***



**Emergency Management Historical Event:**

Provincial

EMHE

List of locations of historical occurrences of emergency events, including those assigned to the Ministry of Natural Resources by Order-In-Council (OIC) under the Emergency Management and Civil Protection Act, as well as events where MNR provided requested emergency response assistance. Many of these events will have involved community evacuations, significant structural loss, and/or involvement of MNR emergency response staff. These events fall into one of ten (10) type categories: Dam Failure; Drought / Low Water; Erosion; Flood; Forest Fire; Soil and Bedrock Instability; Petroleum Resource Center Event, EMO Requested Assistance, Continuity of Operations Event, Other Requested Assistance. EMHE record details are reproduced by ERIS under License with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2017.

**Government Publication Date: Dec 31, 2016**

**Environmental Penalty Annual Report:**

Provincial

EPAR

This database contains data from Ontario's annual environmental penalty report published by the Ministry of the Environment and Climate Change. These reports provide information on environmental penalties for land or water violations issued to companies in one of the nine industrial sectors covered by the Municipal Industrial Strategy for Abatement (MISA) regulations.

**Government Publication Date: Jan 1, 2011 - Dec 31, 2019**

**List of Expired Fuels Safety Facilities:**

Provincial

EXP

List of facilities and tanks for which there was once a fuel registration. This is not a comprehensive or complete inventory of expired tanks/tank facilities in the province; this listing is a copy of previously registered tanks and facilities obtained under Access to Public Information. Includes private fuel outlets, bulk plants, fuel oil tanks, gasoline stations, marinas, propane filling stations, liquid fuel tanks, piping systems, etc; includes tanks which have been removed from the ground.

Notes: registration was not required for private fuel underground/aboveground storage tanks prior to January 1990, nor for furnace oil tanks prior to May 1, 2002; registration is not required for waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

**Government Publication Date: Jul 31, 2020**

**Federal Convictions:**

Federal

FCON

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

**Government Publication Date: 1988-Jun 2007\***

**Contaminated Sites on Federal Land:**

Federal

FCS

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government. Includes fire training sites and sites at which Per- and Polyfluoroalkyl Substances (PFAS) are a concern.

**Government Publication Date: Jun 2000-Jan 2021**

**Fisheries & Oceans Fuel Tanks:**

Federal

FOFT

Fisheries & Oceans Canada maintains an inventory of aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

**Government Publication Date: 1964-Sep 2019**

**Federal Identification Registry for Storage Tank Systems (FIRSTS):**

Federal

FRST

A list of federally regulated Storage tanks from the Federal Identification Registry for Storage Tank Systems (FIRSTS). FIRSTS is Environment and Climate Change Canada's database of storage tank systems subject to the Storage Tank for Petroleum Products and Allied Petroleum Products Regulations. The main objective of the Regulations is to prevent soil and groundwater contamination from storage tank systems located on federal and aboriginal lands. Storage tank systems that do not have a valid identification number displayed in a readily visible location on or near the storage tank system may be refused product delivery.

**Government Publication Date: May 31, 2018**

**Fuel Storage Tank:**

Provincial

FST

List of registered private and retail fuel storage tanks. This is not a comprehensive or complete inventory of private and retail fuel storage tanks in the province; this listing is a copy of registered private and retail fuel storage tanks, obtained under Access to Public Information.

Notes: registration was not required for private fuel underground/aboveground storage tanks prior to January 1990, nor for furnace oil tanks prior to May 1, 2002; registration is not required for waste oil tanks in apartments, office buildings, residences, etc., or aboveground gas or diesel tanks. Records are not verified for accuracy or completeness.

**Government Publication Date: Jul 31, 2020**

**Fuel Storage Tank - Historic:**Provincial **FSTH**

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks. Public records of private fuel storage tanks are only available since the registration became effective in September 1989. This information is now collected by the Technical Standards and Safety Authority.

**Government Publication Date: Pre-Jan 2010\***

**Ontario Regulation 347 Waste Generators Summary:**Provincial **GEN**

Regulation 347 of the Ontario EPA defines a waste generation site as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number, company name and address of registered generators including the types of hazardous wastes generated. It includes data on waste generating facilities such as: drycleaners, waste treatment and disposal facilities, machine shops, electric power distribution etc. This information is a summary of all years from 1986 including the most currently available data. Some records may contain, within the company name, the phrase "See & Use..." followed by a series of letters and numbers. This occurs when one company is amalgamated with or taken over by another registered company. The number listed as "See & Use", refers to the new ownership and the other identification number refers to the original ownership. This phrase serves as a link between the 2 companies until operations have been fully transferred.

**Government Publication Date: 1986-Jan 31, 2021**

**Greenhouse Gas Emissions from Large Facilities:**Federal **GHG**

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO<sub>2</sub> eq).

**Government Publication Date: 2013-Dec 2018**

**TSSA Historic Incidents:**Provincial **HINC**

List of historic incidences of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen recorded by the TSSA in their previous incident tracking system. The TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, the TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. Records are not verified for accuracy or completeness. This is not a comprehensive or complete inventory of historical fuel spills and leaks in the province. This listing is a copy of the data captured at one moment in time and is hence limited by the record date provided here.

**Government Publication Date: 2006-June 2009\***

**Indian & Northern Affairs Fuel Tanks:**Federal **IAFT**

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

**Government Publication Date: 1950-Aug 2003\***

**Fuel Oil Spills and Leaks:**Provincial **INC**

Listing of spills and leaks of diesel, fuel oil, gasoline, natural gas, propane, and hydrogen reported to the Spills Action Centre (SAC). This is not a comprehensive or complete inventory of fuel-related leaks, spills, and incidents in the province; this listing is a copy of incidents reported to the SAC, obtained under Access to Public Information. Includes incidents from fuel-related hazards such as spills, fires, and explosions. Records are not verified for accuracy or completeness.

**Government Publication Date: Jul 31, 2020**

**Landfill Inventory Management Ontario:**Provincial **LIMO**

The Landfill Inventory Management Ontario (LIMO) database is updated every year, as the Ministry of the Environment, Conservation and Parks compiles new and updated information. Includes small and large landfills currently operating as well as those which are closed and historic. Operators of larger landfills provide landfill information for the previous operating year to the ministry for LIMO including: estimated amount of total waste received, landfill capacity, estimated total remaining landfill capacity, fill rates, engineering designs, reporting and monitoring details, size of location, service area, approved waste types, leachate of site treatment, contaminant attenuation zone and more. The small landfills include information such as site owner, site location and certificate of approval # and status.

**Government Publication Date: Feb 28, 2019**

**Canadian Mine Locations:**Private **MINE**

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

**Government Publication Date: 1998-2009\***

**Mineral Occurrences:**Provincial **MNR**

In the early 70's, the Ministry of Northern Development and Mines created an inventory of approximately 19,000 mineral occurrences in Ontario, in regard to metallic and industrial minerals, as well as some information on building stones and aggregate deposits. Please note that the "Horizontal Positional Accuracy" is approximately +/- 200 m. Many reference elements for each record were derived from field sketches using pace or chain/tape measurements against claim posts or topographic features in the area. The primary limiting factor for the level of positional accuracy is the scale of the source material. The testing of horizontal accuracy of the source materials was accomplished by comparing the plan metric (X and Y) coordinates of that point with the coordinates of the same point as defined from a source of higher accuracy.

**Government Publication Date: 1846-Dec 2020**

**National Analysis of Trends in Emergencies System (NATES):**Federal **NATE**

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

**Government Publication Date: 1974-1994\***

**Non-Compliance Reports:**Provincial **NCPL**

The Ministry of the Environment provides information about non-compliant discharges of contaminants to air and water that exceed legal allowable limits, from regulated industrial and municipal facilities. A reported non-compliance failure may be in regard to a Control Order, Certificate of Approval, Sectoral Regulation or specific regulation/act.

**Government Publication Date: Dec 31, 2018**

**National Defense & Canadian Forces Fuel Tanks:**Federal **NDFT**

The Department of National Defense and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

**Government Publication Date: Up to May 2001\***

**National Defense & Canadian Forces Spills:**Federal **NDSP**

The Department of National Defense and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

**Government Publication Date: Mar 1999-Apr 2018**

**National Defence & Canadian Forces Waste Disposal Sites:**Federal **NDWD**

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

**Government Publication Date: 2001-Apr 2007\***

**National Energy Board Pipeline Incidents:**Federal **NEBI**

Locations of pipeline incidents from 2008 to present, made available by the Canada Energy Regulator (CER) - previously the National Energy Board (NEB). Includes incidents reported under the Onshore Pipeline Regulations and the Processing Plant Regulations related to pipelines under federal jurisdiction, does not include incident data related to pipelines under provincial or territorial jurisdiction.

**Government Publication Date: 2008-Dec 31, 2020**

**National Energy Board Wells:**Federal **NEBP**

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

**Government Publication Date: 1920-Feb 2003\***



**National Environmental Emergencies System (NEES):**

Federal

NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets 'or Trends' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

**Government Publication Date: 1974-2003\*****National PCB Inventory:**

Federal

NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

**Government Publication Date: 1988-2008\*****National Pollutant Release Inventory:**

Federal

NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

**Government Publication Date: 1993-May 2017****Oil and Gas Wells:**

Private

OGWE

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at [www.nickles.com](http://www.nickles.com).

**Government Publication Date: 1988-Feb 28, 2021****Ontario Oil and Gas Wells:**

Provincial

OOGW

In 1998, the MNR handed over to the Ontario Oil, Gas and Salt Resources Corporation, the responsibility of maintaining a database of oil and gas wells drilled in Ontario. The OGSR Library has over 20,000+ wells in their database. Information available for all wells in the ERIS database include well owner/operator, location, permit issue date, and well cap date, license No., status, depth and the primary target (rock unit) of the well being drilled. All geology/stratigraphy table information, plus all water table information is also provide for each well record.

**Government Publication Date: 1800-Jun 2020****Inventory of PCB Storage Sites:**

Provincial

OPCB

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of PCB storage sites within the province. Ontario Regulation 11/82 (Waste Management - PCB) and Regulation 347 (Generator Waste Management) under the Ontario EPA requires the registration of inactive PCB storage equipment and/or disposal sites of PCB waste with the Ontario Ministry of Environment. This database contains information on: 1) waste quantities; 2) major and minor sites storing liquid or solid waste; and 3) a waste storage inventory.

**Government Publication Date: 1987-Oct 2004; 2012-Dec 2013****Orders:**

Provincial

ORD

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all Orders on the registry such as (EPA s. 17) - Order for remedial work, (EPA s. 18) - Order for preventative measures, (EPA s. 43) - Order for removal of waste and restoration of site, (EPA s. 44) - Order for conformity with Act for waste disposal sites, (EPA s. 136) - Order for performance of environmental measures.

**Government Publication Date: 1994-Feb 28, 2021****Canadian Pulp and Paper:**

Private

PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

**Government Publication Date: 1999, 2002, 2004, 2005, 2009-2014****Parks Canada Fuel Storage Tanks:**

Federal

PCFT

Canadian Heritage maintains an inventory of known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

**Government Publication Date: 1920-Jan 2005\***

**Pesticide Register:**

Provincial PES

The Ontario Ministry of the Environment and Climate Change maintains a database of licensed operators and vendors of registered pesticides.

**Government Publication Date:** Oct 2011-Feb 28, 2021

**Pipeline Incidents:**

Provincial PINC

List of pipeline incidents (strikes, leaks, spills). This is not a comprehensive or complete inventory of pipeline incidents in the province; this listing is an historical copy of records previously obtained under Access to Public Information. Records are not verified for accuracy or completeness.

**Government Publication Date:** Oct 31, 2020

**Private and Retail Fuel Storage Tanks:**

Provincial PRT

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks and licensed retail fuel outlets. This database includes an inventory of locations that have gasoline, oil, waste oil, natural gas and/or propane storage tanks on their property. The MCCR no longer collects this information. This information is now collected by the Technical Standards and Safety Authority (TSSA).

**Government Publication Date:** 1989-1996\*

**Permit to Take Water:**

Provincial PTTW

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all PTTW's on the registry such as OWRA s. 34 - Permit to take water.

**Government Publication Date:** 1994-Feb 28, 2021

**Ontario Regulation 347 Waste Receivers Summary:**

Provincial REC

Part V of the Ontario Environmental Protection Act ("EPA") regulates the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. Regulation 347 of the Ontario EPA defines a waste receiving site as any site or facility to which waste is transferred by a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address, and includes receivers of waste such as: landfills, incinerators, transfer stations, PCB storage sites, sludge farms and water pollution control plants. This information is a summary of all years from 1986 including the most currently available data.

**Government Publication Date:** 1986-2016

**Record of Site Condition:**

Provincial RSC

The Record of Site Condition (RSC) is part of the Ministry of the Environment's Brownfields Environmental Site Registry. Protection from environmental cleanup orders for property owners is contingent upon documentation known as a record of site condition (RSC) being filed in the Environmental Site Registry. In order to file an RSC, the property must have been properly assessed and shown to meet the soil, sediment and groundwater standards appropriate for the use (such as residential) proposed to take place on the property. The Record of Site Condition Regulation (O. Reg. 153/04) details requirements related to site assessment and clean up.

RSCs filed after July 1, 2011 will also be included as part of the new (O.Reg. 511/09).

**Government Publication Date:** 1997-Sept 2001, Oct 2004-Jan 2021

**Retail Fuel Storage Tanks:**

Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

**Government Publication Date:** 1999-Dec 31, 2020

**Scott's Manufacturing Directory:**

Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

**Government Publication Date:** 1992-Mar 2011\*

**Ontario Spills:**

Provincial SPL

List of spills and incidents made available the Ministry of the Environment, Conservation and Parks. This database identifies information such as location (approximate), type and quantity of contaminant, date of spill, environmental impact, cause, nature of impact, etc. Information from 1988-2002 was part of the ORIS (Occurrence Reporting Information System). The SAC (Spills Action Centre) handles all spills reported in Ontario. Regulations for spills in Ontario are part of the MOE's Environmental Protection Act, Part X.

**Government Publication Date:** 1988-Mar 2020; Jul 2020 - Aug 2020

**Wastewater Discharger Registration Database:**

Provincial

SRDS

Information under this heading is combination of the following 2 programs. The Municipal/Industrial Strategy for Abatement (MISA) division of the Ontario Ministry of Environment maintained a database of all direct dischargers of toxic pollutants within nine sectors including: Electric Power Generation; Mining; Petroleum Refining; Organic Chemicals; Inorganic Chemicals; Pulp & Paper; Metal Casting; Iron & Steel; and Quarries. All sampling information is now collected and stored within the Sample Result Data Store (SRDS).

**Government Publication Date: 1990-Dec 31, 2017**

**Anderson's Storage Tanks:**

Private

TANK

The information provided in this database was collected by examining various historical documents, which identified the location of former storage tanks, containing substances such as fuel, water, gas, oil, and other various types of miscellaneous products. Information is available in regard to business operating at tank site, tank location, permit year, permit & installation type, no. of tanks installed & configuration and tank capacity. Data contained within this database pertains only to the city of Toronto and is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

**Government Publication Date: 1915-1953\***

**Transport Canada Fuel Storage Tanks:**

Federal

TCFT

List of fuel storage tanks currently or previously owned or operated by Transport Canada. This inventory also includes tanks on The Pickering Lands, which refers to 7,530 hectares (18,600 acres) of land in Pickering, Markham, and Uxbridge owned by the Government of Canada since 1972; properties on this land has been leased by the government since 1975, and falls under the Site Management Policy of Transport Canada, but is administered by Public Works and Government Services Canada. This inventory provides information on the site name, location, tank age, capacity and fuel type.

**Government Publication Date: 1970 - Dec 2020**

**Variances for Abandonment of Underground Storage Tanks:**

Provincial

VAR

Listing of variances granted for storage tank abandonment. This is not a comprehensive or complete inventory of tank abandonment variances in the province; this listing is a copy of tank abandonment variance records previously obtained under Access to Public Information. In Ontario, registered underground storage tanks must be removed within two years of disuse; if removal of a tank is not feasible, an application may be sought for a variance from this code requirement.

Records are not verified for accuracy or completeness.

**Government Publication Date: Jul 31, 2020**

**Waste Disposal Sites - MOE CA Inventory:**

Provincial

WDS

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of known open (active or inactive) and closed disposal sites in the Province of Ontario. Active sites maintain a Certificate of Approval, are approved to receive and are receiving waste. Inactive sites maintain Certificate(s) of Approval but are not receiving waste. Closed sites are not receiving waste. The data contained within this database was compiled from the MOE's Certificate of Approval database. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number. All new Environmental Compliance Approvals handed out after Oct 31, 2011 for Waste Disposal Sites will still be found in this database.

**Government Publication Date: Oct 2011-Feb 28, 2021**

**Waste Disposal Sites - MOE 1991 Historical Approval Inventory:**

Provincial

WDSH

In June 1991, the Ontario Ministry of Environment, Waste Management Branch, published the "June 1991 Waste Disposal Site Inventory", of all known active and closed waste disposal sites as of October 30st, 1990. For each "active" site as of October 31st 1990, information is provided on site location, site/CA number, waste type, site status and site classification. For each "closed" site as of October 31st 1990, information is provided on site location, site/CA number, closure date and site classification. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number.

**Government Publication Date: Up to Oct 1990\***

**Water Well Information System:**

Provincial

WWIS

This database describes locations and characteristics of water wells found within Ontario in accordance with Regulation 903. It includes such information as coordinates, construction date, well depth, primary and secondary use, pump rate, static water level, well status, etc. Also included are detailed stratigraphy information, approximate depth to bedrock and the approximate depth to the water table.

**Government Publication Date: Apr 30, 2020**

# Definitions

**Database Descriptions:** This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

**Detail Report:** This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

**Distance:** The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

**Direction:** The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

**Elevation:** The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

**Executive Summary:** This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

**Map Key:** The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

**Unplottables:** These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.



# HISTORICAL AERIALS

**Project Property:** Phase One ESA  
161 Wellington Avenue  
Delhi ON N4B 1S4

**Project No:**

**Requested By:** Englobe Corp.


**Order No:** 21041200420

**Date Completed:** April 13, 2021

**Environmental Risk Information Services**

*A division of Glacier Media Inc.*

1.866.517.5204 | [info@erisinfo.com](mailto:info@erisinfo.com) | [erisinfo.com](http://erisinfo.com)



<b>Decade</b>	<b>Year</b>	<b>Image Scale</b>	<b>Source</b>
1920	Not Available		
1930	Not Available		
1940	1946	15000	NAPL
1950	Not Available		
1970	1976	50000	NAPL
1980	1989	50000	NAPL
1990	Not Available		

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## **Environmental Risk Information Services**

*A division of Glacier Media Inc.*

1.866.517.5204 | [info@erisinfo.com](mailto:info@erisinfo.com) | [erisinfo.com](http://erisinfo.com)







0 0.125 0.25 0.5  
Kilometers

Order Number: 21041200420

Year: 1946  
Source: NAPL  
Map Scale: 1: 10000  
Comments:





0 0.125 0.25 0.5  
Kilometers

Order Number: 21041200420

Year: 1976  
Source: NAPL  
Map Scale: 1: 10000  
Comments:







0 0.125 0.25 0.5  
Kilometers

Order Number: 21041200420

Year: 1989  
Source: NAPL  
Map Scale: 1: 10000  
Comments:



**CHAIN OF TITLE REPORT**

**Project #:** 21041200420  
**Address:** 161 Wellington Avenue, Delhi  
**Legal** Part Lot 18 Block 37 Plan 189  
**Description:** as in NR188498  
  
**PIN #:** 50160-0107 (LT)

**Searched at:** Cayuga  
**LRO #:** 18

Pi

INSTR #	DOC. TYPE	REG. DATE	PARTY FROM
	Patent	16 02 1828	Crown
2533	Deed	10 02 1837	Daniel McCall
6579	Deed	04 07 1851	Frederick Sovereign
7619	Deed	19 03 1853	George McClean
9851	Deed	11 05 1855	Abraham Anderson
10820	Deed	16 04 1856	Jacob Tice
15620	Deed	01 10 1860	James Wilson
25099	Deed	15 12 1868	John Nickerson
32700	Deed	14 12 1872	Warren H. Blake - Estate

Cont'd on Page 2

# CHAIN OF TITLE REPORT

Project #: 21041200420  
 Address: 161 Wellington Avenue, Delhi  
 Legal Part Lot 18 Block 37 Plan 189  
 Description: as in NR188498  
 PIN #: 50160-0107 (LT)

Searched at: Cayuga  
 LRO #: 18

Pi

INSTR #	DOC. TYPE	REG. DATE	PARTY FROM
77217	Deed	08 12 1891	Jacob Sovereign
143884	Deed	30 04 1921	Edmund Neale
144893	Deed	04 10 1921	George Neale & Edmund Neale
169970	Deed	15 04 1932	Thomas Matthews
170055	Deed	02 05 1932	Howard Hoover
NR188498	Deed (Present Owner)	09 12 1939	Robert W. Tisdale & Walter Barnard Trustees of Young Peoples Society of The Delhi United Church



Ontario ServiceOntario

PARCEL REGISTER (ABBREVIATED) FOR PROPERTY

LAND  
REGISTRY  
OFFICE #37

50160-0107 (LT)

\* CERTIFIED IN ACCORDANCE WITH THE LAND TITLES ACT \* SUBJECT TO

PROPERTY DESCRIPTION: PT LT 18 BLK 37 PL 189 AS IN NR188498; NORFOLK COUNTY

PROPERTY REMARKS:

ESTATE/QUALIFIER:

FEE SIMPLE  
LT CONVERSION QUALIFIED

RECENTLY:

FIRST CONVERSION FROM BOOK

OWNERS' NAMES

THE MUNICIPAL CORPORATION OF THE VILLAGE OF DELHI

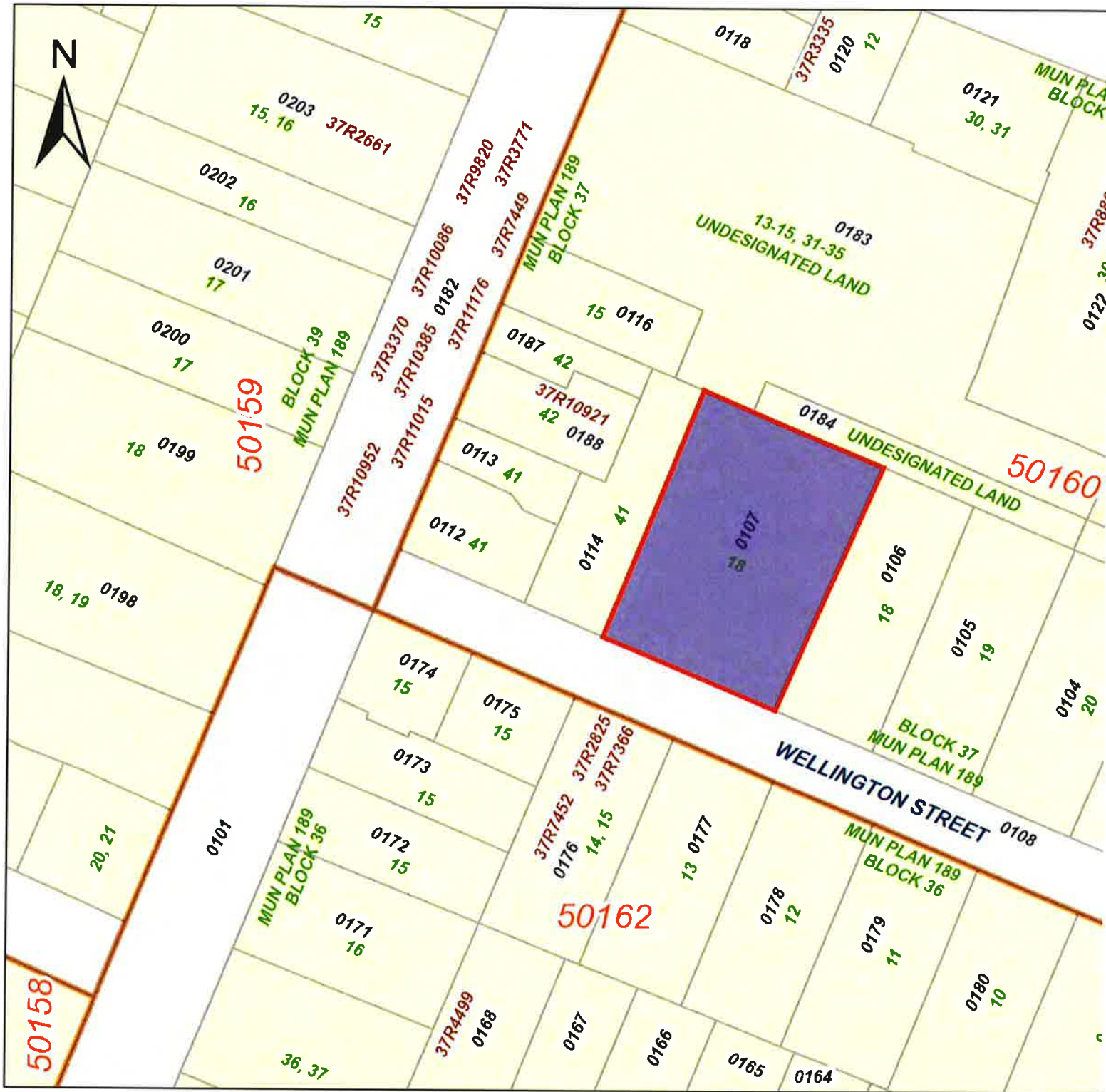
CAPACITY SHARE

ROWN

REG. NUM.	DATE	INSTRUMENT TYPE	AMOUNT	PARTIES FROM
** PRINTOUT INCLUDES ALL DOCUMENT TYPES AND DELETED INSTRUMENTS SINCE 2007/04/21 **				
**SUBJECT, ON FIRST REGISTRATION UNDER THE LAND TITLES ACT, TO:				
** SUBSECTION 44(1) OF THE LAND TITLES ACT, EXCEPT PARAGRAPH 11, PARAGRAPH 14, PROVINCIAL SUCCESSION DUTIES *				
** AND ESCHEATS OR FORFEITURE TO THE CROWN.				
** THE RIGHTS OF ANY PERSON WHO WOULD, BUT FOR THE LAND TITLES ACT, BE ENTITLED TO THE LAND OR ANY PART OF				
** IT THROUGH LENGTH OF ADVERSE POSSESSION, PRESCRIPTION, MISDESCRIPTION OR BOUNDARIES SETTLED BY				
** CONVENTION.				
** ANY LEASE TO WHICH THE SUBSECTION 70(2) OF THE REGISTRY ACT APPLIES.				
**DATE OF CONVERSION TO LAND TITLES: 2007/04/23 **				
NR188498	1939/12/09	TRANSFER	\$300	

NOTE: ADJOINING PROPERTIES SHOULD BE INVESTIGATED TO ASCERTAIN DESCRIPTIVE INCONSISTENCIES, IF ANY, WITH  
NOTE: ENSURE THAT YOUR PRINTOUT STATES THE TOTAL NUMBER OF PAGES AND THAT YOU HAVE PICKED THEM ALL UP.







# enviroscan



An SCM Company

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Markham, Ontario L3T 7Z3

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W: [www.optaintel.ca](http://www.optaintel.ca)

Report Completed By:

Midori

Site Address:

161 Wellington Avenue, Delhi, ON

Project No:

21041200420

Opta Order ID:

88958

Requested by:  
Eleanor Goolab  
ERIS

Date Completed:  
4/19/2021 9:36:39 AM







## Opta Historical Environmental Services Enviroscan<sup>TM</sup> Terms and Conditions

### Report

The documents (hereinafter referred to as the "Documents") to be released as part of the report (hereinafter referred to as the "Report") to be delivered to the purchaser as set out above are documents in Opta's records relating to the described property (hereinafter referred to as the "Property"). Opta makes no representations or warranties respecting the Documents whatsoever, including, without limitation, with respect to the completeness, accuracy or usefulness of the Documents, and does not represent or warrant that these are the only plans and reports prepared in association with the Property or in Opta's possession at the time of Report delivery to the purchaser. The Documents are current as of the date(s) indicated on them. Interpretation of the Documents, if any, is by inference based upon the information which is apparent and obvious on the face of the Documents only. Opta does not represent, warrant or guarantee that interpretations other than those referred to do not exist from other sources. The Report will be prepared for use by the purchaser of the services as shown above hereof only.

### Disclaimer

Opta disclaims responsibility for any losses or damages of any kind whatsoever, whether consequential or other, however caused, incurred or suffered, arising directly or indirectly as a result of the services (which services include, but are not limited to, the preparation of the Report provided hereunder), including but not limited to, any losses or damages arising directly or indirectly from any breach of contract, fundamental or otherwise, from reliance on Opta Reports or from any tortious acts or omissions of Opta's agents, employees or representatives.

### Entire Agreement

The parties hereto acknowledge and agree to be bound by the terms and conditions hereof. The request form constitutes the entire agreement between the parties pertaining to the subject matter hereof and supersedes all prior and contemporaneous agreements, negotiations and discussions, whether oral or written, and there are no representations or warranties, or other agreements between the parties in connection with the subject matter hereof except as specifically set forth herein. No supplement, modification, waiver, or termination of the request shall be binding, unless confirmed in writing by the parties hereto.

### Governing Document

In the event of any conflicts or inconsistencies between the provisions hereof and the Reports, the rights and obligations of the parties shall be deemed to be governed by the request form, which shall be the paramount document.

### Law

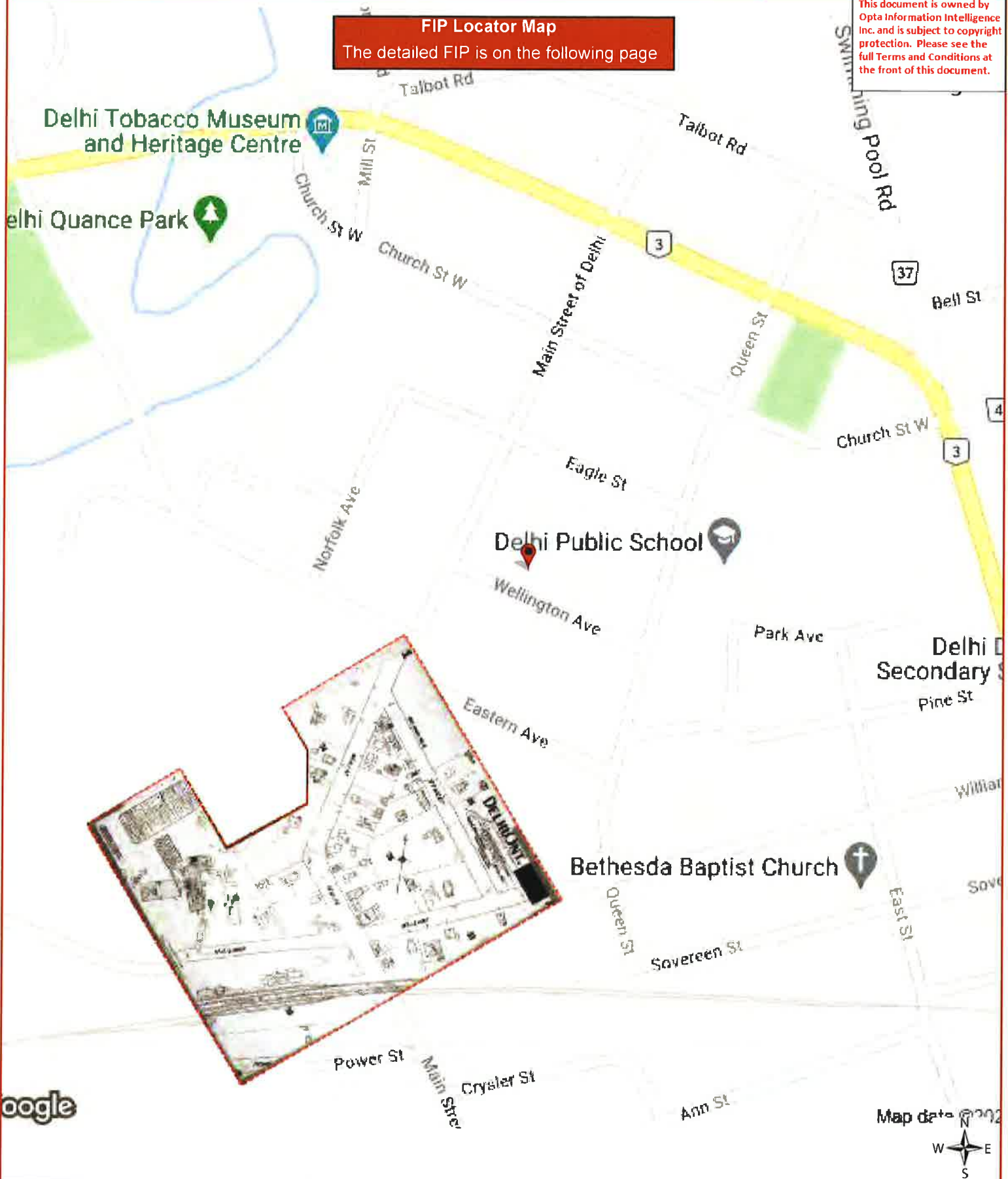
This agreement shall be governed by and construed in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein.

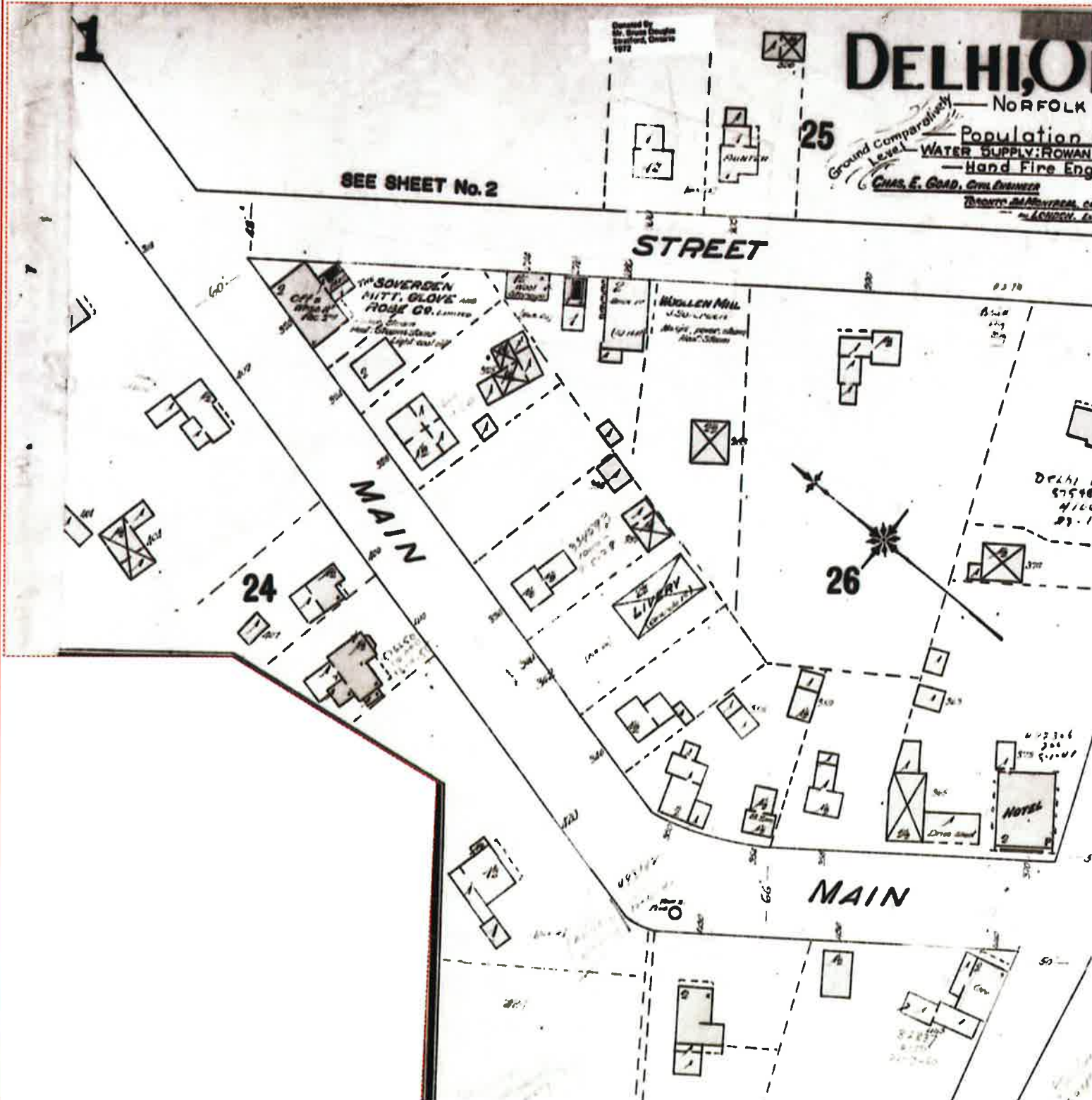
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6	(1904) Volume: Ontario Miscellaneous Firemap: 1
8	(1904) Volume: Ontario Miscellaneous Firemap: 1
10	(1904) Volume: Ontario Firemap: 3
12	(1949) Volume: Delhi Firemap: 2
14	(1949) Volume: Delhi Firemap: 3
16	(1949) Volume: DELHI Firemap: 3
18	(1949) Volume: DELHI Firemap: 4
20	(1949) Volume: Delhi Firemap: 4
22	(1949) Volume: Delhi Firemap: 5
24	(1949) Volume: Delhi Firemap: 6

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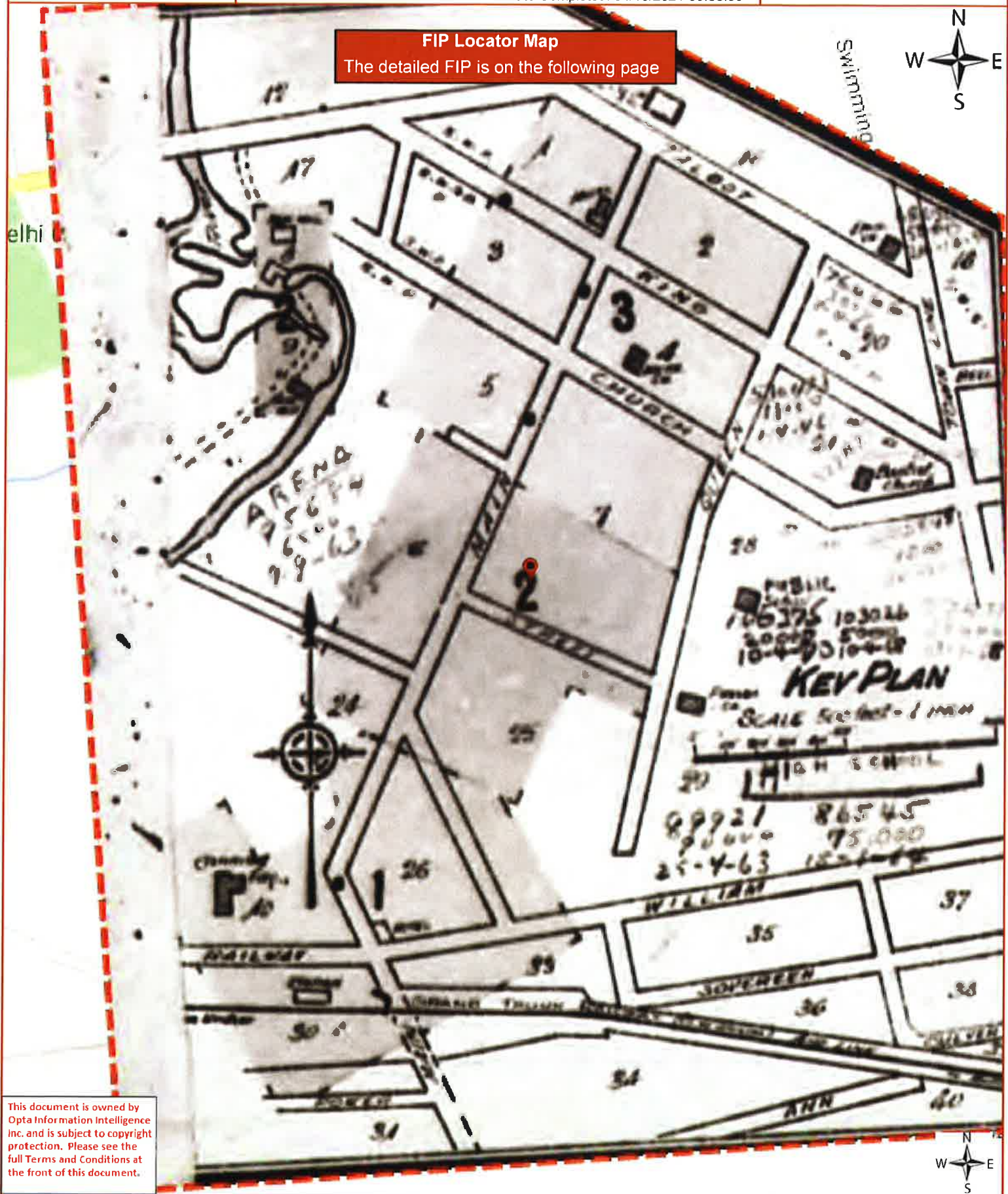
**FIP Locator Map**

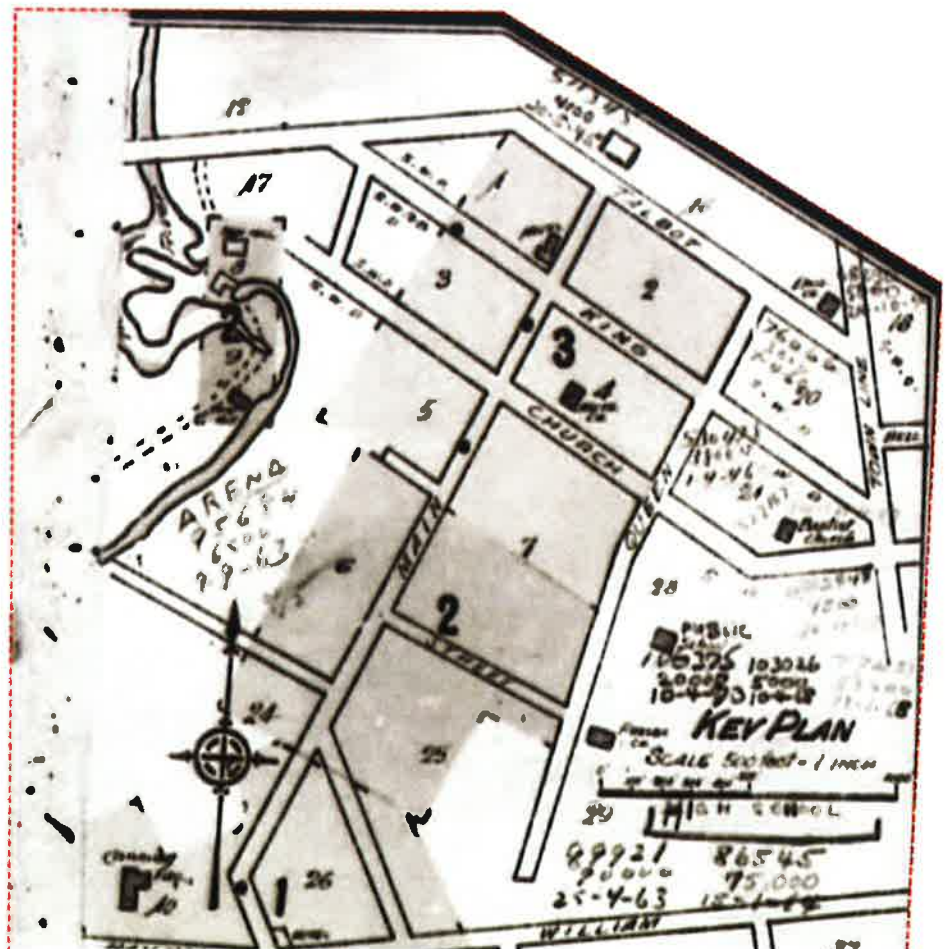
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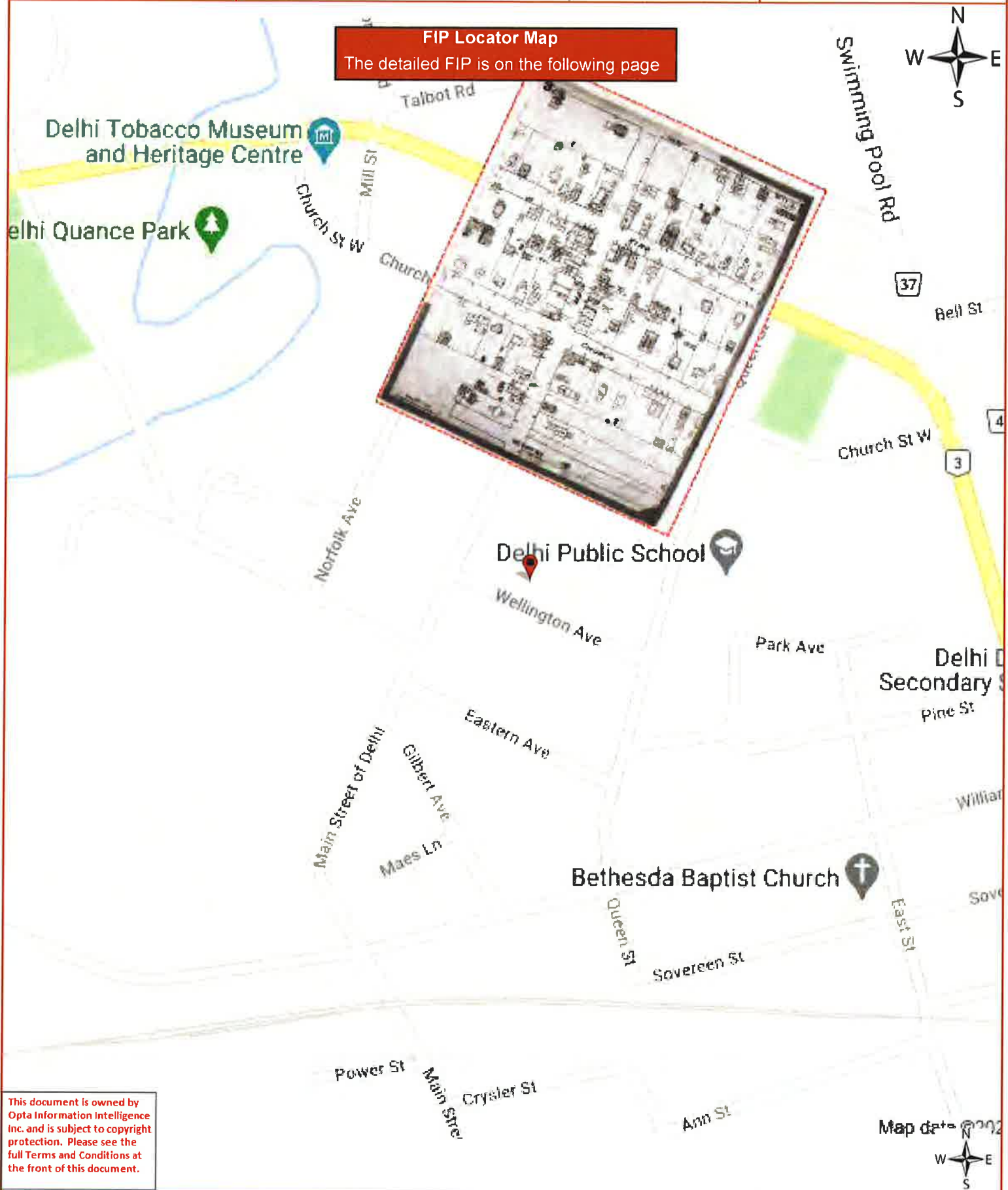


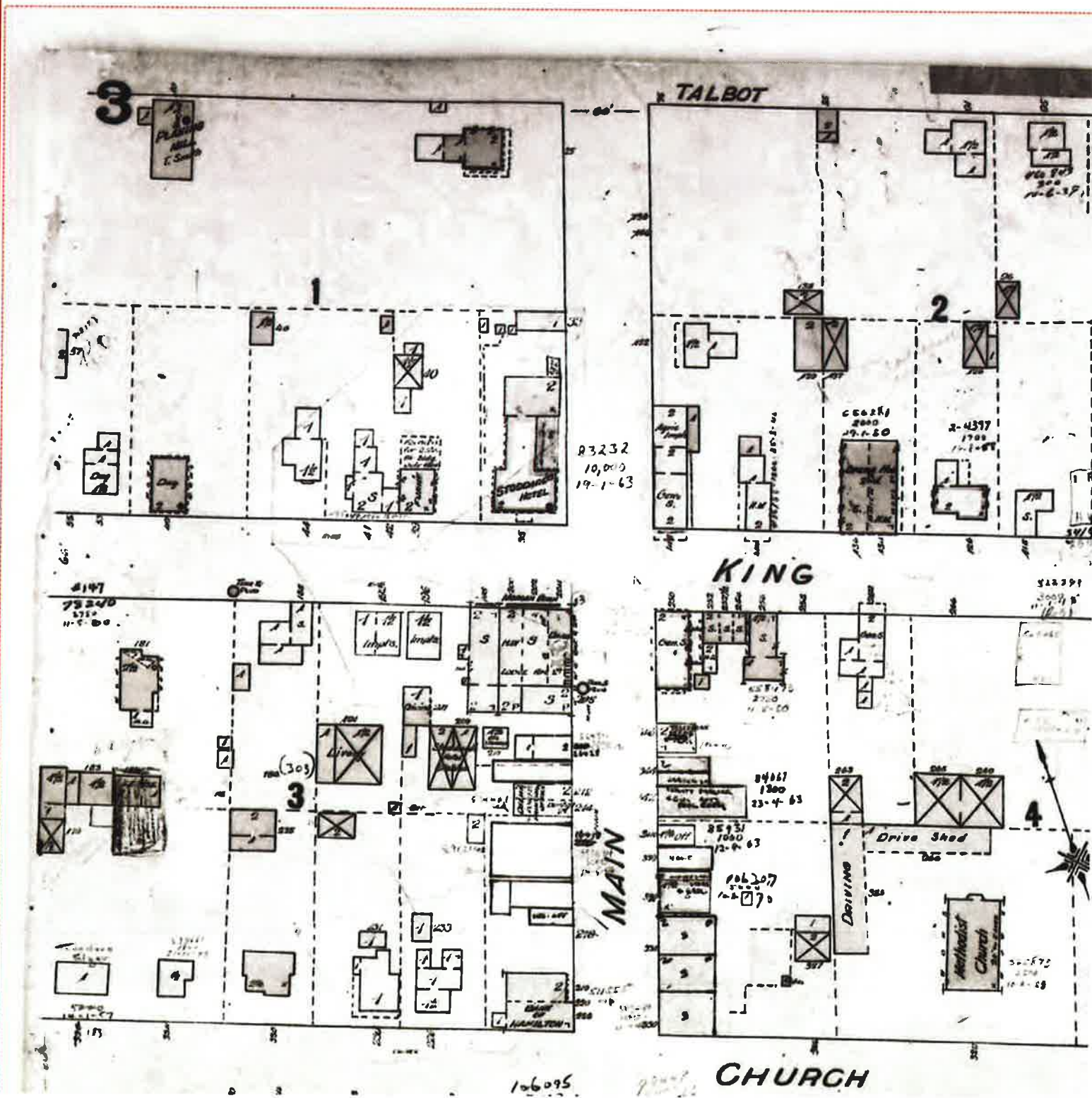




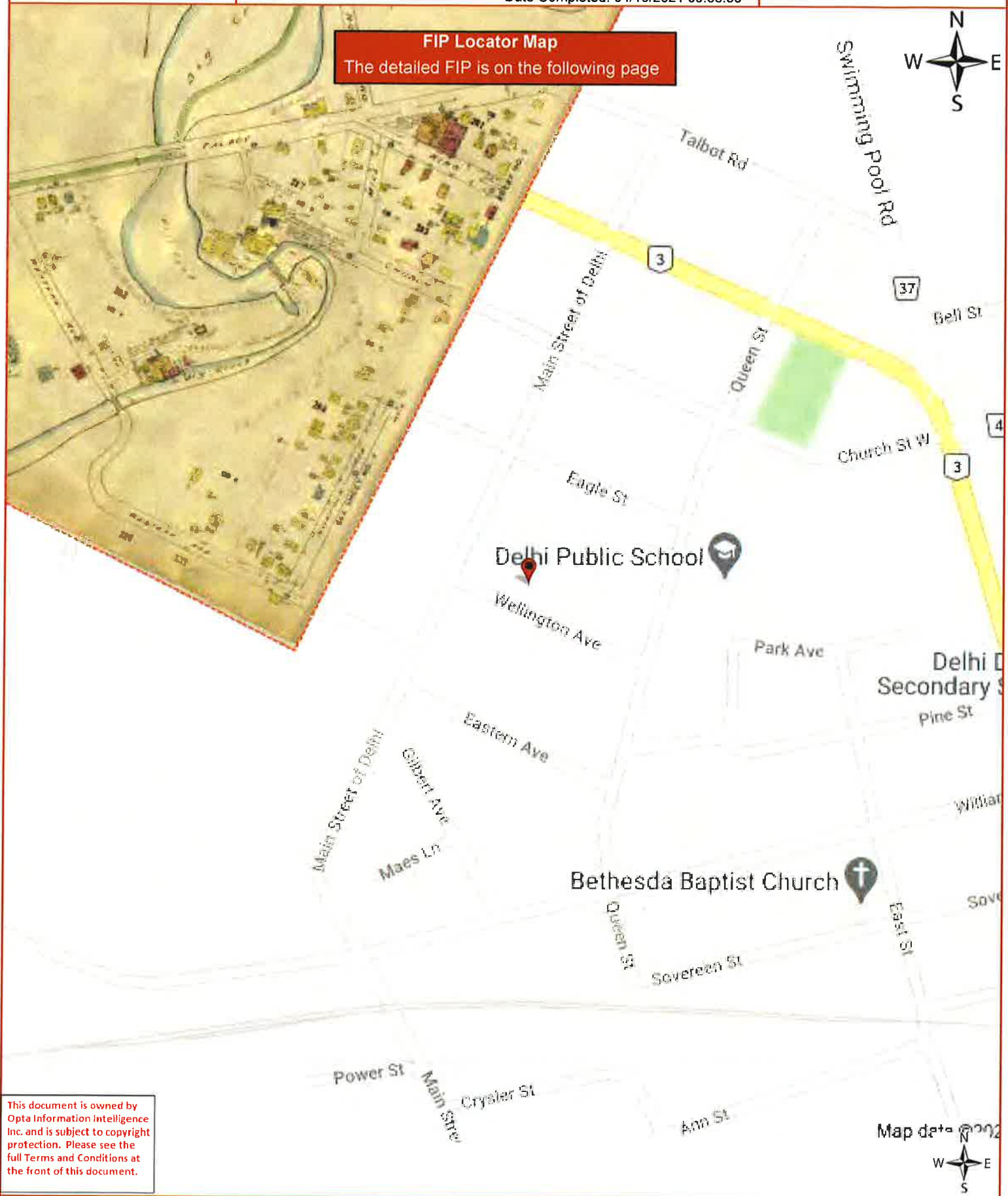


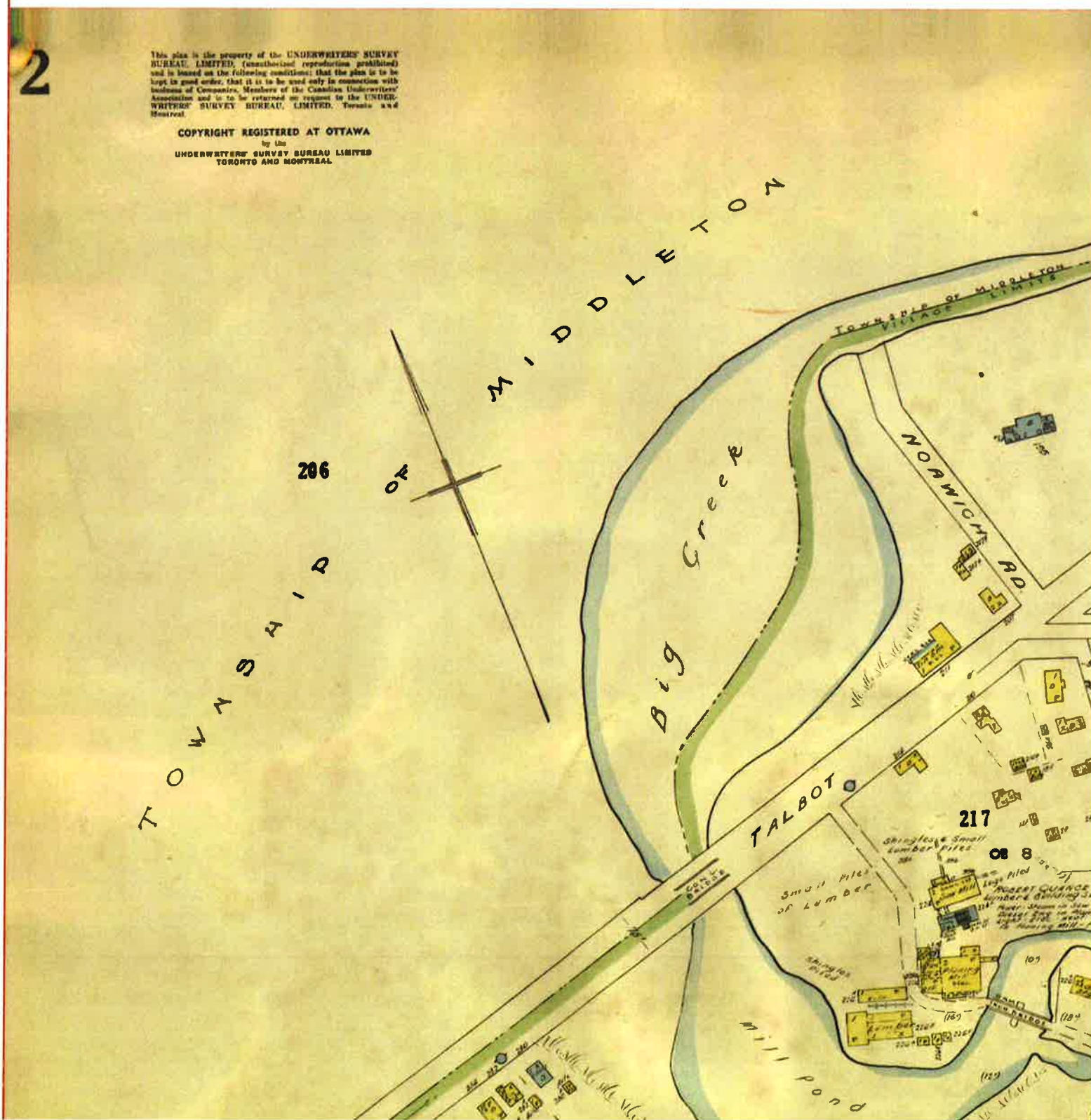




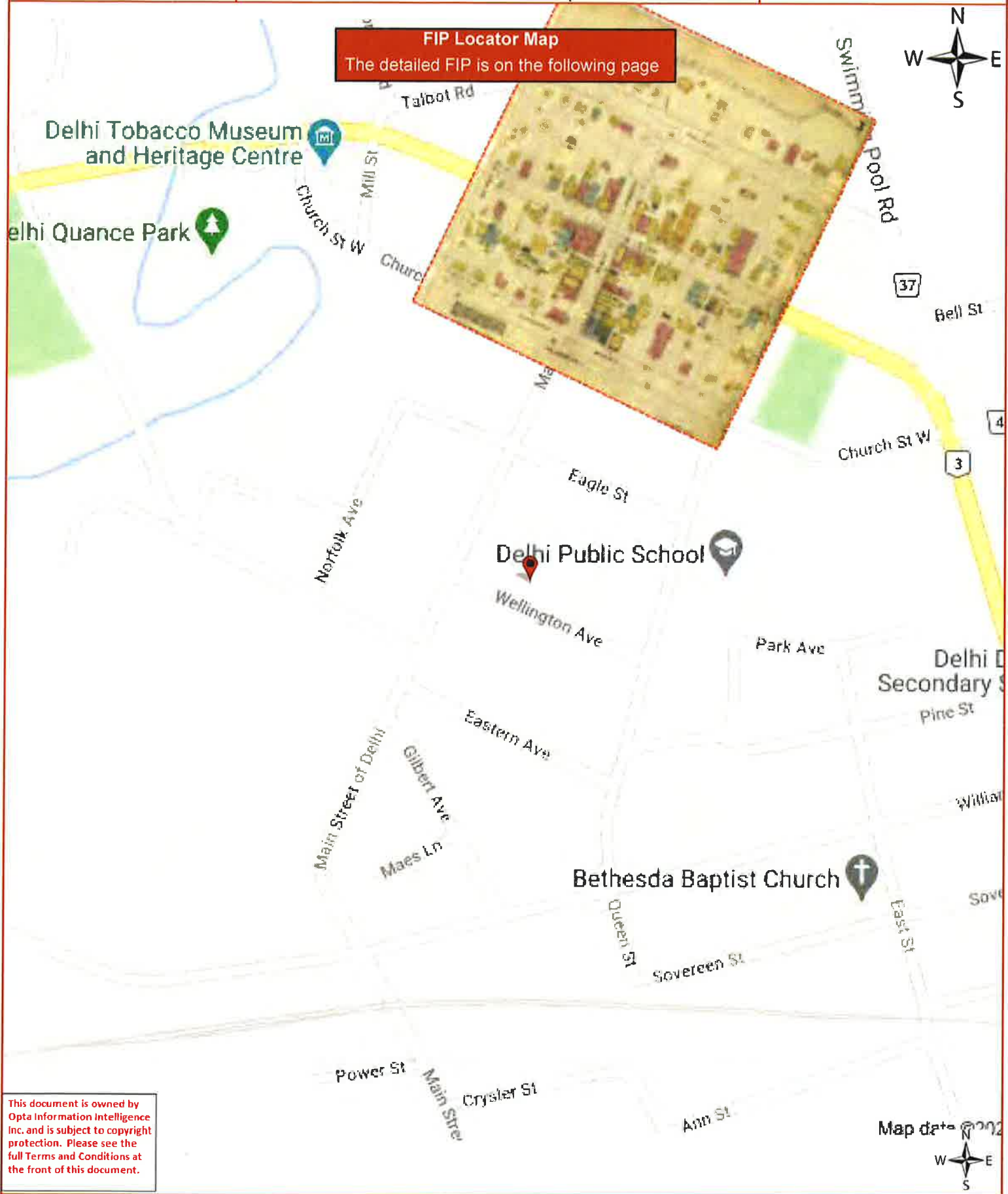


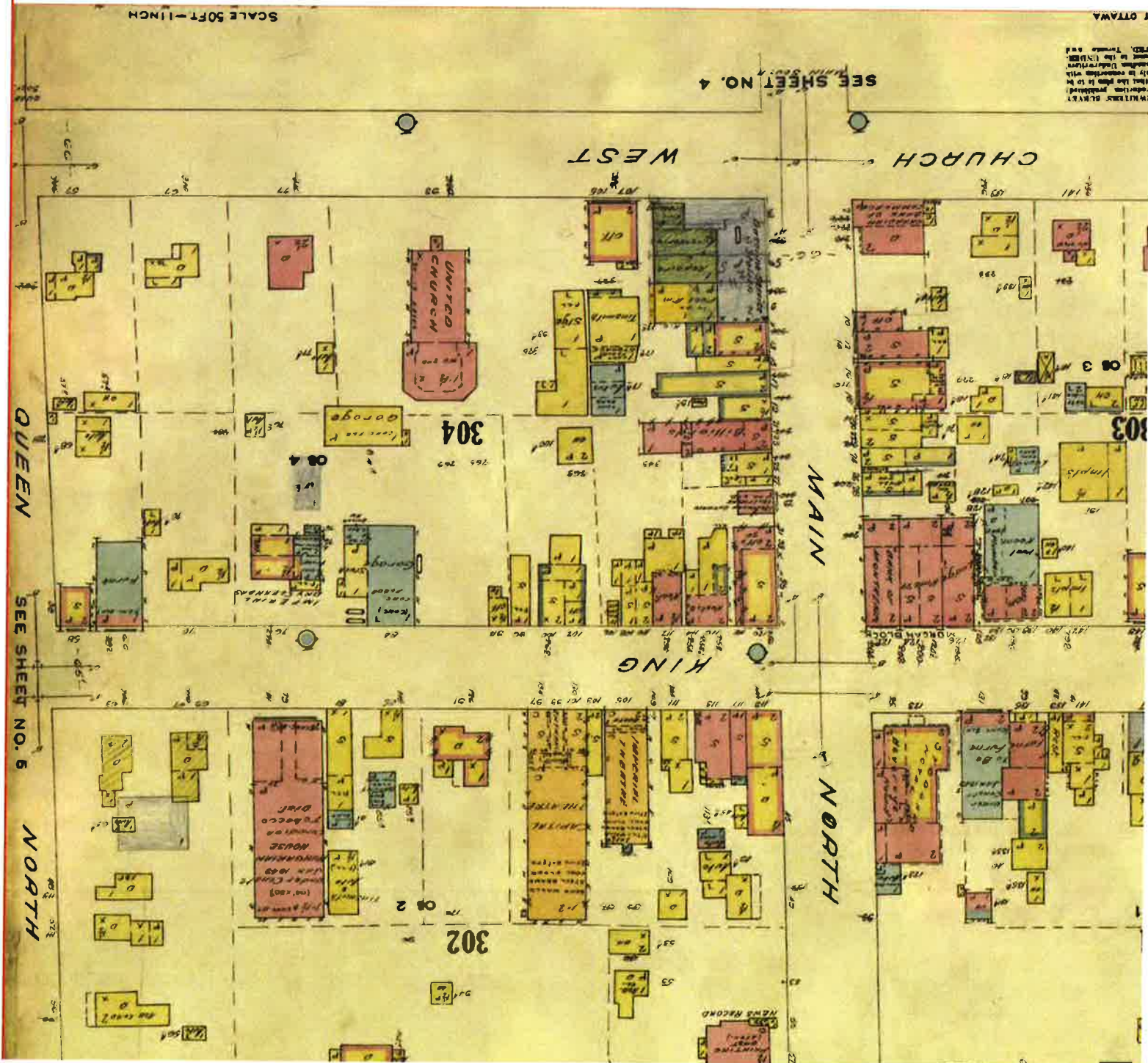




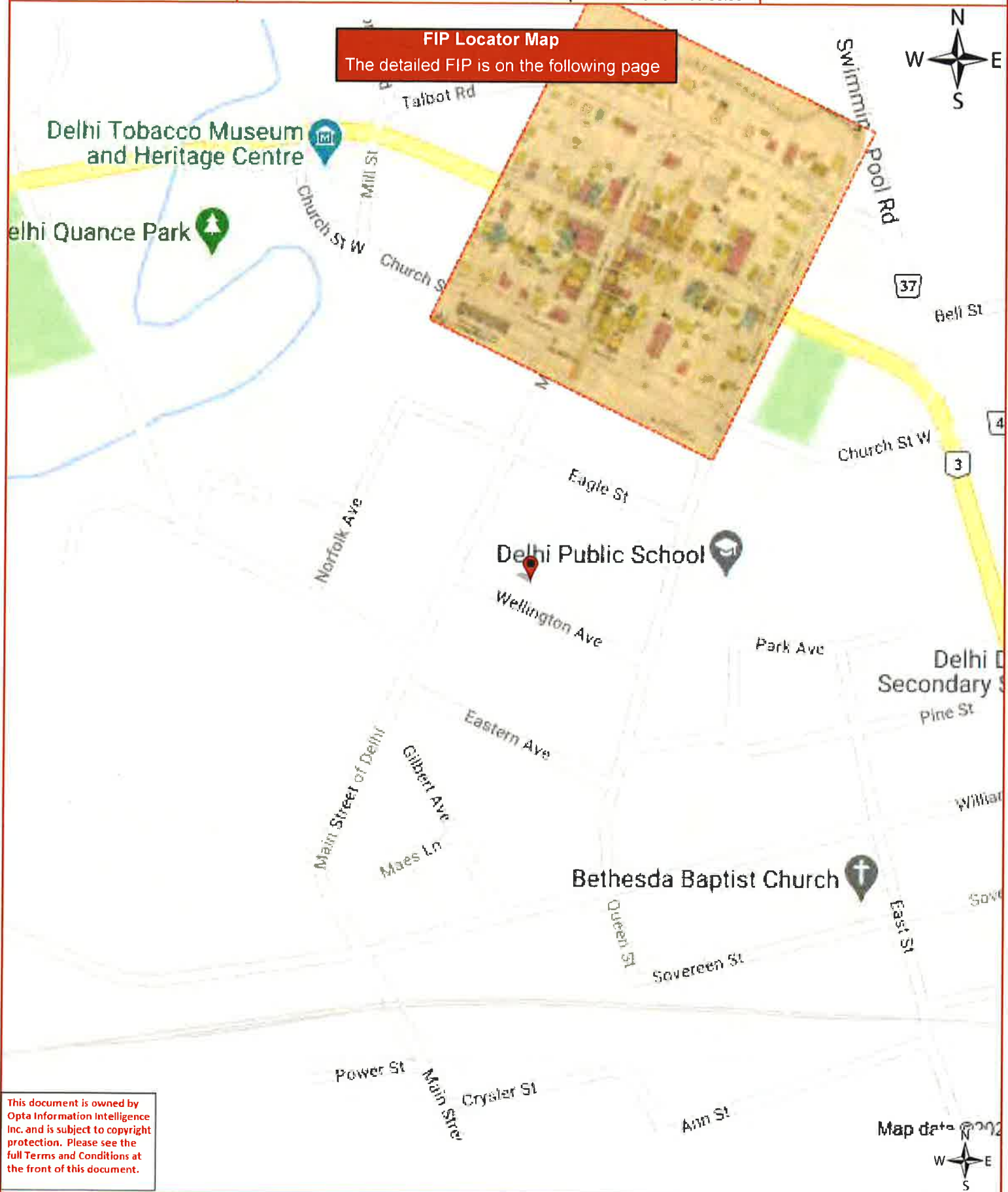


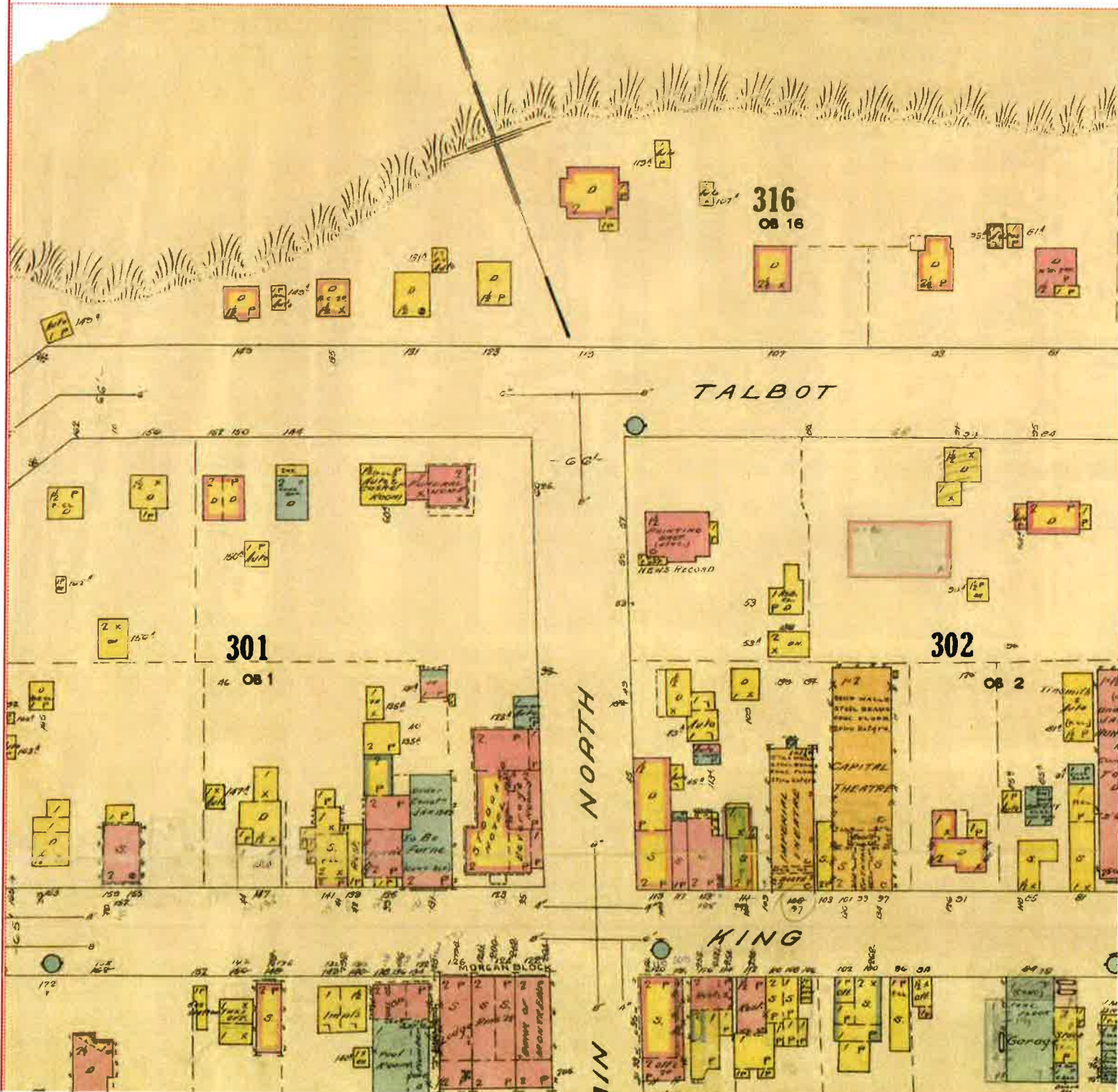




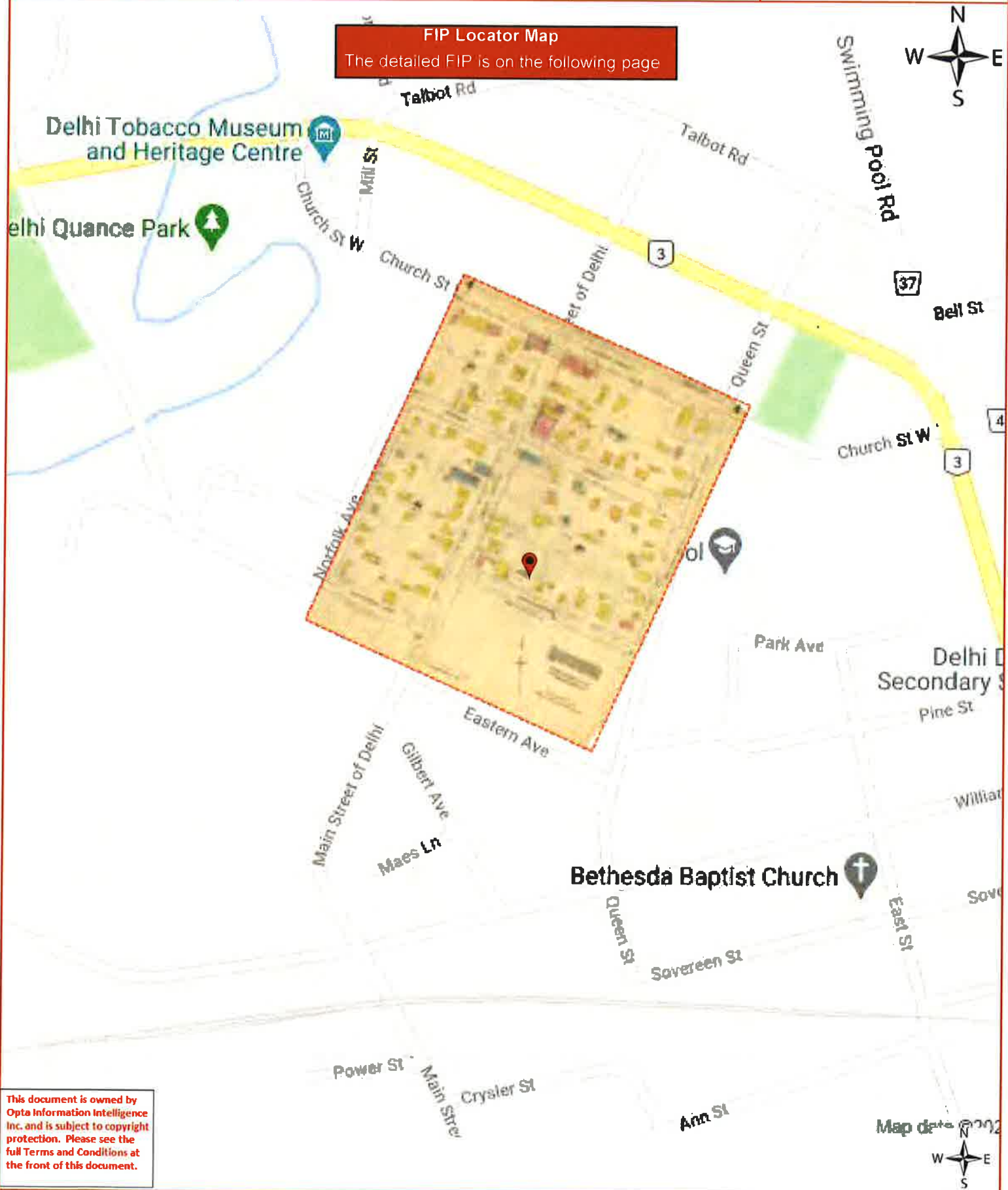












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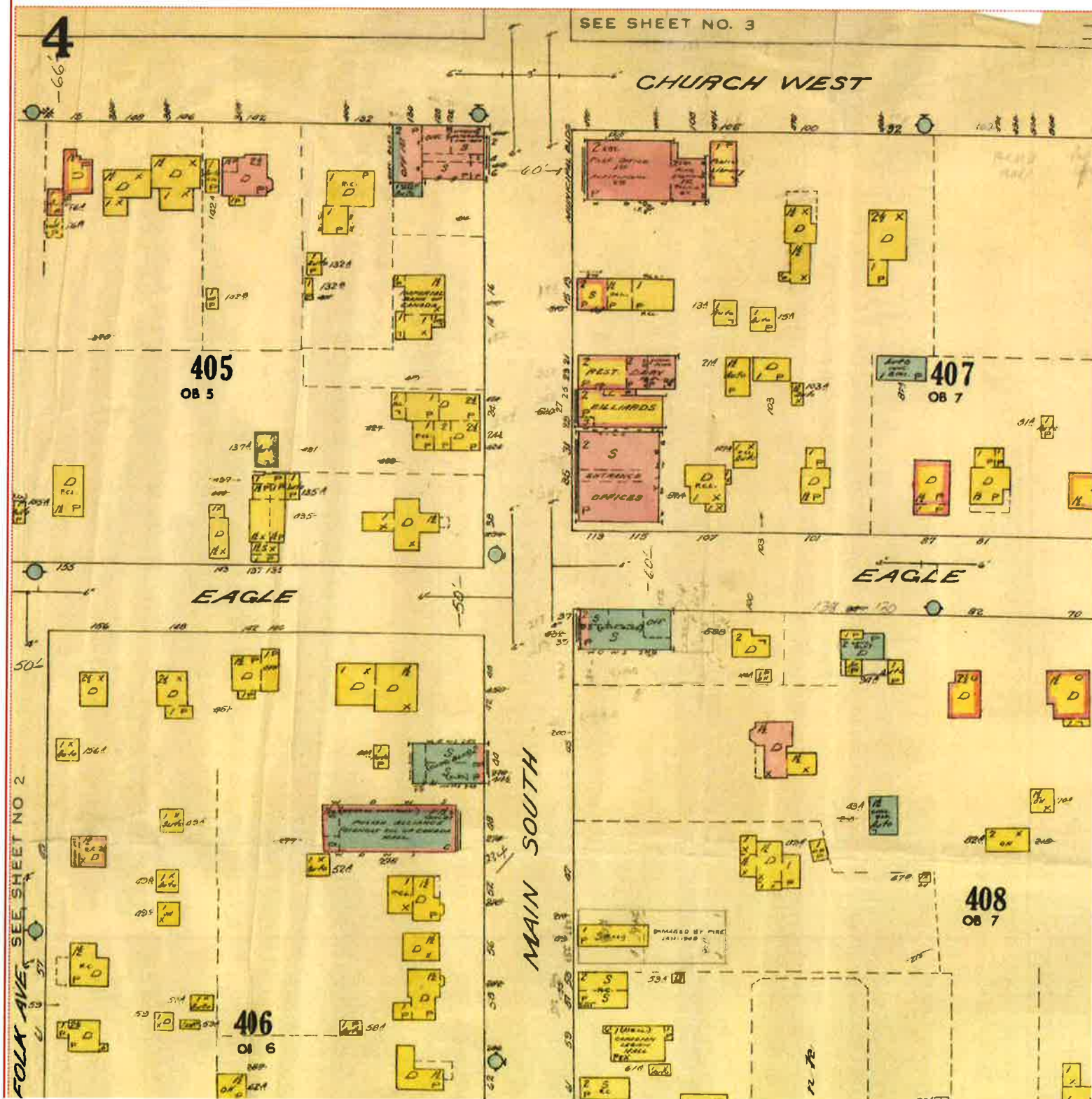
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Sheet: 4 (1949)

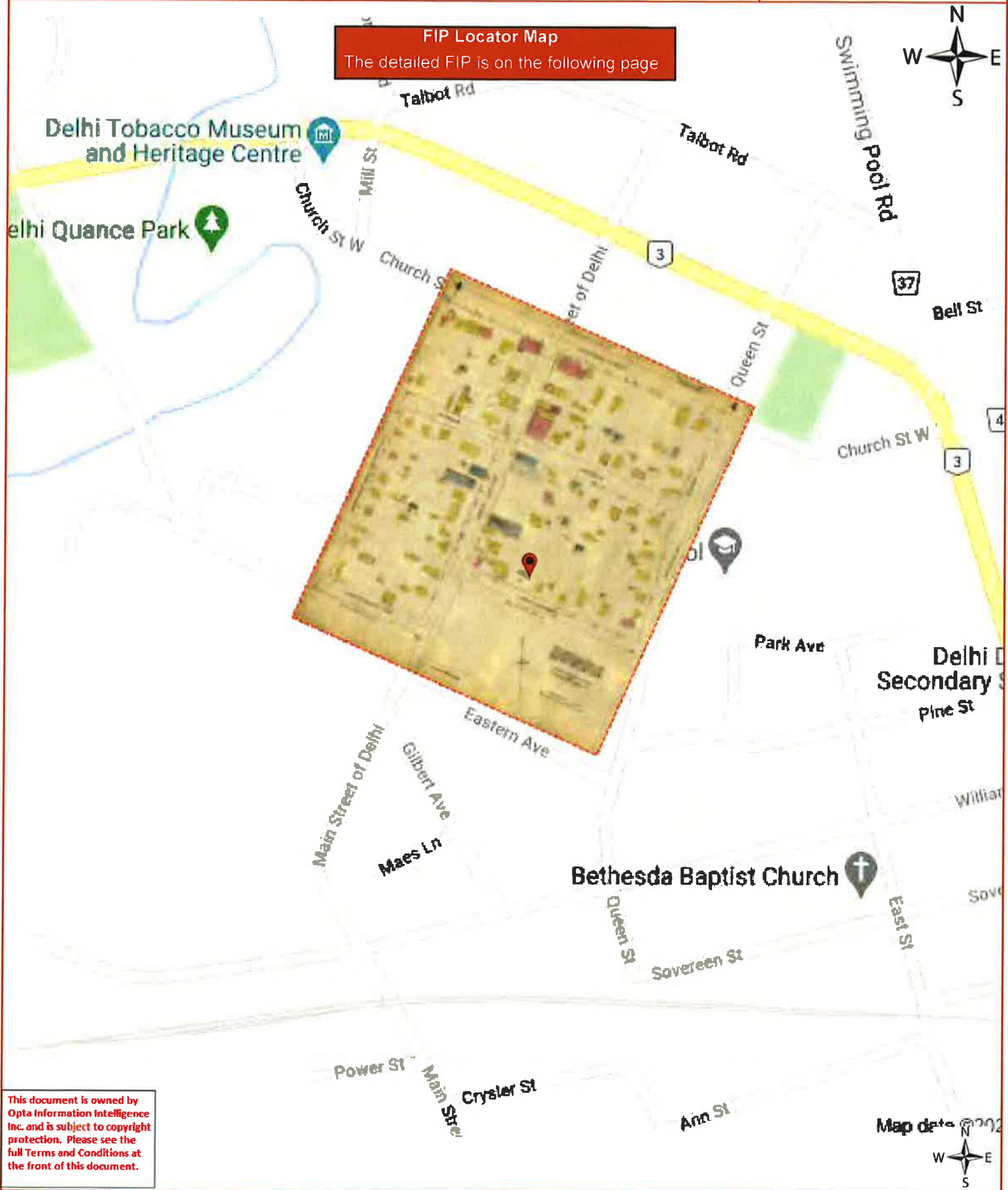
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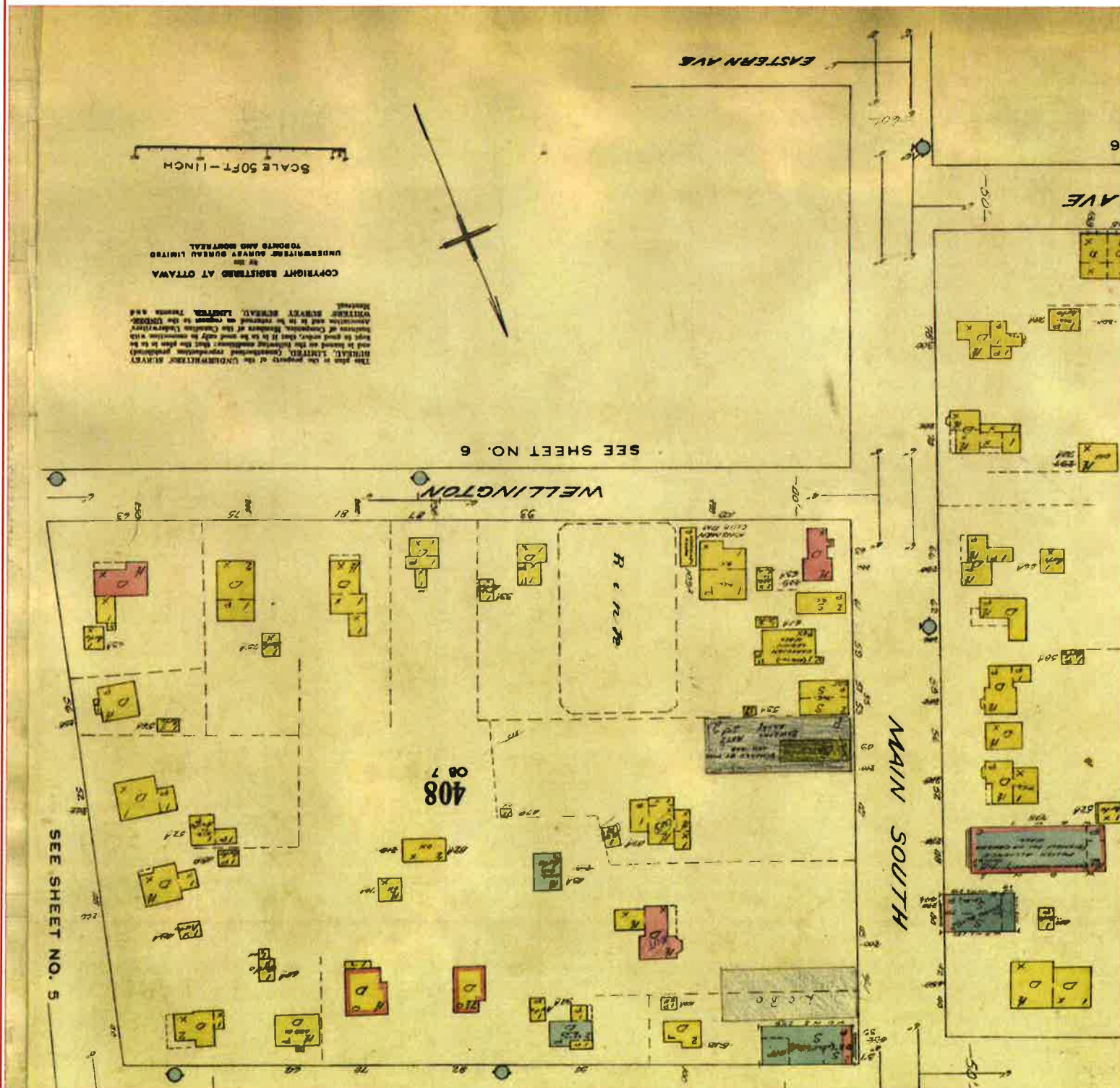
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Date Completed: 04/19/202

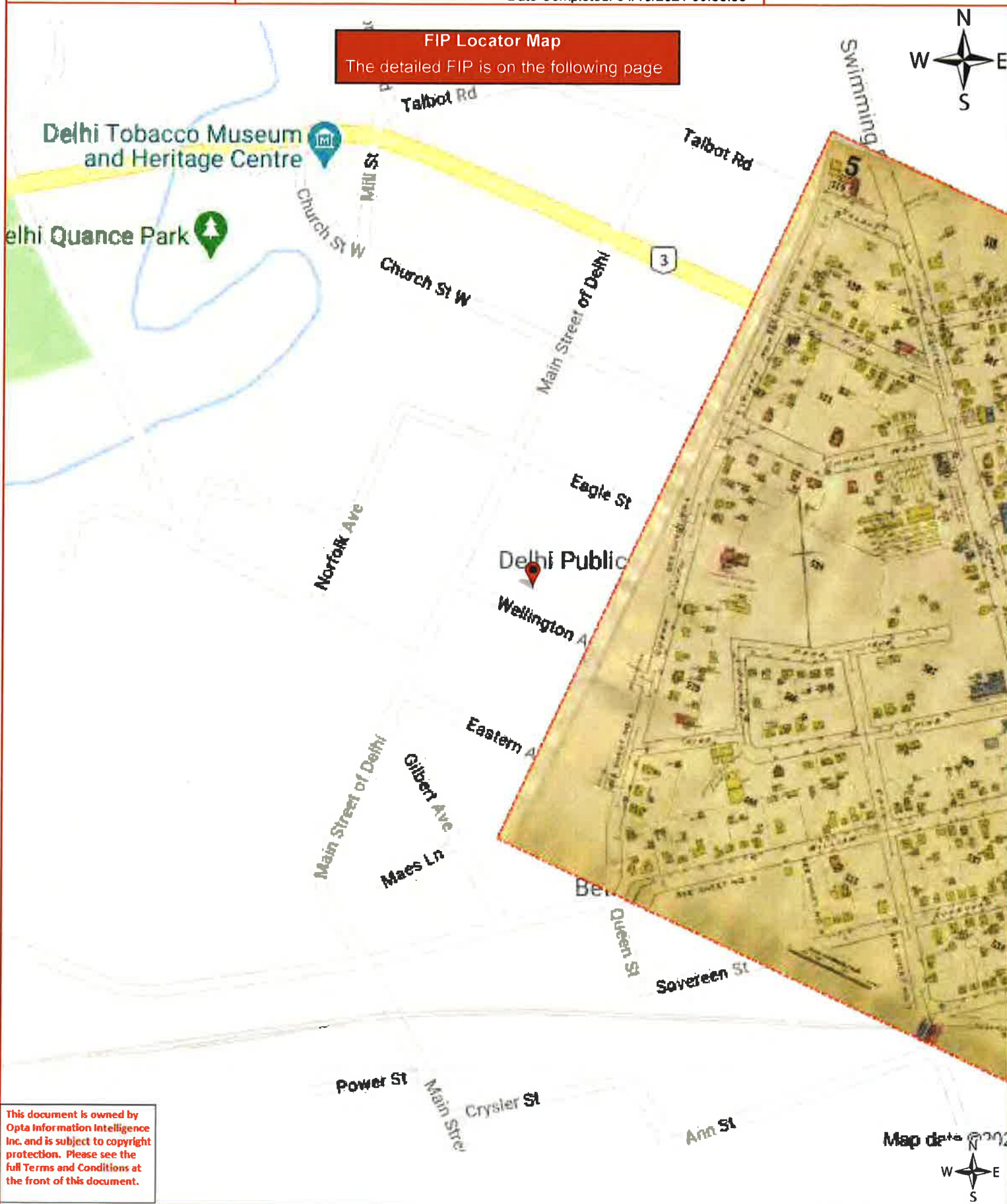




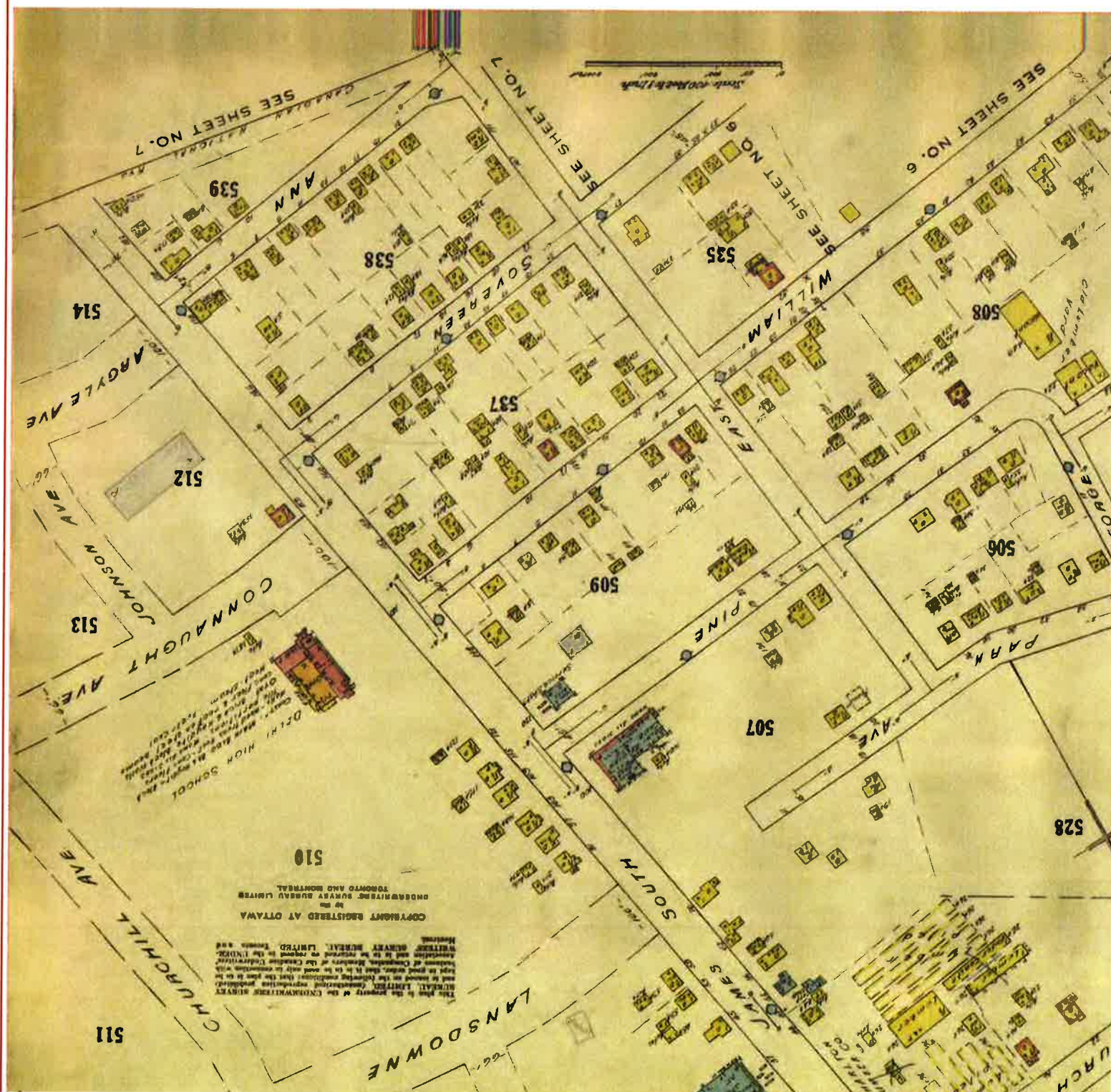










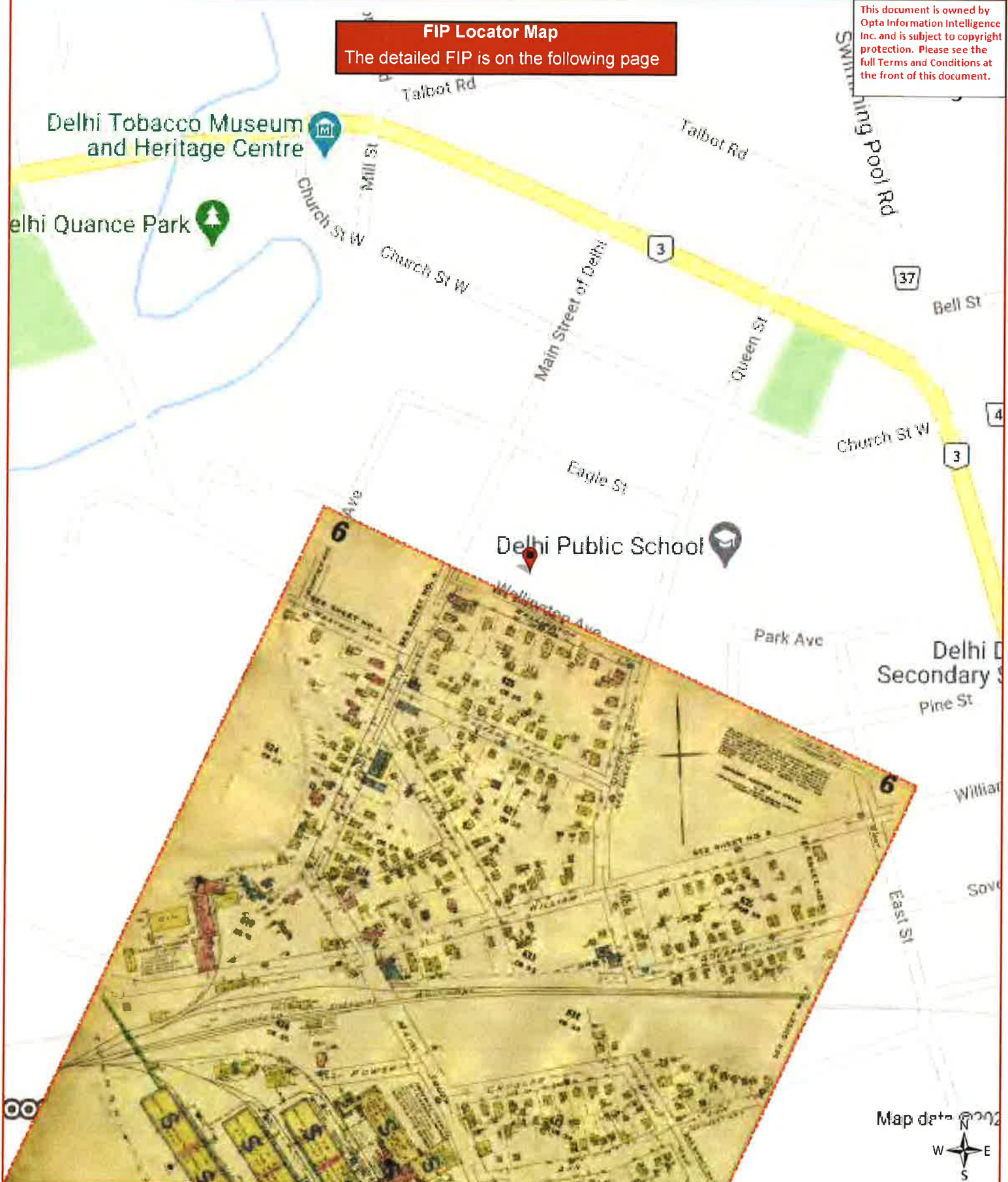




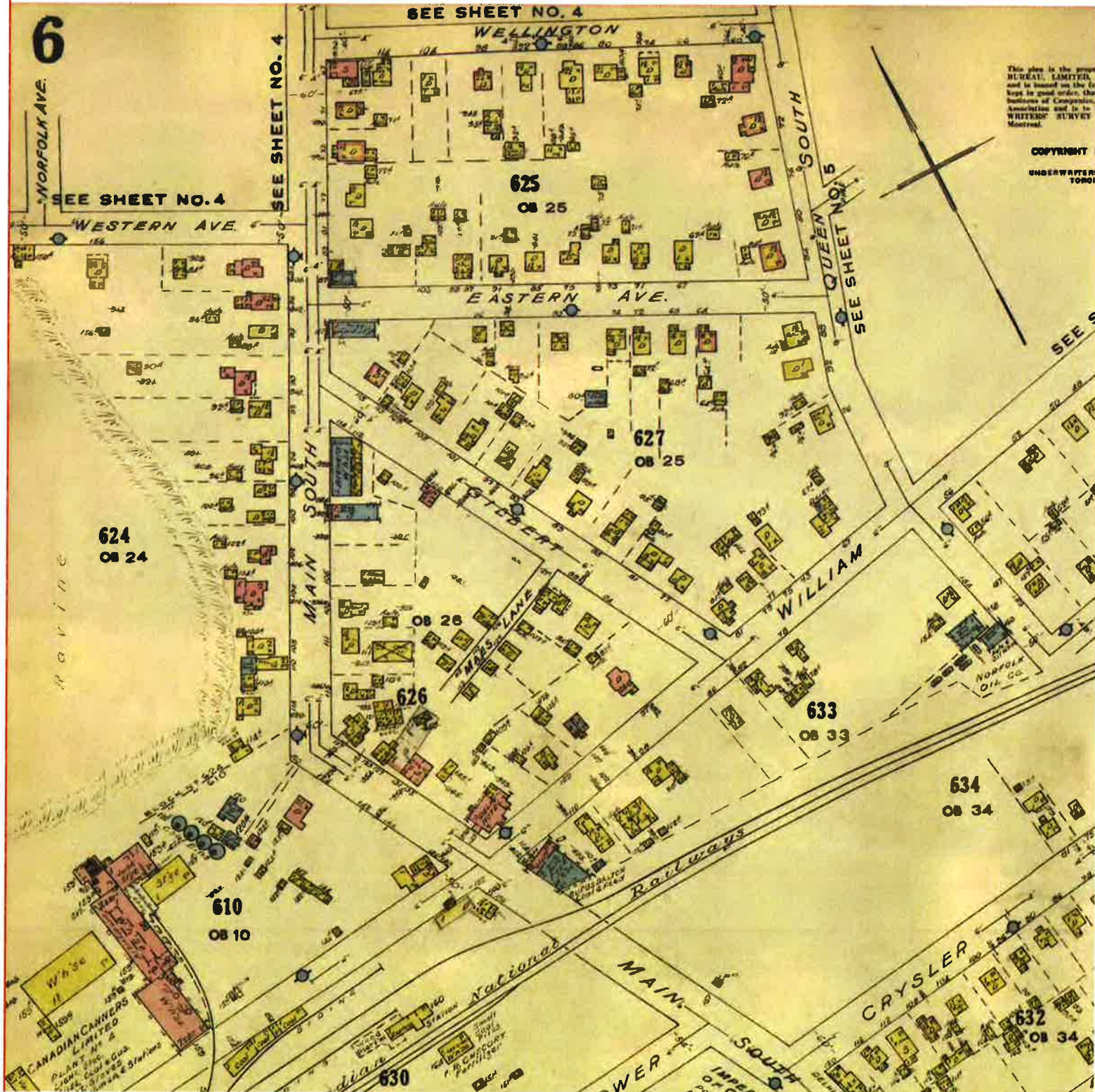
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**FIP Locator Map**

The detailed FIP is on the following page







## **Appendix E   Correspondence**



Use this form to request records that are in the Ministry's files on environmental concerns related to properties.  
 Please refer to the guide on the completion and use of this form. Our fax no. is 416-314-4285.

Requester Data			For Ministry Use Only	
Name, Title, Company Name and Mailing Address of Requester  Carrie Barnes Englobe Corp. 353 Bridge Street East Kitchener, ON N2K 2Y5 Email Address: carrie.barnes@englobecorp.com			FOI Request No.	Date Request Received
			Fee Paid  <input type="checkbox"/> CHQ <input type="checkbox"/> VISA/MC/AMEX <input type="checkbox"/> CASH/MONEY ORDER	
Tel : 519-741-1313 Fax : 519-741-5422	Your Project/ Reference No.  02103034.100	Signature of Requester  	<input type="checkbox"/> CNR <input type="checkbox"/> ER <input type="checkbox"/> NOR <input type="checkbox"/> SWR <input type="checkbox"/> WCR  <input type="checkbox"/> IEB <input type="checkbox"/> EAA <input type="checkbox"/> EMR <input type="checkbox"/> SCB <input type="checkbox"/> SDW	
<b>Request Parameters</b>				
Municipal Address / Lot, Concession, Geographic Township (Municipal address mandatory for cities, towns or regions) 161 Wellington Avenue, Delhi, Ontario				
Present Property Owner(s) and Date(s) of Ownership Village of Delhi				
Previous Property Owner(s) and Date(s) of Ownership				
Present/Previous Tenant(s), (if applicable)				
<b>Search Parameters</b> Files older than 2 years may require \$60.00 retrieval cost. There is no guarantee that records responsive to your request will be located.				<b>Specify Year(s) Requested</b>
Environmental concerns (General correspondence, occurrence reports, abatement)				-ALL-
Orders				-ALL-
Spills				-ALL-
Investigations/prosecutions ▶ <b>Owner and tenant information must be provided</b>				-ALL-
Waste Generator number/classes				-ALL-
<b>Certificates of Approval</b> ▶ Proponent information must be provided and Certificates of Approval(s) (if known.) 1985 and prior records are searched manually. <b>Search fees in excess of \$300.00</b> may be incurred, depending on the types and years of records to be searched. <b>If supporting documents are also required, mark SD box.</b>				
				SD   Specify Year(s) Requested
Air - emissions				-ALL-
Renewable Energy				-ALL-
Water - mains, treatment, ground level, standpipes & elevated storage, pumping stations (local & booster)				-ALL-
Sewage - sanitary, storm, treatment, stormwater, leachate & leachate treatment & sewage pump stations				-ALL-
Waste water - industrial discharge				-ALL-
Waste sites - disposal, landfill sites, transfer stations, processing sites, incinerator sites				-ALL-
Waste systems	- haulers: sewage, non-hazardous & hazardous waste, mobile waste processing units, PCB destruction			-ALL-



## Carrie Barnes

---

**From:** Customer Relations <rmcustrel@enbridge.com>  
**Sent:** May 11, 2021 3:47 PM  
**To:** Carrie Barnes  
**Subject:** RE: [External] confirmation of gas in service (CID:22855dvdffjlhkwmkc)  
**Attachments:** image001.png; image002.jpg; image003.jpg; image004.jpg; image005.png; image006.png

**ATTENTION:** Assurez-vous que le contenu soit de confiance avant d'ouvrir une pièce jointe ou un hyperlien.  
**CAUTION:** Do not click on links or open attachments you do not trust.

Good afternoon.

We do not have an account or gas service for that address in our system.

Regards,

Heather

Office of the Ombudsman

Enbridge Gas

-----Original Message-----

**From:** Carrie Barnes [<mailto:Carrie.Barnes@englobecorp.com>]  
**Sent:** Tuesday, May 11, 2021 3:43:13 PM  
**To:** Customer Relations  
**Subject:** [External] confirmation of gas in service

**EXTERNAL: PLEASE PROCEED WITH CAUTION.**

This e-mail has originated from outside of the organization. Do not respond, click on links or open attachments unless you recognize the sender or know the content is safe.

Good afternoon,

Englobe is completing a Phase One Environmental Site Assessment at the property located at 161 Wellington Avenue in Delhi, Ontario. Would you be able to confirm any gas in service?

Thanks!

Carrie



**Carrie Barnes, P.Geo**

Project Manager - Geoscientist

Environmental Services

353 Bridge Street East, Kitchener, Ontario N2K 2Y5

P. 519.741.1313 (ext.) 121239 | M 519.616.0814

[carrie.barnes@englobecorp.com](mailto:carrie.barnes@englobecorp.com)



**AVERTISSEMENT** : Le présent courriel et tous les documents qui y sont annexés sont confidentiels et peuvent être assujettis au secret professionnel. Si vous recevez ce courriel par erreur, veuillez nous en informer immédiatement et le détruire intégralement. **NOTICE**: This email and any files transmitted with it are confidential and can be subject to professional secrecy. If you have received this email in error or are not the intended recipient, please notify us immediately and delete it in its entirety.

## Carrie Barnes

---

**From:** Public Information Services <publicinformationsservices@tssa.org>  
**Sent:** May 11, 2021 3:45 PM  
**To:** Carrie Barnes  
**Subject:** RE: confirmation of any registered tanks

**ATTENTION:** Assurez-vous que le contenu soit de confiance avant d'ouvrir une pièce jointe ou un hyperlien.

**CAUTION:** Do not click on links or open attachments you do not trust.

**Please refrain from sending documents to head office and only submit your requests electronically via email along with credit card payment. We are all working remotely and mailing in applications with cheques will lengthen the overall processing time.**

### NO RECORD FOUND

Hello Carrie,

Thank you for your request for confirmation of public information.

- We confirm that there are no records in our database of any fuel storage tanks at the subject addresses:

For a further search in our archives please complete our release of public information form found at <https://www.tssa.org/en/about-tssa/release-of-public-information.aspx?mid=392> and email the completed form to [publicinformationsservices@tssa.org](mailto:publicinformationsservices@tssa.org) along with a fee of \$56.50 (including HST) per location. The fee is payable with credit card (Visa or MasterCard).

Although TSSA believes the information provided pursuant to your request is accurate, please note that TSSA does not warrant this information in any way whatsoever.

Kind regards,

Saara



#### **Public Information Agent**

Facilities and Business Services

345 Carlingview Drive

Toronto, Ontario M9W 6N9

Tel: +1-416-734-6222 | Fax: +1-416-734-3568 | E-Mail: [publicinformationsservices@tssa.org](mailto:publicinformationsservices@tssa.org)

[www.tssa.org](http://www.tssa.org)



---

**From:** Carrie Barnes <Carrie.Barnes@englobecorp.com>  
**Sent:** May 11, 2021 3:42 PM  
**To:** Public Information Services <publicinformationsservices@tssa.org>  
**Subject:** confirmation of any registered tanks

**[CAUTION]:** This email originated outside the organisation.

Please do not click links or open attachments unless you recognise the source of this email and know the content is safe.

Good afternoon,

Englobe is competing a Phase One Environmental Site Assessment at 161 Wellington Avenue in Delhi, Ontario. Would you be able to confirm any registered tanks?

Thanks!

Carrie



**Carrie Barnes, P.Geo**

Project Manager - Geoscientist  
Environmental Services  
353 Bridge Street East, Kitchener, Ontario N2K 2Y5  
P. 519.741.1313 (ext.) 121239 | M 519.616.0814

[carrie.barnes@englobecorp.com](mailto:carrie.barnes@englobecorp.com)



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## **Appendix F    Qualifications of the Assessors**



**Englobe**

englobecorp.com

## CARRIE BARNES P. GEO

Carrie Barnes joined Englobe Corp. (Englobe) initially in December 2016 as a Project Manager/Geoscientist in our Kitchener and London, Ontario offices. Ms. Barnes graduated with an Honours Bachelor of Science from Brock University in 2006, and a Post-Graduate (Honours) Certificate in Environmental Management and Assessment from Niagara College in 2008, and she completed a Post Graduate Study for Continuing Education Courses of special interest including Geochemistry, Structural Geology and Applied Geomorphology (required to achieve Professional Geoscientist Status) at the University of Waterloo in 2016. Ms. Barnes is registered as a Professional Geoscientist with the APGO since 2017.

Carrie has 13 years of experience in the environmental consulting industry, with both private and public sector clients. Her responsibilities have included completing, managing and reporting on Phase I and II Environmental Site Assessments (ESA); excess soil work in accordance with O.Reg 406; fieldwork for groundwater, surface water and soil monitoring both clean and contaminated sites; and, environmental remediation supervision/inspection.

### PROFESSIONAL EXPERIENCE

#### ENGLOBE CORP., KITCHENER/LONDON, ON (2016-PRESENT)

##### Project Manager/Geoscientist

As a project manager/geoscientist, Ms. Barnes' responsibilities include the following, but are not limited to

- Management of various environmental projects including Phase I and II Environmental Site Assessments (ESAs).
- Filing of a Record of Site Condition (RSC) with the Ontario Ministry of Environment, Conservation, and Parks (MECP).
- Excess soils management.
- Technical review and report preparation.
- Completion of field activities, data analyses and report preparation.
- Environmental site remediation and inspection.
- Coordination and liaising with clients and stakeholders.

#### ENVIRONMENTAL SCIENTIST – WORLEYPARSONS CANADA SERVICES LTD., MISSISSAUGA, ON (2013-2016)

- Budgeted, tracked and maintained costs and scheduled/supervised field work for a \$300,000 project with a large petroleum client. Liaised with client on a daily and weekly basis to update on the progress of work, as well as participated and/or led start-up, health and safety, and closeout meetings.

#### YEARS OF EXPERIENCE

13 years

#### PROFESSION

Project Manager/ Environmental Geoscientist

#### AREA OF EXPERTISE

Geosciences and Environmental Management

#### EDUCATION

- 2016 Post Graduate Study, University of Waterloo, Waterloo, ON
- 2008 Environmental Management at Assessment and Post Graduate Certificate (Honours), Niagara College, Niagara-on-the-Lake, ON
- 2006 Honours Bachelor of Science (Biology & Earth Sciences), Brock University, St. Catharines, ON

#### PROFESSIONAL DEVELOPMENT

- 2020 WHMIS 2015
- 2018 Standard First Aid-CPR A -AED
- 2018 Characterization and Remediation of Fractured Rock – Clu-In/ITRC
- 2017 Ground Disturbance Supervisory Training – Danatec
- 2017 Understanding and Testing for Radioactivity - Maxxam
- 2015 Environmental Project Management – Eco Academy
- 2014 Petroleum Safety Training – Enform Connect
- 2012 Asbestos Abatement Worker Training – Acute Environmental
- 2009 40 Hour Hazwoper Training – Acute Environmental

#### PROFESSIONAL ASSOCIATIONS

- 2017 Association of Professional Geoscientists of Ontario (License No. 2766)

#### LANGUAGES

English



- Oversight of \$1.2 M remediation in Toronto, Ontario. Remediation supervision and inspection. Overall Health & Safety of workers at the site and ensured all work completed in accordance with environmental regulations.
- Liaised with clients on a daily and weekly basis to update on the progress of work, as well as participated and/or led start-up, health and safety, and closeout meetings.
- Completed fieldwork and reported on Phase I and II Environmental Site Assessments and other monitoring programs, including the interpretation of field and lab data and development of a conceptual site model.
- Participated in the fieldwork and filing of a Permit To Take Water.
- Discussed and completed remedial options analyses.

### **JUNIOR PROJECT MANAGER/ENVIRONMENTAL SCIENTIST – DST CONSULTING ENGINEERS, WATERLOO, ON (2012-2013)**

- Onsite liability third party reviewer for a remediation of impacted soil, and a stream restoration. Included the review of contractor and consultant work of over 20 employees.
- Reviewed reports and onsite work for a remediation and continued monitoring of several RSC properties. Involved working closely with several consulting firms to ensure all work was completed to Ontario regulations.
- Completed fieldwork and reported on Phase I and II Environmental Site Assessments, including the interpretation of field and lab data and development of a conceptual site model.
- Discussed and completed remedial options analysis.
- Completed proposals for Phase I and II, and remediation projects.

### **ENVIRONMENTAL SCIENTIST – MMM GROUP, MISSISSAUGA, ON (2008-2012)**

- Onsite supervision of remediation activities and continued monitoring of a contaminated groundwater plume in Northern Ontario. Overall Health & Safety of workers at the site and ensured all work completed to environmental regulations.
- Completed, reported on and managed Phase I and II Environmental Site Assessments and Contaminant Overview Studies/Preliminary Site Screenings. Budgeted and tracked costs for these projects.
- Liaised with clients on a daily and weekly basis to provide progress updates. Participated in start-up, Health & Safety and closeout meetings.
- Gained familiarity with the Environmental Assessment process. Completed the Contaminated Sites portion and participated in the Public Information Session.
- Completed both small and larger designated substances surveys for commercial and industrial properties.
- Participated in the fieldwork and filing of Permits To Take Water and other Hydrogeological Studies.
- Completed proposals for Phase I and II, and remediation projects.

## **PROJECT EXPERIENCE**

### **Private Client – Phase One and Two Environmental Site Assessment and RSC, Brantford, Ontario (March 2021 to present)**

Project Manager; responsible for managing the schedule, coordinating each task, obtaining subcontractors, client liaison, and review of each report to ensure accordance with Ontario Regulation 153/04. An RSC will be filed with the MECP when completed.

### **Oxford County – Watermain Extension and Improvement, Woodstock, Ontario (March 2021 to April 2021)**

Qualified Person responsible for the Excess Soil Characterization Report, data tabulation, review of results, and discussion of where excess soil can be removed to.

**Private Client - 82 Site Project Portfolio – Ontario (2020 to present)**

Project manager responsible for: subcontractor management; scheduling; assigning report writers and reporting, and review. Englobe is retained for provided Environmental Services for management of the portfolio to purchase a number of properties across Ontario, including Phase I, IIs and remediation/risk assessment, where required.

**Canadian Tire Real Estate – Various Projects, Ontario (August 2019 to present)**

Project manager responsible for: subcontractor management; designing the work program (soil sampling); scheduling; client liaison; and report and recommendations review. Englobe is retained for provided Environmental Services on a multi-year contract.

**County of Brant – Excess Soils Management for Road, Paris, Ontario (April 2020 to June 2020)**

Project manager responsible for: subcontractor management; designing the work program (soil sampling); scheduling; soil sample collection; client liaison; and report and recommendations review.

**City of Brantford - Road Reconstructions, Excess Soil Management, Brantford, Ontario (August 2019 to December 2019)**

Environmental Geoscientist who completed the Phase I ESA for each road in her mandate included: Historical review; Reconnaissance; Interview with Site owner; and Report and Recommendations. Englobe was retained for provided Environmental and Geotechnical Services when required as a part of the multi year contract awarded by the City of Brantford.

**Private Client - Phase One and Two ESA, and Soil Remediation, Brantford, Ontario. (December 2018 to present)**

Project Manager who ensured that Phase I and II ESA was done in accordance with Ontario Regulation 153/04; Historical review, reconnaissance, interview with Site owner, and report. For the Phase II Environmental Site Assessment, performed Soil and groundwater sampling, data analysis and reporting. Englobe was retained by ANC Inc to carry out Phase I and II ESA and Geotechnical Investigation for the property located at 32 Bridge Street in Brantford, Ontario. The site is approximately 0.12 hectares in size and is currently a private parking lot. Designed the work program for the contaminated soil removal.

**Private Client - Phase I & II ESA, and Soil Remediation, Tavistock, Ontario (May 2019 to November 2019)**

Project Manager who liaised with the client, keeping them updated on the progress of the project and provide updates. Phase I and II ESA was carried out in accordance with CSA Standards. Completed the site historical review, site reconnaissance, interviews with Site owner, and preparation of the report. Englobe was retained to carry out Phase I ESA, then as per findings was retained to carry out a Phase II ESA on the property and soil removal as necessary.

**Private Client – Hydrogeological Assessment, London and Cambridge (Various Locations), Ontario, 25K per Site (December 2017 – August 2018)**

Report Writer/Research; responsible for background research including the review of geological maps, reporting, water balance analysis, and co-ordination of field activities for Hydrogeological Assessments in accordance with the Conservation Authority Guidelines For Development Applications.

**City of Waterloo – RSC Compliant Phase One and Two Environmental Site Assessment, Waterloo, Ontario, 20K (May 2018 – October 2018)**

Project Manager; responsible for managing the schedule, coordinating each task, obtaining subcontractors, client liaison, and review of each report to ensure accordance with Ontario Regulation 153/04, and the filing of a RSC with the MECP.

**Private Client – RSC Compliant Phase One and Two Environmental Site Assessment and Soil Remediation, Welland, Ontario, 75K (January 2018 – July 2018)**

Project Manager; responsible for managing the schedule, coordinating each task, obtaining subcontractors, client liaison, and review of each report to ensure accordance with Ontario Regulation 153/04, and the filing of a RSC with the MECP.

**Private Client – 5 Site Client Portfolio - Phase I and II Environmental Site Assessments, London, Ontario, \$40K (January – February 2017)**

Environmental Technician; responsible for background research, Site reconnaissance, a soil and groundwater sampling program, interpretation of background and analytical data, and preparation of technical reports for five separate Sites in London, Ontario.

**Canadian Nuclear Laboratories – Characterization Reports, Chalk River Laboratories, Deep River, Ontario, \$100K (2016)**

Environmental Technician; aided in historical review and work plan development, administrative tasks including participation in client meetings and production of meeting minutes. WorleyParsons Canada Services Ltd. was retained to produce Characterization Reports for three specific locations on the Chalk River Labs properties in support of long-term management and/or remediation.

**BP Canada Energy Group – Phytoremediation, 201 Alice Street, Guelph, Ontario, \$500K (2013-2015)**

Task Manager and Field Scientist; acted as main point of contact with the client, ensuring budget and schedule were met. Provided onsite supervision of activities completed by subcontractors, performed quarterly groundwater sampling, interpreted results and produced reports. WorleyParsons Canada Services Ltd. was retained to manage day-to-day activities (including quarterly sampling) of a phytoremediation of impacted groundwater. It was understood this work was being carried out for long-term management and eventual closure of the property.

**Telus Communications – Targeted Remediation and Groundwater Monitoring, 73 Laird Drive, Toronto, Ontario, \$1.2M (2013-2016)**

Environmental Scientist; supervised remediation activities, ensured budget and schedule were met. Performed groundwater monitoring pre- and post-remediation. WorleyParsons Canada Services Ltd. was retained to carry out a targeted remediation of impacted soil using a slide rail system. Monitoring of the groundwater plume was carried out prior to remediation to confirm extent of contamination and post remediation to monitor residual contamination.

**Infrastructure Ontario – Remediation, Former Burtch Correctional Facility Remediation, Brantford, Ontario, \$15M (2012-2013)**

Onsite Liability Review; acted as onsite peer reviewer of a large-scale remediation project to ensure work was completed to regulations and schedule. DST Consulting Engineers was retained to complete a liability review of a soil remediation and stream restoration to ensure project remained on schedule, to communicate between consultant/contractor and aboriginal group, and ensure work was completed to Ontario regulations.

**Trans Northern Pipelines – Bronte Creek Cleanup, Oakville, Ontario, \$25M (2011-2013)**

Field Scientist; completed daily, monthly and quarterly monitoring of the remediation of contaminated soil and groundwater from a large pipeline spill. Ecoplans/MMM Group was retained to monitor and remediate after a pipeline spill was detected to be leaking into Bronte Creek.

**Ministry of Transportation – Porquis Junction Patrol Yard Cleanup, Porquis Junction, Ontario, \$5M (2009-2012)**

Field Scientist; onsite supervision of ORC and RegenOx injections to remediate groundwater impacts. Tracked the amount of chemicals used daily to ensure work was completed to scope. Completed pre and post remediation

sampling to monitor the plume and any residual contamination. Ecoplans/MMM Group was retained to monitor and remediate an underground storage tank leak.

**Ministry of Transportation – Northwest Retainer (2008-2012)**

Field Scientist; responsible for Phase I and II ESAs; including historical review, site inspection, soil and groundwater sampling and reporting for a number of MTO owned properties in the northwestern portion of Ontario. Ecoplans/MMM Group was retained for two 3 year terms.

**Ministry of Transportation – Highway 407 East Extension Environmental Assessment, Ontario, \$500K (2008-2011)**

Field Scientist; completed field screenings of over 500 properties along the proposed Highway extension. Included identification of properties of concern, and reporting as per the Environmental Reference for Highway Design. Completed a Phase II ESA on a portion of the Ontario Power Generation landfill in Darlington, Ontario; drilling preparation and oversight, results interpretation and reporting. Ecoplans/MMM Group was retained to complete an Environmental Assessment of the Highway 407 East Extension from its current terminus at Brock Road to Highway 35/115. This included route analysis, selection and design.

**Metrolinx – Georgetown Corridor Phase I and II Environmental Site Assessment, Ontario, \$200K (2009)**

Field Scientist; completed a Phase I and II environmental site assessment to identify any locations of environmental concern. This included records review, supervision of drilling activities, sampling, data analysis and reporting.

**Ontario Realty Corporation – St. Thomas Psychiatric Facility Environmental Site Assessment and Designated Substances Survey, St. Thomas, Ontario, \$500K (2009)**

Field Scientist; completed a records review, site inspection and hazardous materials assessment, sampled for potential asbestos and lead in paint, interpreted results, and presented them in a report.

## CAREER PATH

2018 – present	Englobe Corp., Kitchener, Ontario Project Manager/Geoscientist
2017 – 2018	EXP Services Inc., Cambridge, Ontario Project Manager/Geoscientist
2016 – 2017	Englobe Corp., Kitchener, Ontario Project Manager/Geoscientist
2013 – 2016	WorleyParsons Canada Services Ltd., Mississauga, Ontario Environmental Scientist
2012 – 2013	DST Consulting Engineers, Waterloo, Ontario Junior Project Manager/Environmental Scientist
2008 – 2012	MMM Group (formerly Ecoplans Limited), Mississauga, Ontario Environmental Scientist

## RANDALL W. BARKHOUSE B. Sc., P.Geo. QP

Mr. Randy Barkhouse has over 28 years of experience managing staff, consulting operations and conducting environmental projects across Canada and the United States. He is a Professional Geoscientist and is recognized in Ontario as a QP under O. Reg. 153/04 as well as an Asbestos Hazard Emergency Response Act (AHERA) certified Building Inspector, and certified Asbestos Management Planner.

He has directed several national accounts for large-scale due diligence, compliance, and acquisition audits for multi-national companies, developers, institutional lenders, and private equity groups. Types of properties include large industrial and commercial properties (including multi-site portfolios), upstream and mid-stream oil and gas facilities, electrical distribution and transmission stations, automotive facilities, and manufacturing, retail and multi-residential properties. Mr. Barkhouse has conducted, managed and directed as well as provided senior review and QA/QC for all types of environmental consulting projects including Phase I & II ESAs, contaminant delineation programs, in-situ and ex-situ remediation, property/building condition assessments, designated substance surveys including asbestos and mould for all types of private and municipal, provincial and federal government clients.

Mr. Barkhouse is the Director of Environment Services in Ontario, responsible for management of staff, workload and revenue of the Environmental Group and Business Development. He provides Technical Advice to the project team; liaise with clients; provides senior review of reports; and develops recommendations for environmental remediation options, risk assessment and other environmental scope of work.

### PHASE I AND II ENVIRONMENTAL SITE ASSESSMENTS (ESA)

- Project Manager for a multi-site Phase I ESA program for a hydroelectric provider. In total, 30 sites were reviewed and audited to establish current environmental conditions for the purpose of property valuations at the request of bondholders.
- Project Team Member – assisted with the completion of field coordination and project management and report writing/organization for a 1 million-square foot former Distribution Centre for a National automotive and hardware corporation in Toronto, Ontario. Mr. Barkhouse worked with other team members to coordinate the large scale due diligence program, compile and organize data and prepare the detailed report for the Phase II ESA and Hazardous Building Materials Survey.
- National Account/Program Manager for a multi-national motel chain's assessment and remediation requirements for acquisitions, real estate purchases, and sale/lease back programs. Project work consists of Phase I and II

### YEARS OF EXPERIENCE

28 years

### PROFESSION

Professional Geoscientist

### AREA OF EXPERTISE

Hazardous Materials Assessment / Management, Environmental Due Diligence - Site Assessment and Remediation

### EDUCATION

1989 Bachelor of Science (Major in Geology) – St. Mary's University, Halifax Nova Scotia

### PROFESSIONAL DEVELOPMENT

40-hour OSHA Hazardous Waste Operations Course, Annual 8-hour OSHA Refresher training

Certified US EPA AHERA Building Inspector (Asbestos)

Certified US EPA AHERA Management/Planner (Asbestos)

Ontario Working at Heights Training

Electrical Awareness & Grounding and Bonding

H2S Alive, WHMIS, St. John Ambulance First Aid/CPR

Atlantic Canada RBCA - Risk Assessment Tool Kit Training

Various Leadership Courses and Training

### PROFESSIONAL ASSOCIATIONS

Association of Professional Geoscientists of Ontario, License No. 1472 (since 2007)

Association of Professional Engineers & Geoscientists of Alberta License No. 215005 (since 2015)

Association of Corporate Growth – Toronto Chapter

Member, Environmental Abatement Council of Ontario

Member, Kitchener-Waterloo Chapter of the Ontario Insurance Adjusters Association (OIAA)

### LANGUAGES

English



Environmental Site Assessments, Audits, asbestos surveys and abatements, and remediation. Procured a nation-wide Master Services Agreement from the client.

- ❖ Project Director/Team Member – directed and assisted with facilitating and completion of work plans, project management and report writing/organization with Hydro One LAR program from 1998 to 2005; and 2014 to present. Client liaison, resource planning and QA/QC were also a primary focus.
- ❖ National Account/Program Manager for a Fortune 50 financial and diversified service corporation's due diligence assessment requirements in a financial lending capacity. Being the preferred Canadian consultant, duties included: Environmental and Compliance Audits, completion of Phase I and II ESAs, desktop reviews, asbestos and mould surveys (including management plans and abatement specifications), and remediation. Procured a nation-wide Master Services Agreement from the client.
- ❖ Project Manager for large scale monitoring well installation program, including sampling and hydraulic conductivity testing at multiple sites within CFB Greenwood; as well as Field Survey and Preliminary Qualitative Risk Assessment at 11 sites within CFB Shearwater, and, 24 sites at CFB Borden and its Satellite sites.
- ❖ Principal Consultant for Phase I ESAs for various major petroleum companies, which comprised borehole drilling, monitoring well installation, sampling and compiling hydrogeological data for detailed reporting.

## **DESIGNATED SUBSTANCE AND HAZARDOUS MATERIALS ASSESSMENT / MANAGEMENT**

### **Ontario Infrastructure and Lands Corporation (OILC) - Designated Substances and Hazardous Materials Survey and Specifications Development, multiple properties in Ontario (2018)**

Senior Reviewer and QA/QC for multiple projects of various project specific Designated Substances and Hazardous Materials Survey (DSHMS) projects for OILC. Also, reviewed asbestos abatement specifications to be included in tender documents. The DSHMS covered all of the designated substances defined in Ontario Regulation (O. Reg.) 490/09 and for asbestos O. Reg. 278/05 under the Occupational Health and Safety Act, as well as a number of other hazardous substances such as polychlorinated biphenyls (PCBs), and mould. The DSHMS typically included visual investigation of the entire buildings or project areas, collection of air and bulk samples and analysis, and recommendations for abatement, where necessary. DSHMs identified as being present typically included asbestos, lead, silica and mercury. The project included preparation of the specifications for asbestos abatement, when necessary to ensure human health and environmental protection during the abatement activities.

### **Private High School Campus, Asbestos Management Plan, Toronto (2018)**

Project Director and client liaison for an Asbestos Management Plan (AMP) for a private high school campus with the City of Toronto. Assisted in the development of an AMP in accordance with O. Reg. 278/05, encompassing all campus buildings and residences identified as containing asbestos containing materials during a prior asbestos survey. Also, conduct periodic asbestos containing materials re-assessments and preparation of a summary report documenting any abatement activities, damaged asbestos materials observed, and new suspected asbestos containing materials not previously encountered.

### **Project Management Firm – Asbestos Containing Materials Surveys, multiple locations in Ontario, Manitoba, Saskatchewan, Alberta (2017)**

Project Director for surveys and reassessments for potential asbestos containing materials in accordance with provincial regulations of several shopping malls, office towers and industrial buildings ranging in size up to 250,000 square feet for a nationwide property management company at locations in Ontario, Manitoba, Saskatchewan and Alberta.

### **Upper Canada College – Asbestos Surveys, Reassessments, Asbestos Management Plans and Abatement, Toronto, ON (2010 – 2017)**

Acted as the Senior Project Manager for the completion of multiple asbestos surveys across the school campus, development of a campus-wide asbestos management plan, direction and preparation of abatement specifications



for tendering to qualified abatement contractors, conduct job showings, abatement inspections and air clearance testing annual asbestos reassessments.

The project included asbestos surveys on campus residences and other school buildings, and upon survey completion, manage and maintain a complete inventory of ACM on campus and provide annual re-assessments to maintain compliance with O. Reg. 278/05.

**Lead Paint Investigation and TCLP Analysis; Contaminated Soil Delineation; and Supervision of Dump Debris, Lead and PCB Paint Abatement Activities Cove Island Lighthouse, Tobermory, Ontario (2014)**

Acted as senior environmental consultant in the direction, coordination and project management for the completion of a lead and PCB paint investigation and toxicity characteristic leaching procedure (TCLP) analysis of waste from dump sites; contaminated soil delineation; and dump debris removal and lead and PCB containing paint abatement.

**Seized Property Management Directorate (SPMD) – Mould Investigation, Assessment and Remediation, Markham, ON (2012)**

Acted as the Senior Project Manager/Senior Geoscientist for the completion of a mould assessment and survey as well as remediation of a former marijuana grow-op within a residential dwelling within the Town of Markham. This also included preparation of abatement specifications for tendering to qualified abatement contractors, conduct job showings, abatement inspections and air clearance testing. The project included asbestos assessment and abatement of the property for re-habitation.

**Toronto Transit Commission – Designated Substance Surveys, multiple facilities, Toronto (2008)**

Project Reviewer of proposed budgets and Limited Designated Substance Survey reports for defined work areas at various Toronto Transit Commission facilities, including subway stations, maintenance shops, and sub-stations, as part of their efforts to maintain compliance with applicable regulations and protect worker health.

**Multi-National Motel Chain – Environmental Site Assessment, Remediation and Asbestos Surveys and Abatement, various locations across Canada (2007)**

National Account/Program Manager for a multi-national motel chain's assessment and remediation requirements for acquisitions, real estate purchases, and sale/lease back programs. Project work consists of Phase I and II Environmental Site Assessments, Audits, asbestos surveys and abatements, and remediation. Procured a nation-wide Master Services Agreement from the client.

**ENVIRONMENTAL AUDITING AND REMEDIAL OPTIONS REVIEWS EXPERIENCE**

- ✦ Project Director for a large-scale multi-site assessment program for a multi-billion-dollar utility company. Duties included peer review, management support, client liaison, and QA/QC.
- ✦ Directed and coordinated an environmental audit to support a property transfer at an automobile parts and distribution facility. Identified environmental concerns and provided detailed cost-effective remedial solutions to alleviate subsurface hydrocarbons and potential polychlorinated biphenyls contamination. Upon completion of remedial activities, the facility was successfully sold.
- ✦ Project Manager for highly confidential due diligence audits as part of a multi-million-dollar acquisition of a multi-national manufacturing corporation. Projects involved on-site records review, site inspections, compliance review, and regulatory searches. Site visit and final reports for four sites were completed within five business days.
- ✦ Team Leader for a due diligence team assigned to complete a highly confidential acquisition of a Western Canada energy company for a Fortune 100 multi-national company. Activities included a comprehensive Phase I and II ESAs, compliance audit and environmental liability assessment program with a value of \$1M. Program was successfully completed on time and under budget and the energy company was successfully acquired. A total environmental liability of \$17M was identified.

- Team Leader for a due diligence team assigned to complete a highly confidential acquisition of gas plant assets of a Western Canada energy company for a Fortune 100 multi-national company. Activities included a comprehensive Phase I ESA, compliance audit, and environmental liability assessment program with a value of \$100,000. Program was successfully completed on time and under budget. A total environmental liability of \$5MM was identified.

## ENVIRONMENTAL MANAGEMENT PLANS AND TRAINING PROJECT EXPERIENCE

- National Account/Program Manager for a Fortune 100 automotive corporation's due diligence assessment requirements and nation-wide Environmental Management Program for its several hundred dealerships. Being the preferred Canadian consultant, duties include formulation of a comprehensive Environmental Management Program designed to ensure environmental awareness with all government environmental regulations and best management practices, as well as environmental policy consistent with the Corporation's objectives. Conducted training in a classroom setting for all dealerships across Canada with testing and certification granted to all participants. The development of an on-line training component has been completed as well.

## PEER REVIEW

- Project Principal for a Fortune 50 financial and diversified service corporation's due diligence assessment requirements in a financial lending capacity. Conducted over 100 technical peer reviews and gap analyses of other consultant's environmental assessment (Phase I and II) and remediation reports to evaluate conformance to client's, industry and regulatory standards and protocol.
- Principal Peer Review Consultant – GE Real Estate – Provided peer review consulting of Phase I and II ESA, remediation and Record of Site Condition submission of another consultant's work on behalf of the lender of the Toronto Film Studios development within the Toronto Port Lands.
- Project Principal - Hydro One – Specific duties included peer review of other consultants' Phase II ESA, remediation monitoring, and stormwater management plans to ensure compliance with Hydro One's protocols and work plans.
- Senior Project Manager - Scott's REIT - Specific duties included peer review of other consultants' Phase I (>250 reports) and II ESA and remediation reports to ensure compliance with regulatory standards and lending due diligence requirements.
- Project Principal – Various lending institutions, real estate brokerages, law firms, property management corporations – Conducted peer reviews and data gap analyses of multiple (Phase I and II) and remediation reports to evaluate conformance to client's due diligence and regulatory standards and protocol.

## PROPERTY CONDITION/BUILDING CONDITION ASSESSMENTS

- National Account/Program Manager for property condition assessments (PCA) for a Fortune 50 financial and diversified service corporation's due diligence assessment requirements in a financial lending capacity. Completed over 100 PCAs ranging from single owner occupied commercial buildings of 1,858 square metres to multi-tenant industrial/commercial properties in excess of 46,451 square metres.
- Project Director for various financial lenders and real estate brokers and their respective commercial/industrial clients. Completed PCAs and BCAs for lenders' due diligence requirements.

## CAREER PATH

Since 2018	Englobe Corp., Kitchener, Ontario Director Environment - Ontario
2009-2018	XCG Consulting Limited, Kitchener, Ontario Senior Geoscientist
2007-2009	SLR Consulting (Canada) Ltd., Toronto, Ontario Principal, Financial and Professional Services
1998-2007	SEACOR Environmental Inc., Mississauga, Ontario Director, Central Region
1990-1998	Groundwater Technology Inc./Fluor Daniel (GTI), Halifax, Nova Scotia Project Manager/Senior Project Manager
1989-1990	British Petroleum (BP) Canada Resources Limited, Nova Scotia and New Brunswick Field Geologist/Project Geologist



# J.H. COHOON ENGINEERING LIMITED

## CONSULTING ENGINEERS

440 Hardy Road, Unit #1, Brantford, ON N3T 5L8  
Tel: (519) 753-2656 Fax: (519) 753-4263  
www.cohooneng.com

# 14591

December 27, 2021

Norfolk County  
Engineer  
Environmental and Infrastructure Services Division  
185 Robinson St., Suite 200  
Simcoe, Ontario  
N3Y 5L6

Attention: Mr. Tim Dickhout  
Project Manager, Development

Re: Proposed Residential Development  
MN 161 Wellington Avenue  
Delhi, Ontario  
Norfolk County  
Traffic Considerations

Dear Sir:

In response to request from the owner of the property, NexGen Rentals, Mr. A. Cappucci, our firm has reviewed the traffic impacts of the proposed development to be located at MN 161 Wellington Avenue, Delhi, Ontario, Norfolk County.

The re-zoning, official plan amendment application relating to this property relates only to the deletion of the commercial use that was / is presently required to occupy 50% of the ground floor area of this site. The proposal is to construct an eighteen (18) unit housing development on the subject lands. The proposed site development has been included within Appendix 'A' of this report.

### **Existing Transportation Network**

The subject property is located on the north side of Wellington Avenue just east of the intersection of Wellington Avenue and Main Street in downtown Delhi. The attached aerial photograph and the key plan presented within Figure No. 1, illustrates the existing transportation network in the area.

The site is serviced with municipal sidewalks on the existing streets within the area providing the residents the ability to access the existing commercial uses within the area without the use of



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vehicles. The uses that are present in the area are consistent with a downtown of a small community. Our firm reached out to Norfolk County and determined that no existing traffic volumes were available for either Wellington Avenue or Main Street in Delhi.

The current zoning for the site is 'CBD' – Central Business District which is consistent with the proposal with the exception of not permitting the commercial use on the ground floor of the building. The proposed site works includes the creation of an on-site parking lot on the north side of the proposed apartment building. A land use plan illustrating the existing land uses in the area has been included within Appendix 'B' of this report.



KEY PLAN

**Figure No. 1**  
**Key Plan**

## **Development Proposal**

In consideration of the impacts of the traffic generated on the subject property and utilizing the ITE manual for trip generations during the peak hours, we have estimated the following trip generations for this site during the peak hours

Residential                      = Approximately 0.6 trips per unit for the peak pm hour  
In this case, this would translate into about 10 peak hour trips relating to this site.

In review of the requirements for the typical TIS report, a full TIS is usually only required when



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the trip generation exceed 75 peak hour vehicles generated. As such, a traffic brief is being proposed in support of this application.

The site is intended to operate without any impacts to the existing road network with the following comments

### **Parking**

The proposed parking on this site includes the construction of a surface parking area that is located at the rear of the proposed apartment building. It is proposed that 16 parking spaces are being constructed to service the proposed residential units.

It is our opinion that as a result of the incorporation of the 16 parking spaces is sufficient in this application as the site does not require any parking under the provisions of the current zoning bylaw.

The following memo has been subdivided into two sections: Existing Traffic Demand Management (TDM) Opportunities, and Proposed TDM Opportunities.

### Proposed TDM Opportunities

#### Cycling:

It will be proposed that bicycle racks are proposed for the site, allowing for bicycles to be safely locked up near the main entrance of the proposed building for use by the proposed occupants.

#### Walking:

The site is intended to be pedestrian friendly in nature with painted or concrete sidewalk pedestrian walkways to the main entrances to the building.

#### Transit:

As indicated, the site is in close proximity to the downtown commercial area indicating that transit is not required for this property.

#### Parking:

The parking lot will have sufficient parking to service the site.

With the inclusion of the TDM opportunities being undertaken are appropriate for the project's location. Our firm anticipates that the measures being implemented will allow for a much more accessible site making it easier for people to use alternative methods of transportation.

### **Site Access**

The proposed site plan has been reviewed with consideration of access for all types of vehicles on this property.

In the review of the site plan in conjunction with the road network, the proposed driveway access is located greater than 80m+ from the existing intersection at of Main Street and Wellington Avenue. The location of the entrance would not have any impact on the operation of the municipal rights-of-way.

Fire protection for this development will be provided directly from the Wellington Avenue right-of-way without the need for fire trucks to enter the site in compliance with the requirements of



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the Ontario Building Code.

### **Conclusions:**



The findings of our analysis of the site complete with considerations of the overall development are as follows:

- The development proposal to redevelop the subject property to allow for approximately eighteen (18) single bedroom residential units.
- The access to the site is intended to be a full movement driveway onto Wellington Avenue.
- A total of 16 parking spaces are being proposed on the site
- The development is going to generate only 9-10 peak pm hour movements as a result of the increased development
- The anticipated increased traffic from the development would be considered insignificant as it relates to the overall capacity of existing infrastructure in the area.

I trust that this information will be sufficient to allow the re-zoning application to proceed.

Yours truly,

J.H. COHOON ENGINEERING LIMITED

R.W. Phillips, P.Eng.

c.c. A. Cappucci – Nexjen Rental Corporation.



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## **Appendix 'A'**

### **J H Cohoon Engineering Limited – Site Development Plan**



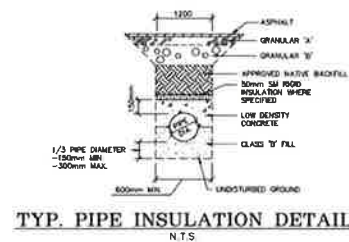
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# SITE STATISTICS

ITEM	PROPOSAL	ZONING BYLAW REQUIREMENTS	COMPLIANCE
ZONING CATEGORY	CBD	CBD	✓
LOT AREA (sq. m.)	1633.68	-	✓
LOT FRONTAGE (m.)	32.75±	-	✓
GROUND FLOOR AREA (sq. m.)	456.86	-	✓
TOTAL GROSS FLOOR AREA (sq. m.)	1370.6±	N/A	✓
LOT COVERAGE	27.8%	80% MAX.	✓
STREET SETBACK (m.)	2.00	0.00 MIN./3.0 MAX.	✓
REAR YARD (m.)	20.54	0.00 MIN. ABUTTING RESIDENTIAL	✓
SIDE YARD (m.)	2.75	0.00 MIN. ABUTTING RESIDENTIAL	✓
NUMBER OF PARKING SPACES	16	-	✓
NUMBER OF BARRIER FREE PARKING SPACES	2	-	✓
PARKING STALL DIMENSIONS (m.)	3.00 x 5.80	3.00 x 5.80	✓
BARRIER FREE PARKING STALL DIMENSIONS (m.)	4.80 x 5.50	4.80 x 5.50 (TYPE 'A')	✓
BUILDING HEIGHT (m.)	3 STOREYS	5 STOREYS MAX.	✓

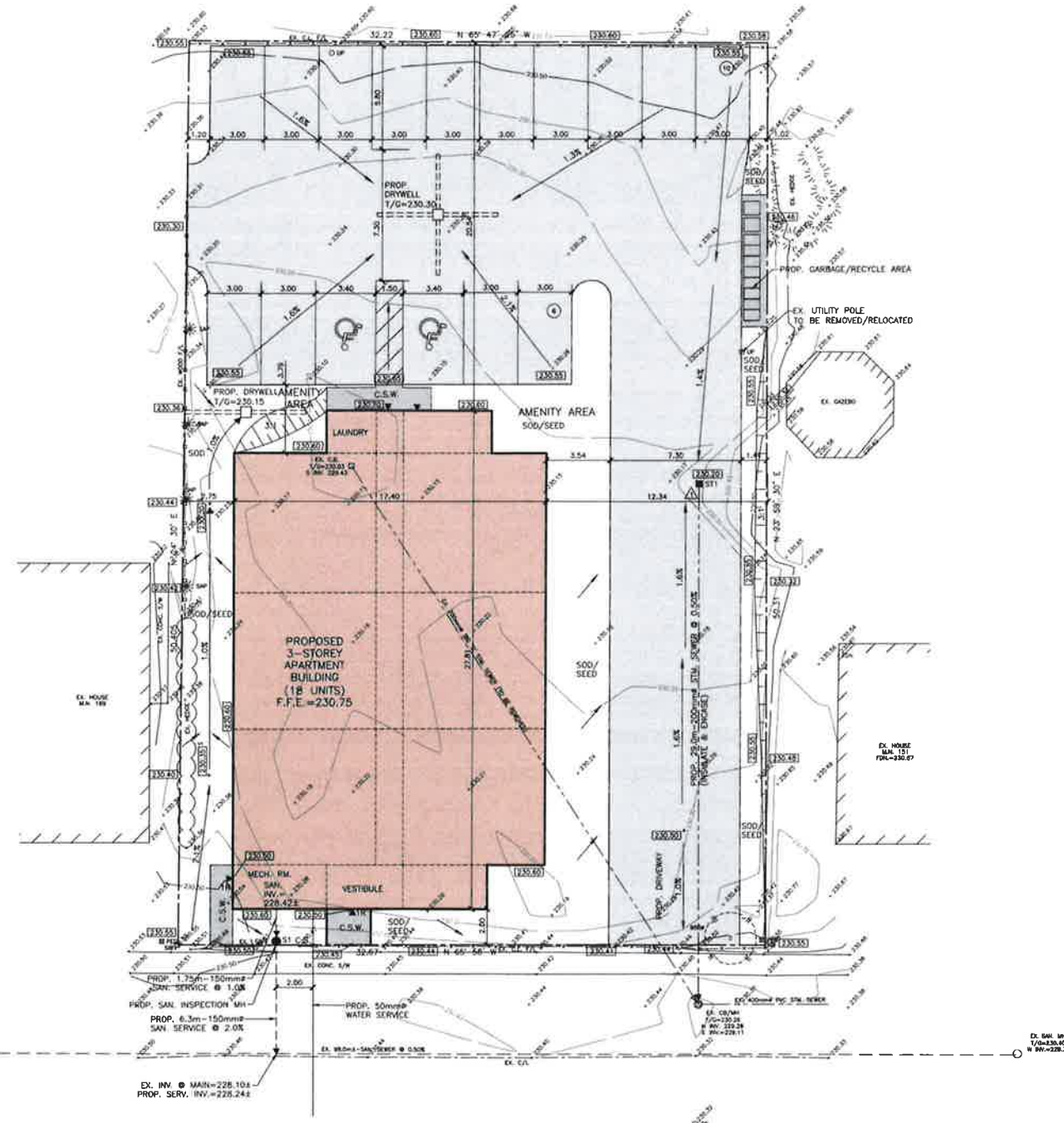
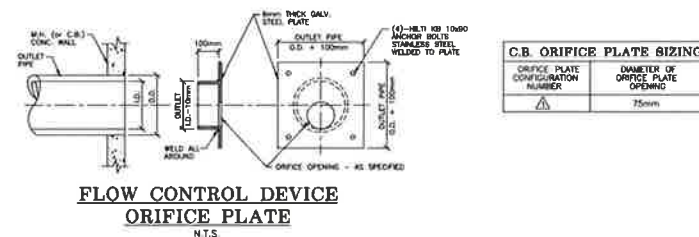
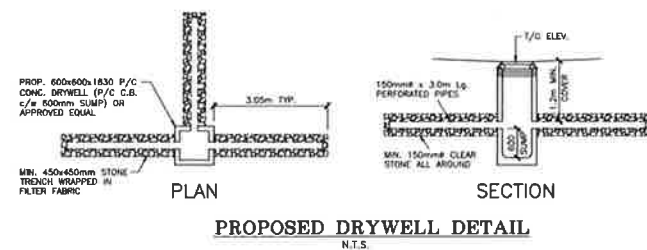
\* 4.11.1 NOTWITHSTANDING SUBSECTION 4.9, NO PARKING SPACES ARE REQUIRED FOR ANY LANDS IDENTIFIED IN THE CENTRAL BUSINESS DISTRICT ZONE (CBD).

\* MANY DWELLING UNITS IN THE CBD ZONE SHALL NOT OCCUPY MORE THAN 50 PERCENT OF THE USABLE FLOOR AREA OF THE FIRST STOREY, AND THE FRONTAGES OF THE FIRST STOREY SHALL BE DEDICATED TO RETAIL, OFFICE OR SERVICE USES (M-2-2018).



SANITARY SYSTEM			
MH No.	DESCRIPTION	I/G	INVERTS
S7	SANITARY INSPECTION MH	230.40	N 228.40 S 228.37

STORM SYSTEM			
MH No.	DESCRIPTION	I/G	INVERTS
ST1	0.6x0.6x1.83m P/C CB	230.20	S 229.43



WELLINGTON AVENUE

**LEGEND:**

- EXISTING ELEVATIONS
- PROPOSED ELEVATIONS
- PROPOSED SHALE ELEVATIONS
- PROPOSED SHALE
- GENERAL DRAINAGE

**NOTES:**

- ALL ELEVATIONS SHOWN ARE METRIC.
- BUILDER/OWNER TO VERIFY COMPLIANCE WITH ZONING BYLAWS (i.e. SIDEYARDS, SETBACKS, REARYARDS ETC.)

T.B.M. No. 1 ELEV. = 231.54m (GEO)

TOP HUT OF FIRE HYDRANT AS SHOWN

NO.	REVISION	DATE (MM/DD/YY)	BY
2	GRADING & OFFICE PLATE	01/18/22	S.L.M.
1	BUILDING/PARKING LAYOUT	10/20/21	S.L.M.

**J.H. COHOON ENGINEERING LIMITED**  
CONSULTING ENGINEERS

440 HARDY ROAD, UNIT #1, BRANTFORD - ONTARIO, N3T 5L8  
TEL. (519) 753-2856 FAX (519) 753-4283 www.cchooneng.com

**PROJECT:**

**PROPOSED APARTMENT DWELLING**  
161 WELLINGTON AVENUE, DELHI  
NORFOLK COUNTY

**CLIENT:**

NEXJEN RENTAL CORPORATION

**SITE DEVELOPMENT PLAN**

DESIGN:	J.H.C.	SCALE:	1:150
DRAWN:	S.L.M.	JOB No:	14591
CHECKED:	R.W.P.	DWG No:	14591-1
SHEET:	1 of 1	DATE:	JULY 20, 2021

**Appendix 'B'**  
**Land Use Aerial Photo of Subject Area**



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Untitled Map

Write a description for your map.

Legend

161 Wellington Ave






**MAP A**  
**CONTEXT MAP**  
Urban Area of DELHI

OPNPL2022023  
ZNPL2022024

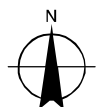


**Legend**

 Subject Lands

2020 Air Photo

1/26/2022

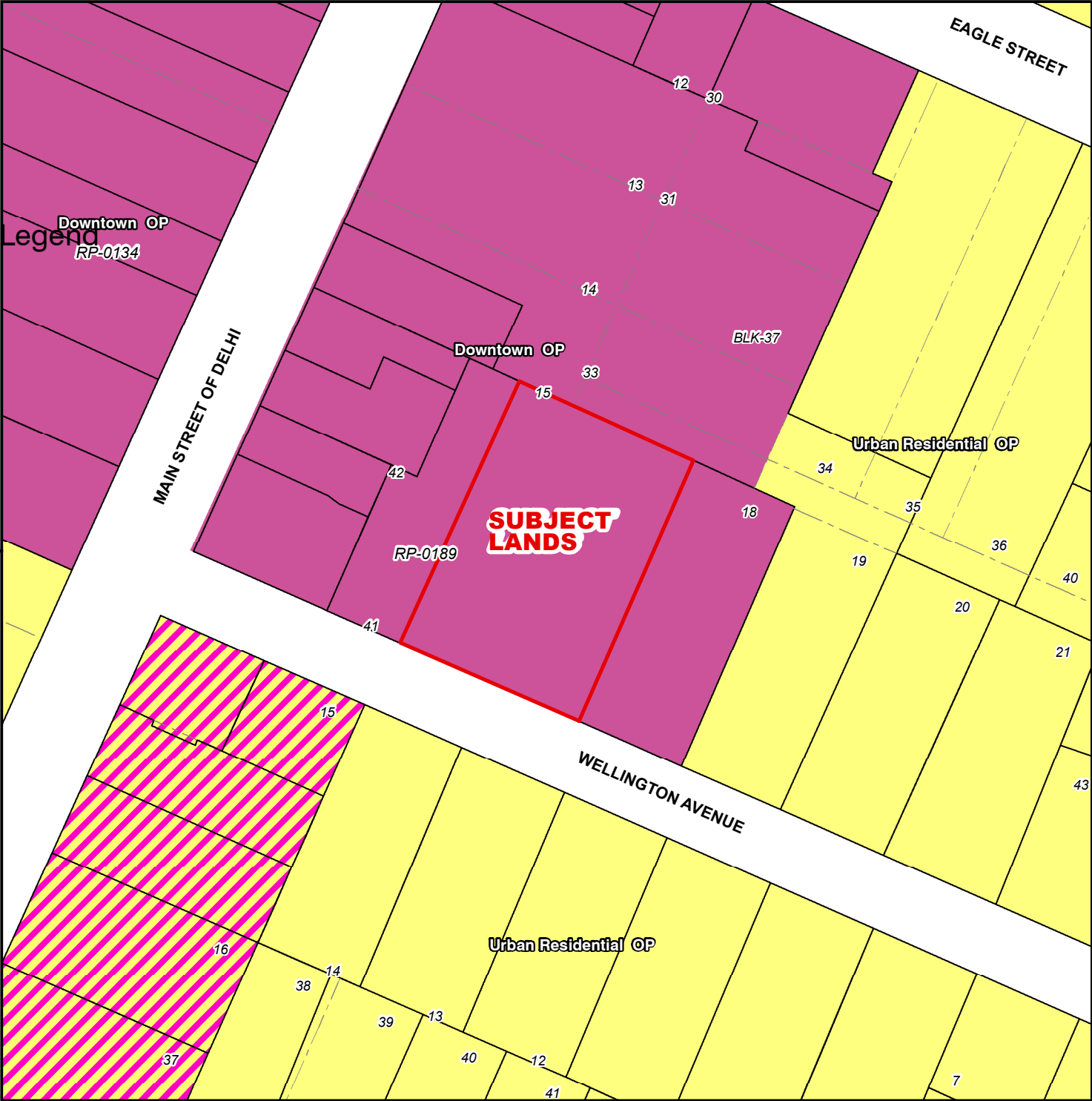


10 5 0 10 20 30 40  
Meters



**MAP B**  
**PROPOSED OFFICIAL PLAN AMENDMENT MAP**  
Urban Area of DELHI

OPNPL2022023  
ZNPL20222024



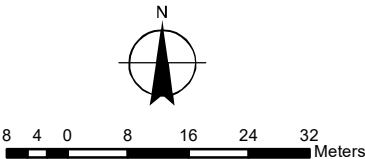
Official Plan Designations

1/26/2022

Subject Lands

- Urban Residential
- Mixed Residential/Commercial
- Downtown
- Urban Area Boundary

**From: Downtown**  
**To: Downtown with Site Specific Policy**



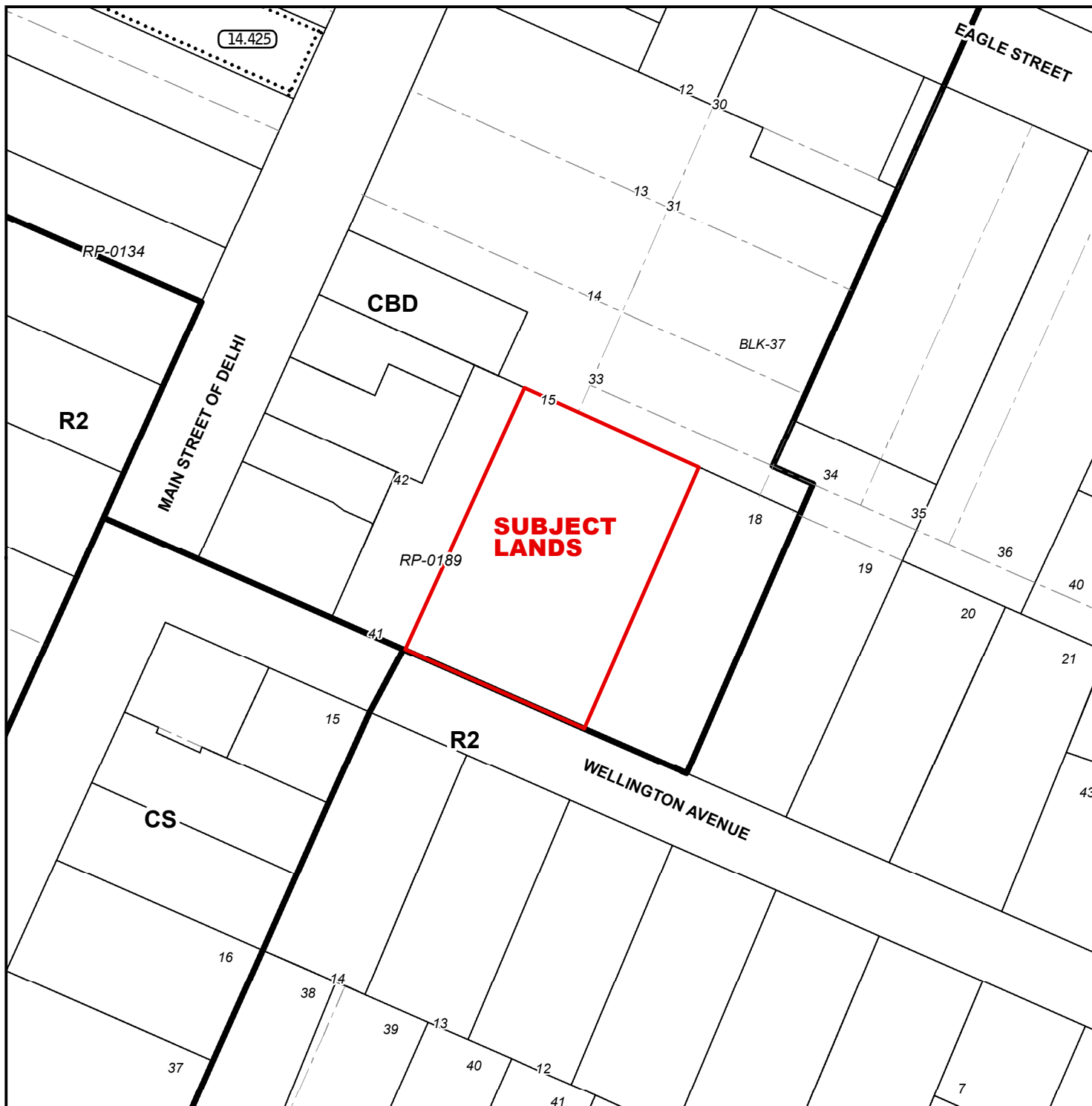
# MAP C

## PROPOSED ZONING BY-LAW AMENDMENT MAP

Urban Area of DELHI

OPNPL2022023

ZNPL2022024



### LEGEND

Subject Lands

#### ZONING BY-LAW 1-Z-2014

(H) - Holding

CBD - Central Business District Zone

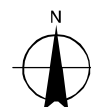
CS - Service Commercial Zone

R2 - Residential R2 Zone

**From: CBD**

**To: CBD With Special Provision**

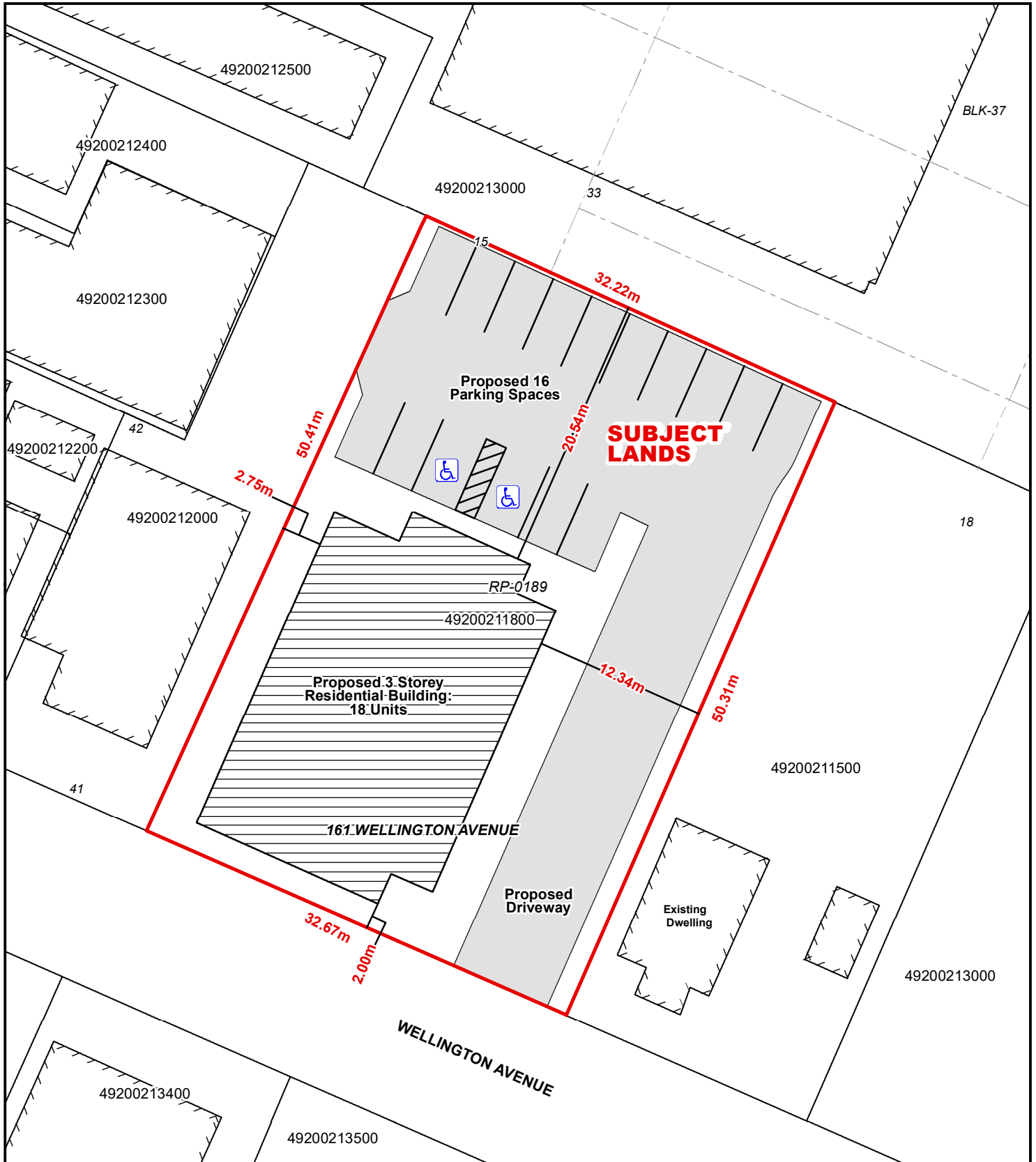
1/26/2022




8 4 0 8 16 24 32 Meters

**MAP D**  
**CONCEPTUAL PLAN**  
Urban Area of DELHI

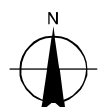
OPNPL2022023  
ZNPL20222024



**Legend**

 Subject Lands

1/26/2022



3 1.5 0 3 6 9 12 Meters