

Planning Department Development Application Form

Complete Application

A complete development application consists of the following:

- 1. A properly completed and signed application form (signature must be original in planners file);
- 2. Supporting information adequate to illustrate your proposal as indicated in **Section**H of this application form (plans are required in paper copy and digital PDF format);
- 3. Written authorization from the registered owner of the subject lands where the applicant is not the owner as per Section N; and,
- Cash, debit or cheque payable to Norfolk County in the amount set out in the user fees By-Law.

The above information is required to ensure that your application is given full consideration. An incomplete or improperly prepared application will not be accepted and may result in delays during the processing of the application. This application must be typed or printed in ink and completed in full.

Pre-Submission Consultation "Pre-consultation":

A pre-consultation meeting with staff is required for all applications; however, minor applications may be exempted depending on the nature of the proposal, with approval from the Director of Planning or delegate. The purpose of a pre-consultation meeting is to provide the applicant with an opportunity to present the proposed application, discuss potential issues, and for the County and Agency staff to identify the required information and materials to be submitted with the application in order for it to be considered complete. The applicant has the opportunity to make revisions to the application prior to submission, without the additional costs of recirculation fees. It may be necessary to seek the assistance of independent professional help (for example, a planning consultant or engineer) for complex applications. If a pre-consultation meeting has been held to discuss your development, please include a copy of the Pre-consultation minutes with your application as part of the submission package. It should be noted that pre-consultation minutes are valid for one year after the meeting date.

Development Application Process

Once an application has been deemed complete by a planner, it will be circulated to public agencies and County departments for review and comments. Notice of the application is also provided to adjacent land owners. The comments received assist the planner with the review and recommendation/approval of your application. The time involved in processing an application varies depending upon its complexity and its



acceptability to the other agencies and is subject to statutory *Planning Act* decision timeframes.

An additional fee will be required if a review by the Long Point Region Conservation Authority or by the Grand River Conservation Authority is deemed necessary by planning staff and/or by the Authority. A separate cheque payable to the Long Point Region Conservation Authority or the Grand River Conservation Authority is required in accordance with their fee schedule at the same time your application is submitted.

Additional studies required as part of the complete application shall be at the sole expense of the applicant. It should also be noted that in some instances peer reviews may be necessary to review particular studies and that the cost shall be at the expense of the applicant. The company to complete the peer review shall be selected by the County.

If the application is withdrawn prior to the circulation to commenting agencies, the entire original fee will be refunded. If withdrawn after the circulation to agencies, half the original fee will be refunded. If your drawings are required to be recirculated there will be an additional fee. Also, please note that if your engineering drawings require more than three reviews due to revisions by the owner or failure to revise your engineering drawings as requested, an additional fee will be charged. No refund is available after the public meeting and/or after approval of application.

Notification Sign Requirements

For the purpose of public notification and in order for staff to locate your lands for appropriate applications (zoning, subdivision, condominium or official plan) you will be given a sign to indicate the intent and purpose of your development application. It is your responsibility to:

- 1. Post one sign per frontage in a conspicuous location on the subject lands;
- 2. Ensure one sign is posted at the front of the subject lands at least three feet above ground level, not on a tree;
- 3. Notify the Planner when the sign is in place in order to avoid processing delays; and
- 4. Maintain the sign until the development application is finalized and thereafter removed.

Contact Us

For additional information or assistance in completing this application, please contact a planner at 519-426-5870 or 519-875-4485 extension 1842 or planning@norfolkcounty.ca. Please submit the completed application and fees to the attention of the Planning Department at 185 Robinson Street, Suite 200, Simcoe, ON N3Y 5L6.



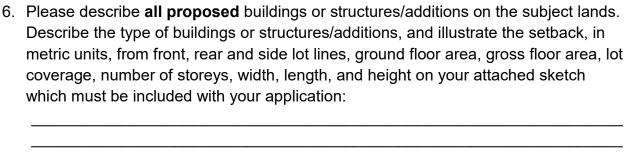
For Office Use Only: File Number Related File Number Pre-consultation Meeting Application Submitted Complete Application		Conservation Authority Fee	
Chec	ck the type of planning applic	cation(s) you are submitting.	
	Official Plan Amendment		
	Zoning By-Law Amendment		
	Temporary Use By-law		
	Draft Plan of Subdivision/Vac	cant 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		
zonir	ng provision on the subject land or official plan designation of th	result of this application (for example: a special ds to include additional use(s), changing the zone he subject lands, creating a certain number of lots, or	
_			
-			
-			
-			
Prop	erty Assessment Roll Numb	er:	



A. Applicant Information Name of Owner 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 Town and Postal Code Phone Number Cell Number **Email** Name of Applicant Address Town and Postal Code **Phone Number** Cell Number **Email** Name of Agent Address Town and Postal Code Phone Number Cell Number **Email** 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): Municipal Civic Address: Present Official Plan Designation(s): Present Zoning: 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: 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: 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.





7.	Are any existing buildings on the subject lands designated under the <i>Ontario</i> Heritage Act as being architecturally and/or historically significant? Yes \square No \square		
	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:		
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		
No	te: Please complete all that apply.		
 Please explain what you propose to do on the subject lands/premises w this development application necessary: 			
2.	Please explain why it is not possible to comply with the provision(s) of the Zoning By-law/and or Official Plan:		
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? \square Yes \square 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:		



	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		
p	olicy amendment (if additional space is required, please attach a separate sheet	t):	
-			
-			
	escription of land intended to be severed in metric units:		
	rontage:		
	epth:		
	/idth:		
	ot Area:		
F	resent Use:		
F	roposed Use:		
F	roposed final lot size (if boundary adjustment):		
lf	a boundary adjustment, identify the assessment roll number and property owne	r o	
tŀ	e lands to which the parcel will be added:		
_			
С	escription of land intended to be retained in metric units:		
F	rontage:		
С	epth:		
٧	/idth:		
L	ot Area:		
F	resent Use:		
F	roposed Use:		
Е	uildings on retained land:		
С	escription of proposed right-of-way/easement:		
	rontage:		
С	epth:		
٧	/idth:		
Δ	rea:		
F	roposed use:		
	ame of person(s), if known, to whom lands or interest in lands to be transferred,		
	assed or charged (if known):		



9.	Site Information	Zoning	Proposed
Ρle	ease indicate unit of measureme	ent, for example: m, m² or %	
Lo	t frontage		
Lo	t depth		
Lo	t width		
Lo	t area		
Lo	t coverage		
Fre	ont yard		
Re	ear yard		
Le	ft Interior side yard		
Ri	ght Interior side yard		
Ex	terior side yard (corner lot)		
La	ndscaped open space		
En	trance access width		
Ex	it access width		
Siz	ze of fencing or screening		
Ту	pe of fencing		
10	.Building Size		
Nι	ımber of storeys		
Bu	ilding height		
То	tal ground floor area		
То	tal gross floor area		
То	tal useable floor area		
11	.Off Street Parking and Loading	g Facilities	
Nι	ımber of off street parking space	es	
Nι	ımber of visitor parking spaces		
Νι	ımber of accessible parking spa	ces	
Νι	ımber of off street loading faciliti	ies	



12. Residential (if applicable)		
Number of buildings existing		
Number of buildings propose	ed:	· · · · · · · · · · · · · · · · · · ·
Is this a conversion or addition	on to an existing building	? □ Yes □ No
If yes, describe:		
Туре	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		_
Apartment - Two bedroom		_
Apartment - Three bedroom		
Other facilities provided (for or swimming pool):	example: play facilities, ι	underground parking, games room,
13. Commercial/Industrial Us	es (if applicable)	
Number of buildings existing	·	
Number of buildings propose	d:	
Is this a conversion or addition	on to an existing building	? □ Yes □ No
If yes, describe:		
Indicate the gross floor area	by the type of use (for ex	xample: 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:
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)



D.	Previous Use of the Property
1.	Has there been an industrial or commercial use on the subject lands or adjacent lands? \Box Yes \Box No \Box Unknown
	If yes, specify the uses (for example: gas station or petroleum storage):
2	Lette are recorded to be lieve the coupling to bound and a recorded by the rec
	Is there reason to believe the subject lands may have been contaminated by former uses on the site or adjacent sites? \square Yes \square No \square Unknown
3.	Provide the information you used to determine the answers to the above questions:
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? \square Yes \square No
E.	Provincial Policy
1.	Is the requested amendment consistent with the provincial policy statements issued under subsection 3(1) of the <i>Planning Act, R.S.O. 1990, c. P. 13</i> ? \square Yes \square 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? \square Yes \square No
	If no, please explain:



3.	Have the subject lands been screened to ensure that development or site alteration will not have any impact on source water protection? \square Yes \square No		
	If no, please explain:		
	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		
	☐ 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 ☐ Communal wells ☐ Individual wells ☐ Other (describe below) Sewage Treatment ☐ Municipal sewers ☐ Communal system ☐ Septic tank and tile bed in good working order ☐ Other (describe below) Storm Drainage ☐ Storm sewers □ Open ditches ☐ Other (describe below) 2. Existing or proposed access to subject lands: ☐ Municipal road ☐ Provincial highway ☐ Unopened road ☐ Other (describe below) Name of road/street: ____ G. Other Information 1. Does the application involve a local business? \square Yes \square No If yes, how many people are employed on the subject lands? 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.



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

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
Sit	 Plan applications will require the following supporting materials: Two (2) complete sets of the site plan drawings folded to 8½ x 11 and an electronic version in PDF format Letter requesting that the Holding be removed (if applicable) A cost estimate prepared by the applicant's engineer An estimate for Parkland dedication by a certified land appraiser Property Identification Number (PIN) printout
	Plan of standard condominium (2 paper copies and 1 electronic copy)
	Draft condominium declaration
Ш	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.

+ nov-1 2022

Date
ner of the lands that is the subject of this authorization set out below.
am/are the registered owner(s) of the
to make this application on ersonal information necessary for the shall be your good and sufficient 4

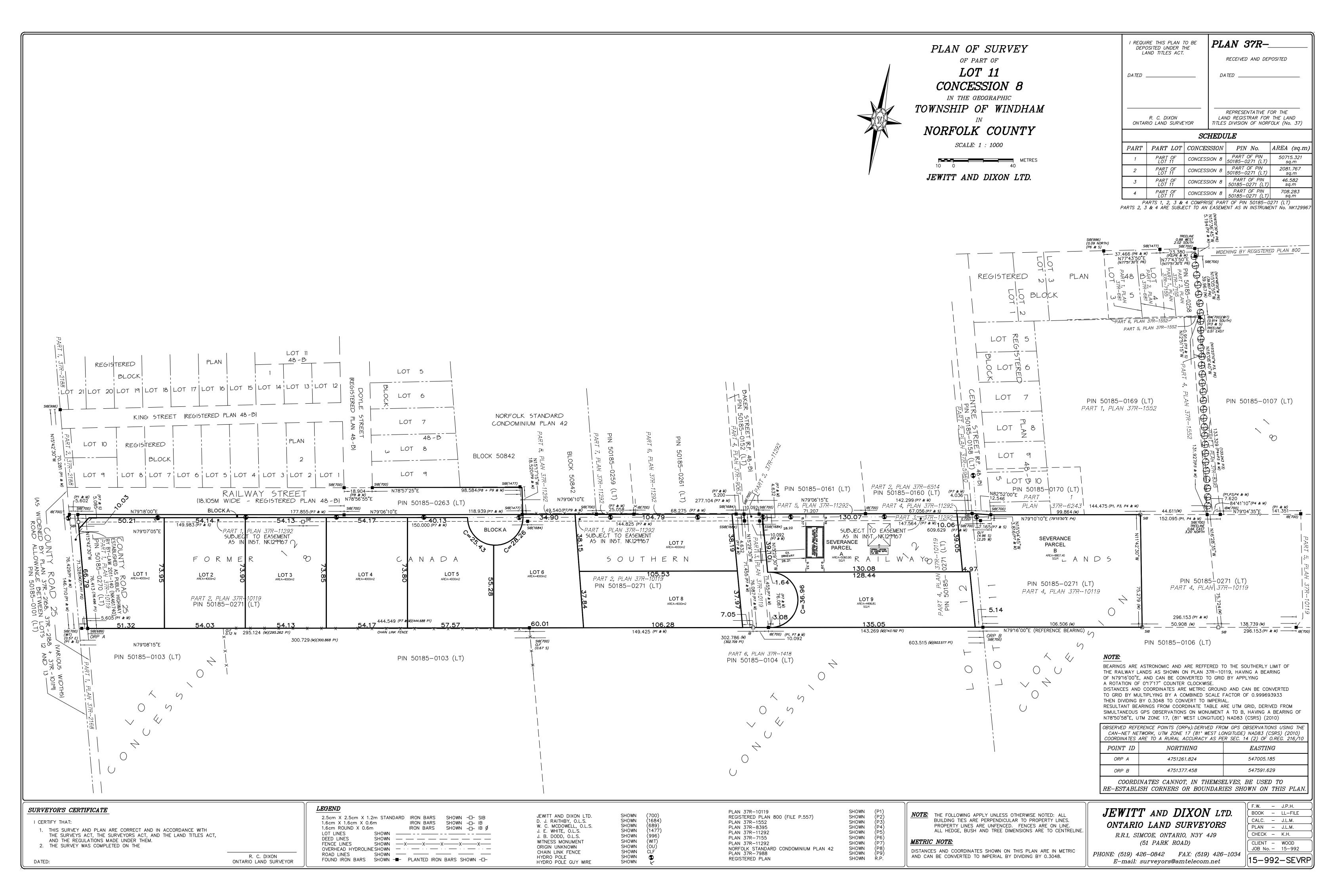


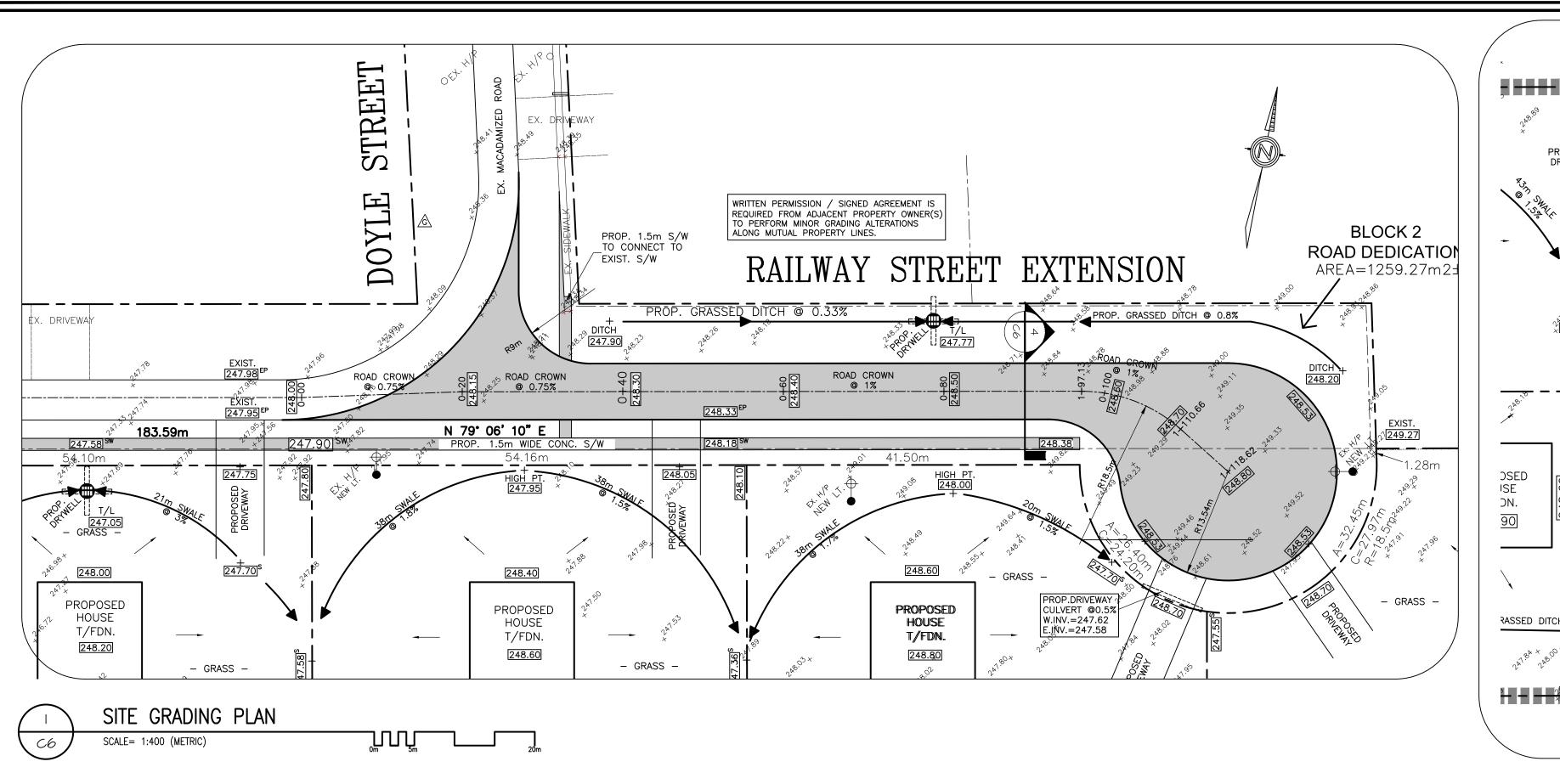
Owner

Date

N. Declaration 1, Mianase Successor of	THOROLD
solemnly declare that:	
all of the above statements and the statements of transmitted herewith are true and I make this sol believing it to be true and knowing that it is of the under oath and by virtue of <i>The Canada Evidence</i>	emn declaration conscientiously e same force and effect as if made
Declared before me at: Therefolds	Myhalle
	Owner/Applicant Signature
In <u>Miagora</u>	
This 15th day of Movember	
A.D., 20 22 a Commissioner, etc., Province of Ontario, for LandPro Planning Solutions Inc., and limited to process serving only. Expires July 17, 2024.	
arda fulliras	
A Commissioner, etc.	







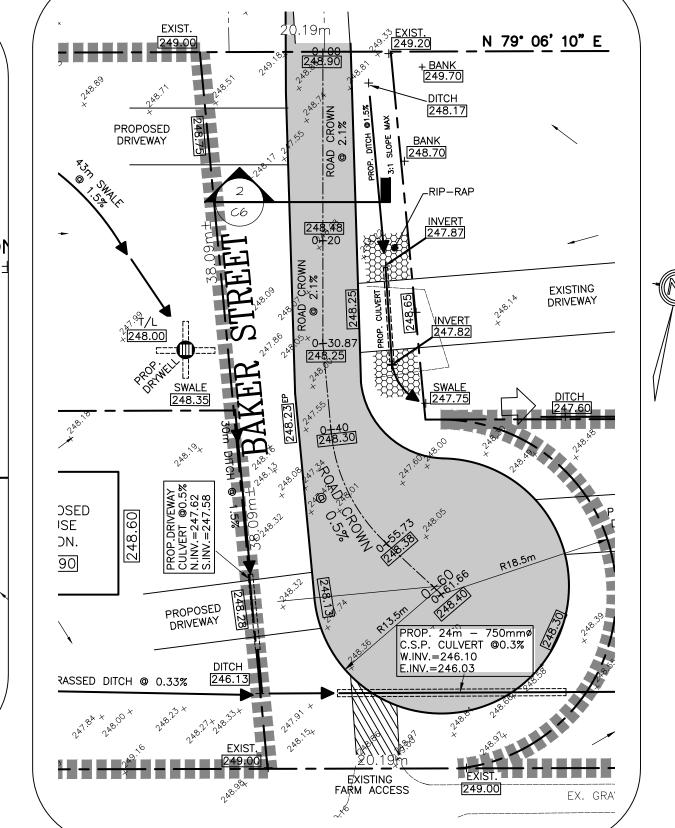
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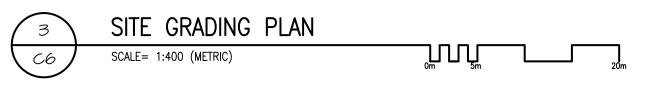
SCALE: N.T.S.

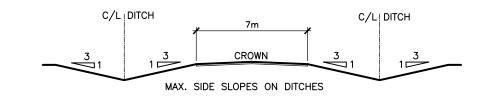
CROWN / / / 3

MAX. SIDE SLOPES ON DITCHES 2% SIDEWALK AND BOULEVARD SIDEWALK

TYPICAL DRIVEWAY CROSS-SECTION







TYPICAL DRIVEWAY CROSS-SECTION SCALE: N.T.S.

DISCLAIMER:
This is not a legal plan of survey and shall not be used for any purpose except for the purpose indicated in the title block. The employees of M. C. Engineering are not licensed Ontario Land Surveyors, therefore in accordance with the Surveyors Act R.S.O. 1990, c.29, (as amended 2009) please surveyors Act R.S.O. 1990, c.29, (as amended 2009) please refer to stamped O.L.S. drawing(s) for all survey data, including but not limited to, bearings and distances, property bars and monuments and any other real property boundary information, pertaining to the subject lands and or other lands adjoining the same. M.C. Engineering assumes no responsibility for the use of, or reliance on, all real property information shown (or not shown) on this plan.

THE FOLLOWING DRAWINGS AND NOTES TO BE CONSIDERED A PART OF THE CONSTRUCTION DRAWINGS:

CONTRACTOR MUST VERIFY ALL JOB DIMENSIONS, ALL DRAWINGS, DETAILS AND SPECIFICATIONS, AND REPORT ANY DISCREPANCIES TO ENGINEER BEFORE

ANY DISCREPANCY BETWEEN THIS DRAWING AND ACTUAL FIELD CONDITIONS WHICH MAY IMPACT

WORK IS TO BE REPORTED TO P.ENGINEER.

PROCEEDING WITH THE WORK.

☐ ALL DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF SERVICE AND THE PROPERTY OF M C ENGINEERING OR CONSULTANTS WHICH MUST BE RETURNED AT THE COMPLETION OF THE WORK.

☐ THE DRAWINGS AND SPECIFICATIONS ARE TO BE USED ONLY FOR THE PROJECT SO NOTED. REPRODUCTION OF THE DOCUMENTS IN PART OR IN WHOLE FOR ANY OTHER PURPOSE, OTHER THAN THIS PROJECT, WITHOUT THE WRITTEN CONSENT OF M C ENGINEERING IS PROHIBITED. DRAWINGS ISSUED FOR GENERAL PURPOSE, NEGOTIATION, LEASE ETC. CARRY ALL THE ABOVE COPYRIGHT PROTECTION.

□ PRIMARY DIMENSIONS ARE METRIC.



KEY PLAN: N.T.S.

PROPERTY DESCRIPTION: PART OF LOT 12

CONCESSION 8, GEO. WINDHAM TOWNSHIP

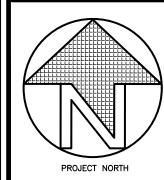
NORFOLK COUNTY

LEGAL PROPERTY BOUNDARY INFORMATION:
THE LEGAL PROPERTY BOUNDARY INFORMATION FOR THI
DRAWING WAS BASED ON A SURVEY SKETCH P17 06 A9921 PREPARED AND PROVIDED BY JEWITT AND DIXON LTD. ONTARIO LAND SURVEYORS.

SITE BENCHMARK: ELEV. 249.21
TOP OF SOUTH-WEST CORNER OF EXISTING CONCRETE SIDEWALK EAST SIDE OF DOYLE STREET.

4	ISSUED FOR SUBMISSION	NOV. 3rd 2022	K.P
3	ISSUED FOR CLIENT REVIEW	APR. 26th 2019	R.I
2	ISSUED FOR DRAFT PLAN SUBMISSION	OCT. 20th 2019	R.I
1	ISSUED FOR CLIENT PRE-CONSULT	AUG. 6th 2019	A.I
NO. REVISION	DESCRIPTION	DATE	В

DO NOT SCALE DRAWINGS; THESE DRAWINGS SHOW INTENT OF THE DESIGN ONLY OR EXISTING CONDITIONS AND MAY NOT REFLECT EXACT LOCATIONS.





M C ENGINEERING P.O. Box 1002, Simcoe, Ont. N3Y 5B3 Tel: 519-428-6790 Fax: 519-426-8960 E-mail: mail@mcengineering.net A DIVISION OF 392583 ALBERTA LTD.



J.H. COHOON ENGINEERING LIMITED CONSULTING ENGINEERS BRANTFORD

PROPOSED SUBDIVISION

LLOYD WOOD

#32 NIXON ROAD (NORFOLK COUNTY ROAD 25)

WINDHAM CENTRE

SHEET TITLE:
PLAN & PROFILE — RAILWAY STREET
AND BAKER STREET EXTENSION

AS SHOWN CHECKED BY: DATE: MAY 2017

PROJECT NO.: DWG. NO.: REV. NO.:

23/02/23 FILE NAME: 7251.dwg

DISCLAIMER:
This is not a legal plan of survey and shall not be used for any purpose except for the purpose indicated in the title block. The employees of M. C. Engineering are not licensed Ontario Land Surveyors, therefore in accordance with the Surveyors Act R.S.O. 1990, c.29, (as amended 2009) please refer to stamped 0.L.S. drawing(s) for all survey data, including but not limited to, bearings and distances, property bars and monuments and any other real property boundary information, pertaining to the subject lands and or other lands adjoining the same. M.C. Engineering assumes no responsibility for the use of, or reliance on, all real property information shown (or not shown) on this plan.

I 48 - B PLAN HAMLET RESIDENTIAL RH (H) HAMLET RESIDENTIAL RH (HOLD) RAILWAY STREET EXTENSION RAILWAY STREET L O T _____ LOT I B L K BLOCK3.204 AGRICULTURAL A AGRICULTURAL A

PRE-DEVELOPMENT STORM DRAINAGE AREAS

SCALE= 1:1000 (METRIC)

23/02/23 R. W. PHM LFS

PROPERTY LINE SUBJECT LANDS _____ _ _ _ _ _ _ _ OTHER PROPERTY LINES _____ EXISTING FEATURE TO BE REMOVED ----

APPROX. LOCATION OF SURVEYOR'S "IRON BAR"
AS INDICATED ON DRAWINGS BY OTHERS. REFER
TO ACTUAL DRAWING BY O.L.S. FOR EXACT
SURVEY REFERENCE AND TYPE.

EXISTING CONTOURS AT 1m VERTICAL INTERVALS

DRAINAGE AREA

PROPOSED TREE PLANTING REFER TO PLANTING SCHEDULE ON C6 AND PLANTING DETAIL AND

NOTES ALSO ON C5. PRE STORM

→ DRAINAGE AREA NUMBER 0.071 The Drainage area in Hectares --- COEFFICIENT OF RUNOFF (% IMPERVIOUS)

THE FOLLOWING DRAWINGS AND NOTES TO BE CONSIDERED A PART OF THE CONSTRUCTION DRAWINGS:

> CONTRACTOR MUST VERIFY ALL JOB DIMENSIONS, ALL DRAWINGS, DETAILS AND SPECIFICATIONS, AND REPORT ANY DISCREPANCIES TO ENGINEER BEFORE

PROCEEDING WITH THE WORK. ANY DISCREPANCY BETWEEN THIS DRAWING AND ACTUAL FIELD CONDITIONS WHICH MAY IMPACT

☐ ALL DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF SERVICE AND THE PROPERTY OF M C ENGINEERING OR CONSULTANTS WHICH MUST BE RETURNED AT THE COMPLETION OF THE WORK.

WORK IS TO BE REPORTED TO P.ENGINEER.

☐ THE DRAWINGS AND SPECIFICATIONS ARE TO BE USED ONLY FOR THE PROJECT SO NOTED. REPRODUCTION OF THE DOCUMENTS IN PART OR IN WHOLE FOR ANY OTHER PURPOSE, OTHER THAN THIS PROJECT, WITHOUT THE WRITTEN CONSENT OF M C ENGINEERING IS PROHIBITED. DRAWINGS ISSUED FOR GENERAL PURPOSE, NEGOTIATION, LEASE ETC. CARRY ALL THE ABOVE COPYRIGHT PROTECTION.

☐ PRIMARY DIMENSIONS ARE METRIC.



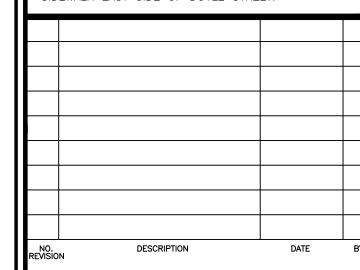
KEY PLAN: N.T.S.

PROPERTY DESCRIPTION:
PART OF LOT 12
CONCESSION 8,

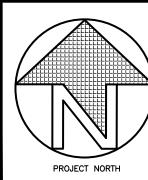
GEO. WINDHAM TOWNSHIP NORFOLK COUNTY

LEGAL PROPERTY BOUNDARY INFORMATION:
THE LEGAL PROPERTY BOUNDARY INFORMATION FOR THI
DRAWING WAS BASED ON A SURVEY SKETCH P17 06 A9921 PREPARED AND PROVIDED BY JEWITT AND DIXON

LTD. ONTARIO LAND SURVEYORS. SITE BENCHMARK: ELEV. 249.21
TOP OF SOUTH-WEST CORNER OF EXISTING CONCRETE SIDEWALK EAST SIDE OF DOYLE STREET.



DO NOT SCALE DRAWINGS; THESE DRAWINGS SHOW INTENT OF THE DESIGN ONLY OR EXISTING CONDITIONS AND MAY NOT REFLECT EXACT LOCATIONS.



M C ENGINEERING P.O. Box 1002, Simcoe, Ont. N3Y 5B3 Tel: 519-428-6790 Fax: 519-426-8960 E-mail: mail@mcengineering.net
A DIVISION OF 392583 ALBERTA LTD.





PROPOSED SUBDIVISION

LLOYD WOOD

#32 NIXON ROAD (NORFOLK COUNTY ROAD 25) WINDHAM CENTRE

PRE-DEVELOPMENT STORM DRAINAGE AREAS

PROJECT NO .: AS SHOWN K.P.B. CHECKED R.W.P.

DWG. NO.: REV. NO.:

FEB 2023 FILE NAME: 7251.dwg

Surveyors Act R.S.O. 1990, c.29, (as amended 2009) please refer to stamped O.L.S. drawing(s) for all survey data, including but not limited to, bearings and distances property bars and monuments and any other real property boundary information, pertaining to the subject lands and or other lands adjoining the same. M.C. Engineering assumes no responsibility for the use of, or reliance on, all real

THE FOLLOWING DRAWINGS AND NOTES TO BE CONSIDERED A PART OF THE CONSTRUCTION DRAWINGS: CONTRACTOR MUST VERIFY ALL JOB DIMENSIONS, ALL DRAWINGS, DETAILS AND SPECIFICATIONS, AND REPORT ANY DISCREPANCIES TO ENGINEER BEFORE

PROCEEDING WITH THE WORK. ANY DISCREPANCY BETWEEN THIS DRAWING AND

ACTUAL FIELD CONDITIONS WHICH MAY IMPACT WORK IS TO BE REPORTED TO P.ENGINEER.

OR CONSULTANTS WHICH MUST BE RETURNED AT THE COMPLETION OF THE WORK. THE DRAWINGS AND SPECIFICATIONS ARE TO BE USED ONLY FOR THE PROJECT SO NOTED. REPRODUCTION OF THE DOCUMENTS IN PART OR IN WHOLE FOR ANY OTHER PURPOSE, OTHER THAN THIS PROJECT, WITHOUT

THE WRITTEN CONSENT OF M C ENGINEERING IS

NEGOTIATION, LEASE ETC. CARRY ALL THE ABOVE

PROHIBITED. DRAWINGS ISSUED FOR GENERAL PURPOSE,

ALL DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF SERVICE AND THE PROPERTY OF M C ENGINEERING

PRIMARY DIMENSIONS ARE METRIC.

COPYRIGHT PROTECTION.



KEY PLAN: N.T.S.

PROPERTY DESCRIPTION: PART OF LOT 12

CONCESSION 8, GEO. WINDHAM TOWNSHIP NORFOLK COUNTY

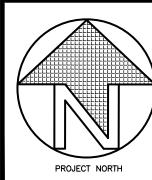
LEGAL PROPERTY BOUNDARY INFORMATION: DRAWING WAS BASED ON A SURVEY SKETCH P17 06 A9921 PREPARED AND PROVIDED BY JEWITT AND DIXON

LTD. ONTARIO LAND SURVEYORS. SITE BENCHMARK: ELEV. 249.21

TOP OF SOUTH-WEST CORNER OF EXISTING CONCRETE SIDEWALK EAST SIDE OF DOYLE STREET.

4	ISSUED FOR SUBMISSION	NOV. 3rd 2022	k
3	ISSUED FOR CLIENT REVIEW	APR. 26th 2019	
2	ISSUED FOR DRAFT PLAN SUBMISSION	OCT. 20th 2019	
1	ISSUED FOR CLIENT PRE-CONSULT	AUG. 6th 2019	
NO.	DESCRIPTION	DATE	

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E-mail: mail@mcengineering.net A DIVISION OF 392583 ALBERTA LTD.



PROJECT NAME

CHECKED

PROPOSED SUBDIVISION

LLOYD WOOD

#32 NIXON ROAD (NORFOLK COUNTY ROAD 25)

WINDHAM CENTRE

PLANTING PLAN

R.W.P./Z.L.

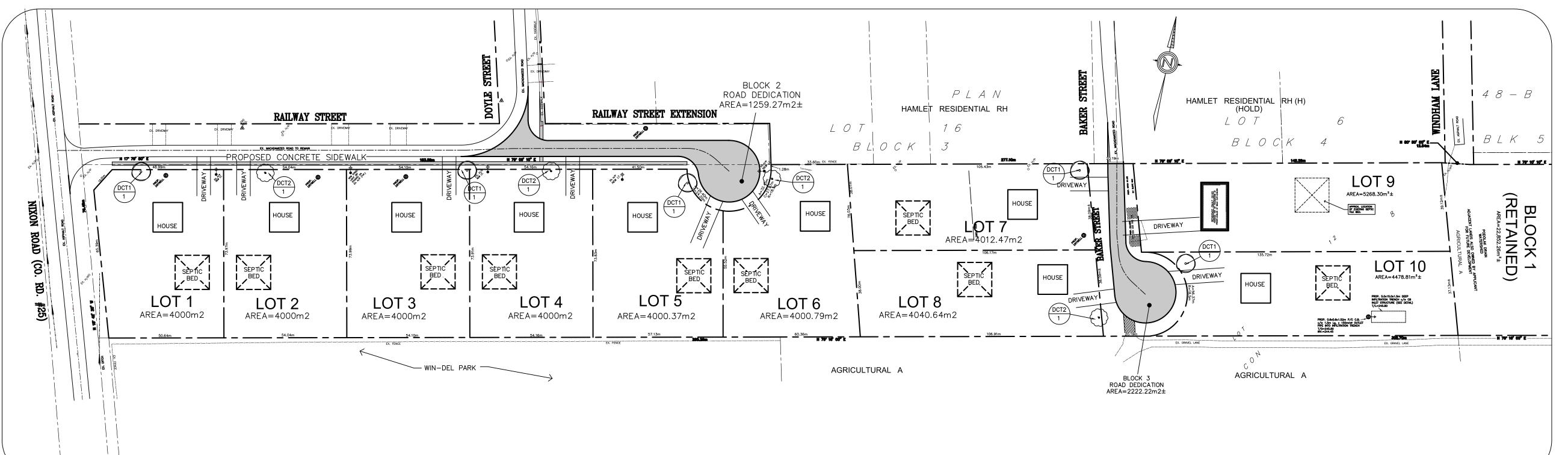
MAY 2017

FILE NAME: 7251.dwg

PROJECT NO .: AS SHOWN K.P.B./R.M.

DWG. NO.: | REV. NO.:

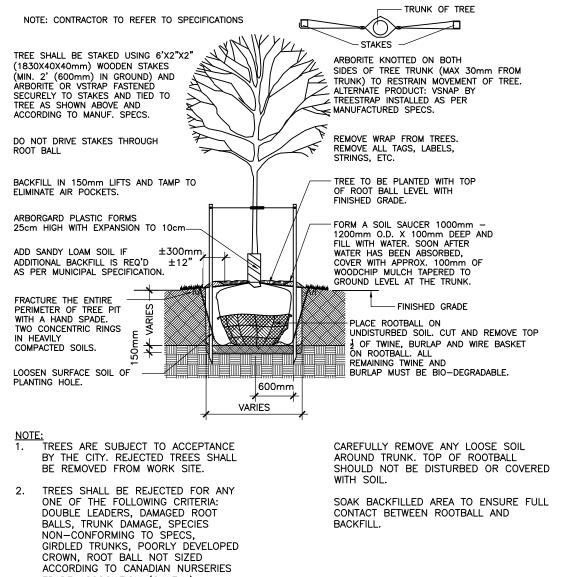
This is not a legal plan of survey and shall not be used any purpose except for the purpose indicated in the title block. The employees of M. C. Engineering are not licensed Ontario Land Surveyors, therefore in accordance with the property information shown (or not shown) on this plan.



OVERALL SITE PLAN / DRAINAGE

SCALE= 1:1000 (METRIC)

PLANTING SCHEDULE KEY | COMMON NAME | BOTANICAL NAME | QUANT. | CONDITION | PROPERTIES | DCT1 APOLLO SUGAR MAPLE ACER SACCHARUM 5 (B&B) W/B F, FC, NT 'BARRETT COLE' ACER PALMATUM 'RED FL, FC, NT * FOR TYP. PLANTING DETAIL AND NOTES REFER TO PAGE SP4



PLANT MATERIALS:

- 1. ALL TREE PITS SHALL BE AT LEAST 2 FT. (600MM) WIDER THAN BALL OF THE TREE TO BE PLANTED AND SHALL BE DEEP ENOUGH SO THAT THE TOP OF BALL IS AT THE SAME LEVEL AS SURROUNDING GRADE. A MINIMUM OF 6" (150MM) OF BACKFILL SHALL BE PLACED UNDER BALL. TREE PITS ARE NOT TO BE LEFT OPEN OVER NIGHT.
- 2. SHRUB BEDS SHALL BE EXCAVATED TO A DEPTH OF 18" (450MM) AND FILLED WITH APPROVED BACKFILL MATERIAL.
- 3. ALL TREES SHALL HAVE AN EARTH SAUCER AT ITS BASE WITH A DIAMETER AS LARGE AS EXCAVATED AREA TO SHAPE TO RETAIN WATER. SEE DETAIL. EARTH SAUCER TO HAVE APPROVED MULCH INSTALLED TO A MINIMUM DEPTH OR 2.5"
- 4. ALL BURLAP SHALL BE CUT AND BURIED BELOW SURFACE DURING PLANTING.
- 5. ALL EVERGREENS ARE TO WRAPPED THE FIRST WINTER.

LANDSCAPE NOTES:

1. ANY PLANT MATERIAL REQUIRES THE APPROVAL OF THE CITY OF NORFOLK COUNTY. 2. PLANT MATERIAL OR FENCING SHALL BE MINIMUM TO BE PROVIDED BY THE OWNER. ANY ADDITIONS MUST COMPLY WITH THE ZONING BY-LAW.

3. ANY SODDING, PLANTING, OR WORK ON LANDS ABUTTING THE PROPERTY FROM THE LOT LINES TO SIDEWALK AND CURBING, SHALL BE TO THE SATISFACTION OF THE CITY. 4. ALL LANDSCAPING SHALL BE INSTALLED PRIOR TO THE END OF THE FIRST GROWING SEASON FOLLOWING OCCUPANCY OF THE

DEVELOPMENT.

7. ALL PLANTING BEDS TO BE PROPERLY MULCHED.

5. UNLESS OTHERWISE SPECIFIED ALL LANDSCAPED AREAS TO BE

6. UNLESS OTHERWISE SPECIFIED ALL UNDEVELOPED AREAS SHALL BE UNDISTURBED AND KEPT FREE AND CLEAR OF DEBRIS AND MAINTAINED.

PROPERTY LINE SUBJECT LANDS ____ _ _ _ _ _ _ _ _ OTHER PROPERTY LINES _________ EXISTING FEATURE TO BE REMOVED -----

APPROX. LOCATION OF SURVEYOR'S "IRON BAR" AS INDICATED ON DRAWINGS BY OTHERS. REFER TO ACTUAL DRAWING BY O.L.S. FOR EXACT SURVEY REFERENCE AND TYPE. EXISTING CONTOURS AT 1m

GENERAL PLANTING NOTES:

ALL SHRUB BEDS AND TREES TO BE BACKFILLED WITH GOOD

BRANCHES LARGER THAN 1" (25MM) AND COMPACTED TO 85%

ALL SUBSOIL TO BE SCARIFIED TO A DEPTH OF 6" (150 MM)

DIRECT ALL RAIN LEADERS AND SUMP LEADERS AWAY FROM

ALL TREE PITS, SHRUB PITS AND PLANTING AREAS ARE TO BE

MULCHED WITH MIN. 75MM OF MEDIUM MULCH, UNLESS OTHERWISE

CONTRACTOR TO VERIFY ALL PLANT MATERIAL ON DRAWING(S) AND

PLANTINGS MAY BE ADJUSTED TO SUIT UTILITIES STRUCTURES AND

DO NOT INSTALL PLANT MATERIAL IN DRAINAGE SWALES. ALL TREES TO BE PROPERLY STAKED WITH HOSE COATED WIRE.

REMOVE ALL GUY WIRES AFTER 2 FULL GROWING SEASONS.

UPON INSTALLATION AREAS SHOULD BE WATERED SO AS TO

SATURATE SOD AND THE UPPER 4" (100MM) OF BACKFILL

PREVENT DAMAGE, IT SHALL BE ROLLED WITH A ROLLER.

TOPSOIL. AFTER SOD AND SOIL HAVE DRIED SUFFICIENTLY TO

PLANTING BEDS AND TO THE DESIGNATED SWALES.

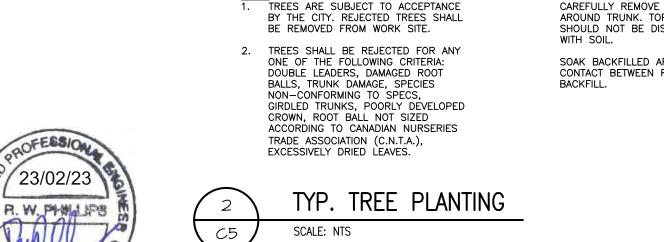
PLANT MATERIAL LIST(S). REPORT ALL DISCREPANCIES.

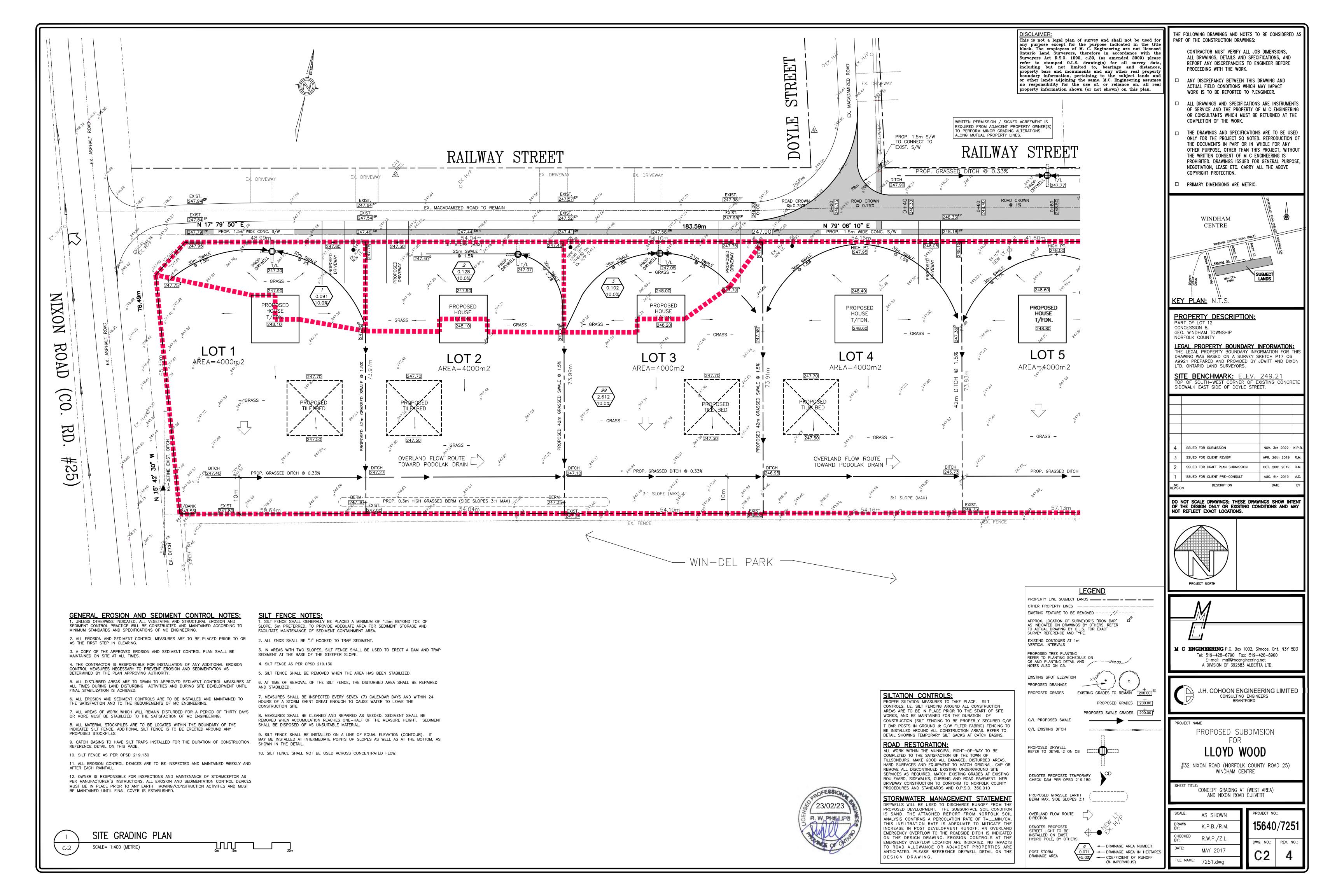
AESTHETIC CONCERNS,

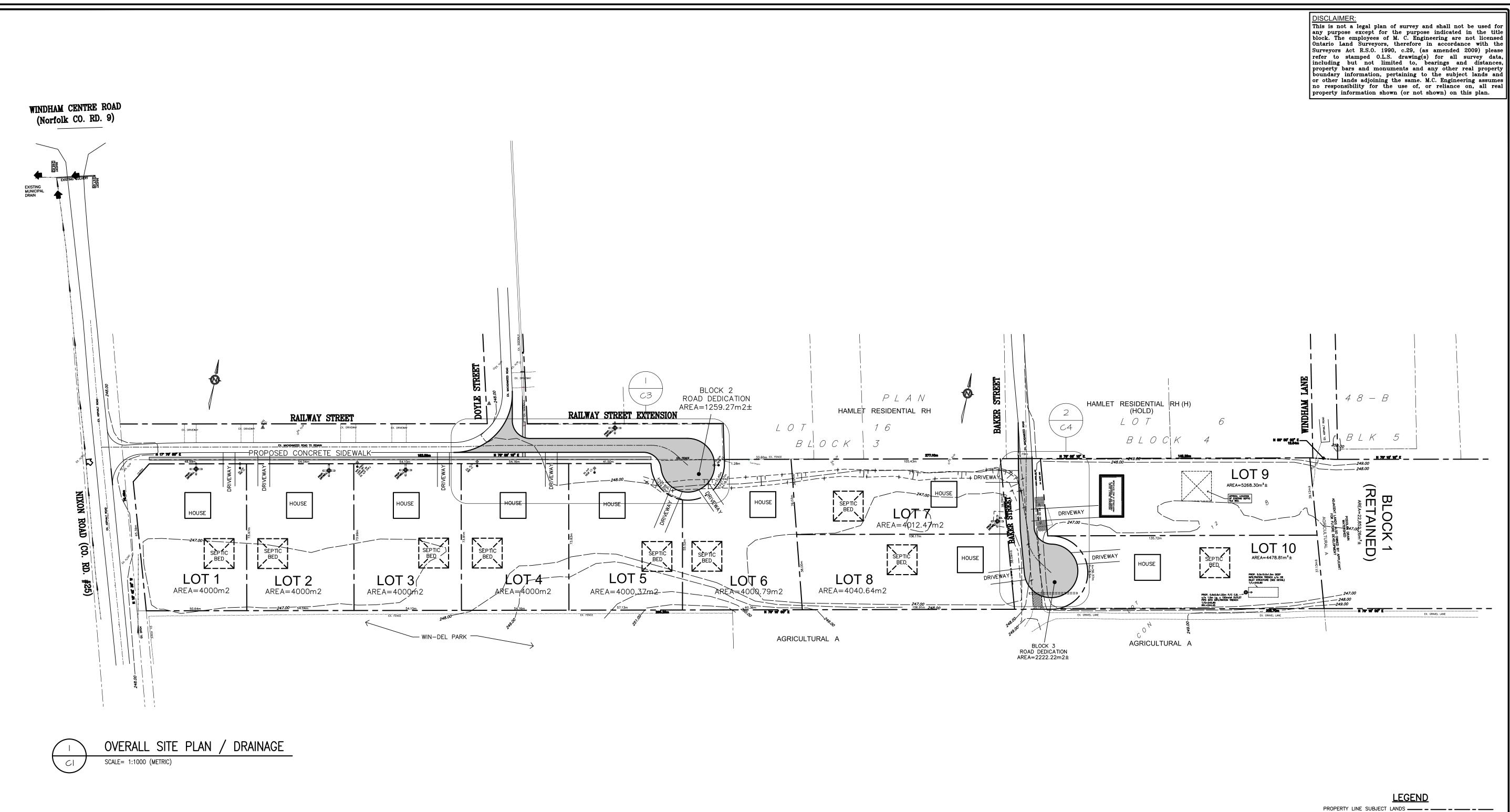
PRIOR TO THE INSTALLATION OF TOPSOIL TO ENSURE NO HARDPAN

QUALITY TOPSOIL SCARIFIED FREE OF ALL STONES, ROOTS,

VERTICAL INTERVALS PROPOSED TREE PLANTING REFER TO PLANTING SCHEDULE ON C6 AND PLANTING DETAIL AND NOTES ALSO ON C5.







IMPORTANT PLEASE READ THE FOLLOWING NOTES IN CONJUNCTION WITH ALL SITE DRAWINGS

★ SITE LIGHTING:

REFER TO ELECTRICAL DRAWINGS FOR ALL SITE LIGHTING, LIGHT FIXTURE TYPES, WIRING, UTILITY POLES ETC., LOCATIONS AND SPECIFICATIONS. ALL EXTERIOR LIGHT FIXTURES TO BE DARK-SKY COMPLIANT: NO EXTERIOR LIGHTING ARRAY TO BE DIRECTED OFF PROPERTY TO ROAD ALLOWANCE OR ADJACENT PROPERTIES. ALL LIGHTING ARRAY DIRECTIONS TO SHINE INTERNALLY TOWARD SUBJECT PROPERTY.

GARBAGE / REFUSE STORAGE: REFUSE STORAGE (GARBAGE) TO BE INSIDE THE PROPOSED BUILDINGS

BUILDING / ARCHITECTURAL: ALL BUILDING EXTERIOR AND INTERIOR DIMENSIONS, INTERIOR ROOM LAYOUT AND ROOM NAMES, WALL TYPES AND CONSTRUCTION AND SPECIFICATIONS.

RIGID INSULATION (2 LAYERS OF 1" STYROFOAM) IS TO BE PROVIDED OVER ALL NEW STORM PIPE WHERE COVER DOES NOT EXCEED 1.2M.

ROOF RAIN WATER:

SILTATION CONTROLS: PROPER SILTATION MEASURES TO TAKE PLACE. SILT

CONTROLS, I.E. SILT FENCING AROUND ALL CONSTRUCTION AREAS ARE TO BE IN PLACE PRIOR TO THE START OF SITE WORKS, AND BE MAINTAINED FOR THE DURATION OF CONSTRUCTION (SILT FENCING TO BE PROPERLY SECURED C/W BAR POSTS IN GROUND & C/W FILTER FABRIC) FENCING TO BE INSTALLED AROUND ALL CONSTRUCTION AREAS. REFER TO DETAIL SHOWING TEMPORARY SILT SACKS AT CATCH BASINS.

ROAD RESTORATION:

ALL WORK WITHIN THE MUNICIPAL RIGHT-OF-WAY TO BE COMPLETED TO THE SATISFACTION OF THE TOWN OF TILLSONBURG. MAKE GOOD ALL DAMAGED, DISTURBED AREAS, HARD SURFACES AND EQUIPMENT TO MATCH ORIGINAL. CAP OR REMOVE ALL DISCONTINUED EXISTING UNDERGROUND SITE SERVICES AS REQUIRED. MATCH EXISTING GRADES AT EXISTING BOULEVARD, SIDEWALKS, CURBING AND ROAD PAVEMENT. NEW DRIVEWAY CONSTRUCTION TO CONFORM TO NORFOLK COUNTY PROCEDURES AND STANDARDS AND O.P.S.D. 350.010

STORMWATER MANAGEMENT STATEMENT

DRYWELLS WILL BE USED TO DISCHARGE RUNOFF FROM THE PROPOSED DEVELOPMENT. THE SUBSURFACE SOIL CONDITION IS SAND. THE ATTACHED REPORT FROM NORFOLK SOIL ANALYSIS CONFIRMS A PERCOLATION RATE OF T=__MIN/CM. THIS INFILTRATION RATE IS ADEQUATE TO MITIGATE THE INCREASE IN POST DEVELOPMENT RUNOFF. AN OVERLAND EMERGENCY OVERFLOW TO THE ROADSIDE DITCH IS INDICATED ON THE DESIGN DRAWING. EROSION CONTROLS AT THE EMERGENCY OVERFLOW LOCATION ARE INDICATED. NO IMPACTS TO ROAD ALLOWANCE OR ADJACENT PROPERTIES ARE ANTICIPATED. PLEASE REFERENCE DRYWELL DETAIL ON THE DESIGN DRAWING.

SITE STATISTICS

23/02/23

R. W. PHILIPS

PROPOSED ZONING HAMLET RESIDENTIAL (RH) TOTAL LOT AREA 47,183.25m² LOT AREA (PER PROPOSED LOT) 0.4 ha (MIN) LOT FRONTAGE (PER INTERIOR PROPOSED LOT) 30m (MIN) LOT FRONTAGE (PER CORNER PROPOSED LOT) 30m (MIN) FRONT YARD SET BACK 6m (MIN) DETACHED GARAGE 1.2m EACH SIDE (MIN) REAR YARD SET BACK 9m (MIN) MAX. BUILDING HEIGHT 11m PARKING (2) PARKING SPACES 3m x 5.8m PER DWELLING
LOT AREA (PER PROPOSED LOT) 0.4 ha (MIN) LOT FRONTAGE (PER INTERIOR PROPOSED LOT) 30m (MIN) LOT FRONTAGE (PER CORNER PROPOSED LOT) 30m (MIN) FRONT YARD SET BACK 6m (MIN) ATTACHED GARAGE 1.2m EACH SIDE (MIN) DETACHED GARAGE 3m AND 1.2m REAR YARD SET BACK 9m (MIN) MAX. BUILDING HEIGHT 11m
LOT FRONTAGE (PER INTERIOR PROPOSED LOT) 30m (MIN) LOT FRONTAGE (PER CORNER PROPOSED LOT) 30m (MIN) FRONT YARD SET BACK 6m (MIN) ATTACHED GARAGE 1.2m EACH SIDE (MIN) DETACHED GARAGE 3m AND 1.2m REAR YARD SET BACK 9m (MIN) MAX. BUILDING HEIGHT 11m
LOT FRONTAGE (PER CORNER PROPOSED LOT) 30m (MIN)
FRONT YARD SET BACK 6m (MIN) ATTACHED GARAGE 1.2m EACH SIDE (MIN) DETACHED GARAGE 3m AND 1.2m REAR YARD SET BACK 9m (MIN) MAX. BUILDING HEIGHT 11m
ATTACHED GARAGE 1.2m EACH SIDE (MIN) DETACHED GARAGE 3m AND 1.2m REAR YARD SET BACK 9m (MIN) MAX. BUILDING HEIGHT 11m
DETACHED GARAGE 3m AND 1.2m REAR YARD SET BACK 9m (MIN) MAX. BUILDING HEIGHT 11m
REAR YARD SET BACK 9m (MIN) MAX. BUILDING HEIGHT 11m
MAX. BUILDING HEIGHT 11m
PARKING (2) PARKING SPACES 3m x 5.8m PER DWELLING

GENERAL NOTES:

- 1. PRIMARY UNITS ARE METRIC. DIMENSIONS ARE METERS. 2. PROPER SILTATION MEASURES TO TAKE PLACE. SILT CONTROLS, I.E. SILT FENCING AROUND ALL CONSTRUCTION AREAS ARE TO BE IN PLACE PRIOR TO THE START OF SITE WORKS, AND BE MAINTAINED FOR THE DURATION OF CONSTRUCTION (SILT FENCING TO BE PROPERLY SECURED C/W T BAR POSTS IN GROUND & C/W FILTER FABRIC) FÉNCING TO BE INSTALLED AROUND ALL CONSTRUCTION AREAS. [REFER TO TO OPSD 219.130].
- 3. ANY DISCREPANCY(S) BETWEEN INFORMATION ON THIS SITE DRAWING AND ACTUAL FIELD CONDITIONS, WHICH MAY IMPACT ON THE PROPOSED DEVELOPMENT, ARE TO BE REPORTED TO THE SENIOR CONSULTANT / P.ENG.
- REQUIRED SERVICES & SERVICE CONNECTIONS NOT SHOWN ON DRAWING TO BE THE RESPONSIBILITY OF THE
- 11. ALL EXCESS EXCAVATED MATERIAL WILL BE REMOVED FROM 5. ALL NECESSARY RELOCATIONS OR REMOVALS OF EXISTING PHYSICAL SITE FEATURES INCLUDING U/G SERVICES TO BE
- THE RESPONSIBILITY OF THE CONTRACTOR/OWNER. 6. EXACT LOCATIONS & ELEVATIONS OF ALL EXISTING SERVICES (SANITARY SEWER, WATER, GAS, BELL, ETC.), GRADES, MATERIAL LENGTHS, ELEVATIONS, INVERTS, ETC. TO BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF
- 7. ANY FILL PLACED ON SITE MUST BE COMPACTED TO TO A THE APPROVAL OF THIS PLAN DOES NOT EXEMPT THE OWNER'S BONDED CONTRACTOR FROM THE REQUIREMENTS O OBTAIN THE VARIOUS PERMITS/APPROVALS NORMALLY REQUIRED TO COMPLETE A CONSTRUCTION PROJECT, SUCH AS, BUT NOT LIMITED TO THE FOLLOWING:

 -ROAD CUT PERMITS
- -RELOCATION OF SERVICES THIS DRAWING TO BE READ IN CONJUNCTION WITH ANY AND ALL OTHER DOCUMENTS SUBMITTED FOR MUNICIPAL APPROVAL(S).

-SEWER PERMITS

- 10. RIGID INSULATION (2 LAYERS OF 1" STYROFOAM) IS TO BE PROVIDED OVER ALL NEW STORM PIPE WHERE COVER DOES NOT EXCEED 1.2m.
- 12. THE EXISTING DRAINAGE PATTERN WILL BE MAINTAINED EXCEPT WHERE NOTED. PROPOSED ELEVATIONS SHOW GENERAL INTENT OF GRADING PLAN. 13. ALL WORK WITHIN THE MUNICIPAL RIGHT-OF-WAY TO BE COMPLETED TO THE SATISFACTION OF NORFOLK COUNTY
- OVERLAND FLOW ROUTE DENOTES PROPOSED STREET LIGHT TO BE INSTALLED ON EXIST.

HYDRO POLE, BY OTHERS.

DENOTES PROPOSED TEMPORARY CHECK DAM PER OPSD 219.180

PROPOSED GRASSED EARTH

BERM MAX. SIDE SLOPES 3:1

PROPOSED DRYWELL
REFER TO DETAIL 2 ON C8

OTHER PROPERTY LINES EXISTING FEATURE TO BE REMOVED -----

APPROX. LOCATION OF SURVEYOR'S "IRON BAR" DESCRIPTION OF SURVEYOR'S "IRON BAR" DESCRIPTION OF SURVEY REFERENCE AND TYPE.

EXISTING GRADES TO REMAIN 200.00 EX

PROPOSED GRADES 200.00

PROPOSED SWALE GRADES 200.00 S

EXISTING CONTOURS AT 1m VERTICAL INTERVALS

EXISTING SPOT ELEVATION

PROPOSED DRAINAGE

PROPOSED GRADES

C/L PROPOSED SWALE

C/L EXISTING DITCH

PROPOSED TREE PLANTING REFER TO PLANTING SCHEDULE ON C6 AND PLANTING DETAIL AND

- THE FOLLOWING DRAWINGS AND NOTES TO BE CONSIDERED A PART OF THE CONSTRUCTION DRAWINGS:
- CONTRACTOR MUST VERIFY ALL JOB DIMENSIONS, ALL DRAWINGS, DETAILS AND SPECIFICATIONS, AND REPORT ANY DISCREPANCIES TO ENGINEER BEFORE
- PROCEEDING WITH THE WORK. ANY DISCREPANCY BETWEEN THIS DRAWING AND ACTUAL FIELD CONDITIONS WHICH MAY IMPACT

WORK IS TO BE REPORTED TO P.ENGINEER.

- ALL DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF SERVICE AND THE PROPERTY OF M C ENGINEERING OR CONSULTANTS WHICH MUST BE RETURNED AT THE COMPLETION OF THE WORK.
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- PRIMARY DIMENSIONS ARE METRIC.



PROPERTY DESCRIPTION: PART OF LOT 12

LTD. ONTARIO LAND SURVEYORS.

CONCESSION 8, GEO. WINDHAM TOWNSHIP NORFOLK COUNTY

LEGAL PROPERTY BOUNDARY INFORMATION:
THE LEGAL PROPERTY BOUNDARY INFORMATION FOR TH DRAWING WAS BASED ON A SURVEY SKETCH P17 06 A9921 PREPARED AND PROVIDED BY JEWITT AND DIXON

SITE BENCHMARK: ELEV. 249.21 TOP OF SOUTH-WEST CORNER OF EXISTING CONCRETE SIDEWALK EAST SIDE OF DOYLE STREET.

	4	ISSUED FOR SUBMISSION	NOV. 3rd 2022	ĸ.
	3	ISSUED FOR CLIENT REVIEW	APR. 26th 2019	R
_	2	ISSUED FOR DRAFT PLAN SUBMISSION	OCT. 20th 2019	R
	1	ISSUED FOR CLIENT PRE-CONSULT	AUG. 6th 2019	4
	NO. REVISION	DESCRIPTION N	DATE	

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PROPOSED SUBDIVISION

LLOYD WOOD

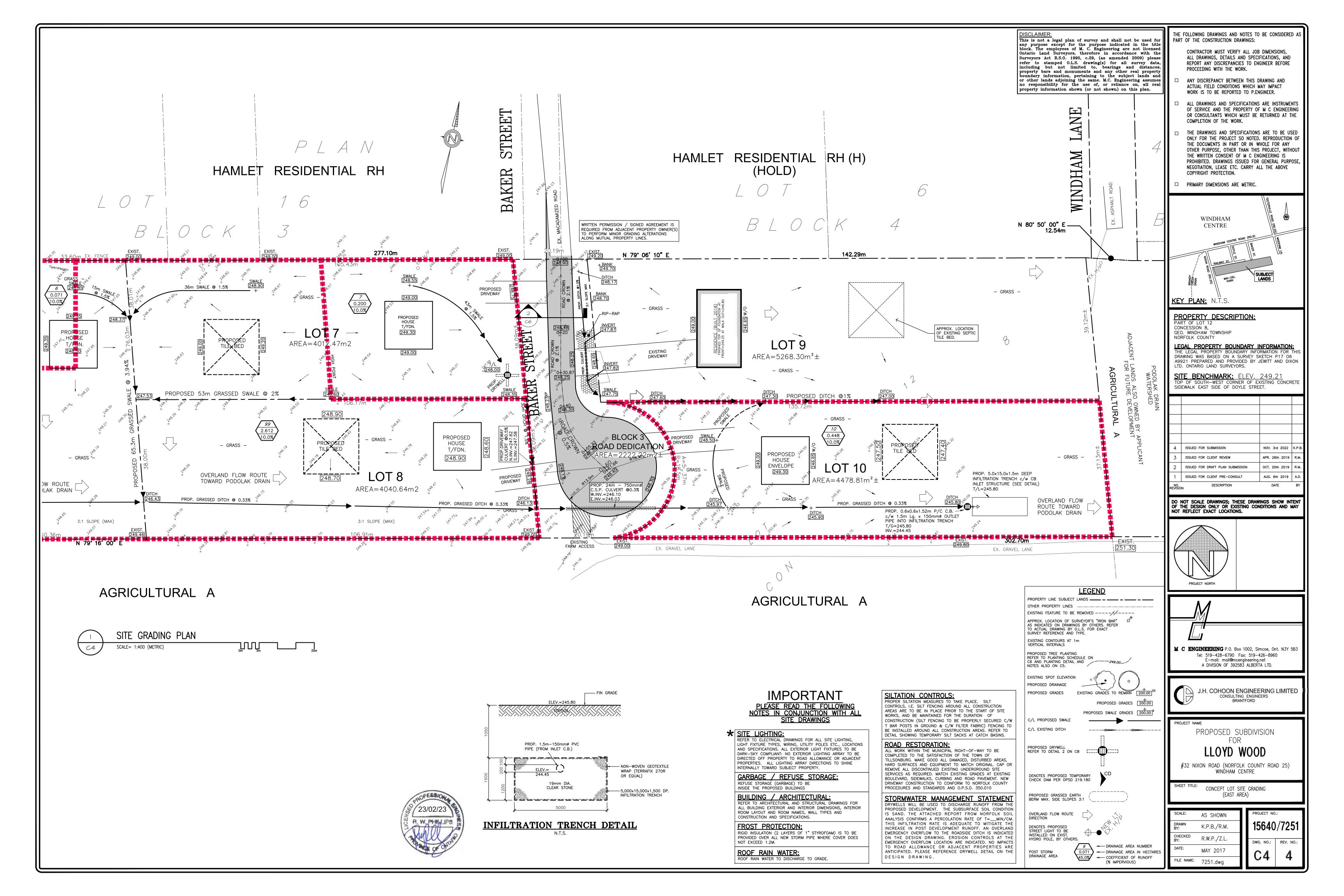
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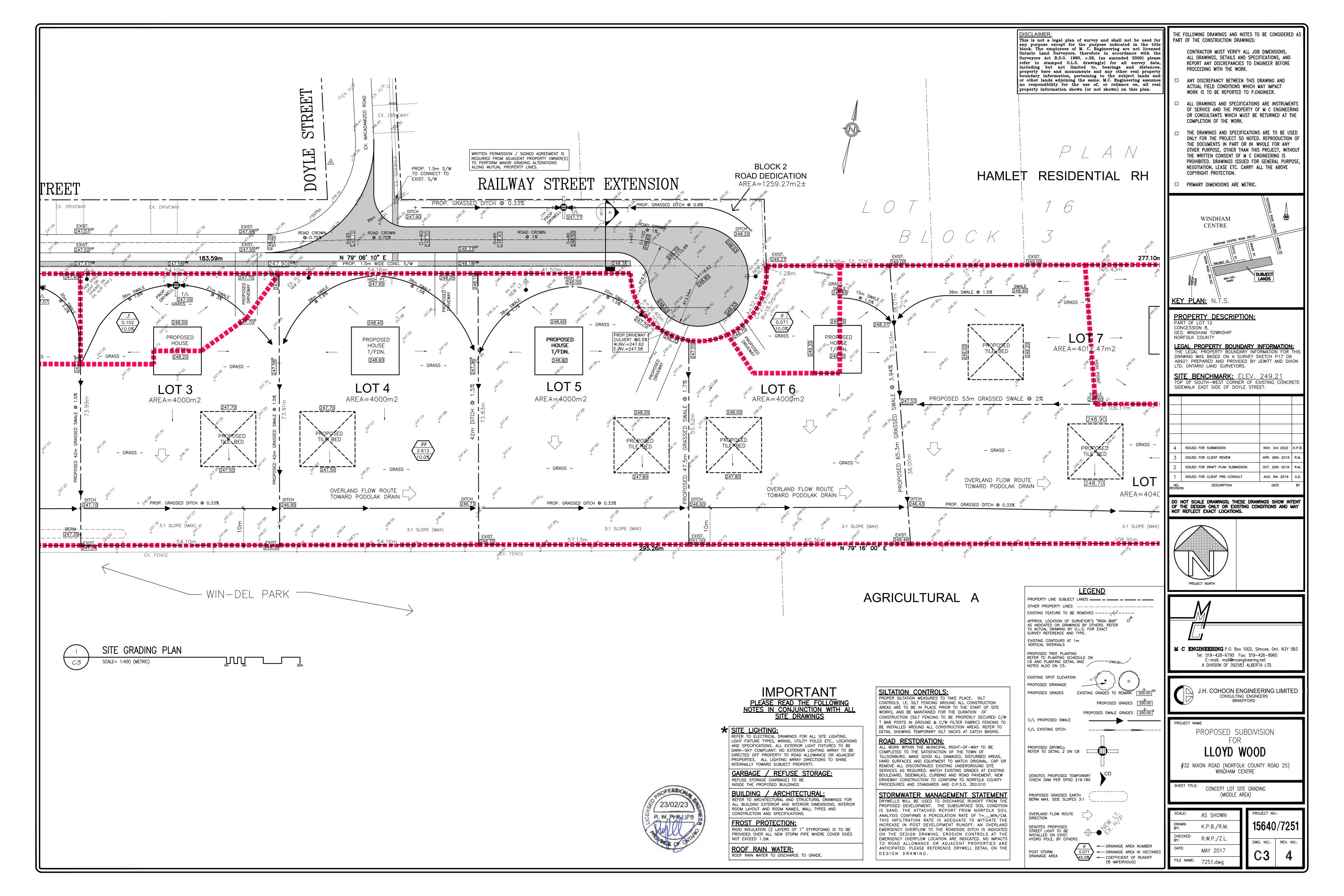
OVERALL CONCEPT LOT LAYOUT AND OVERALL FLOW ROUTE

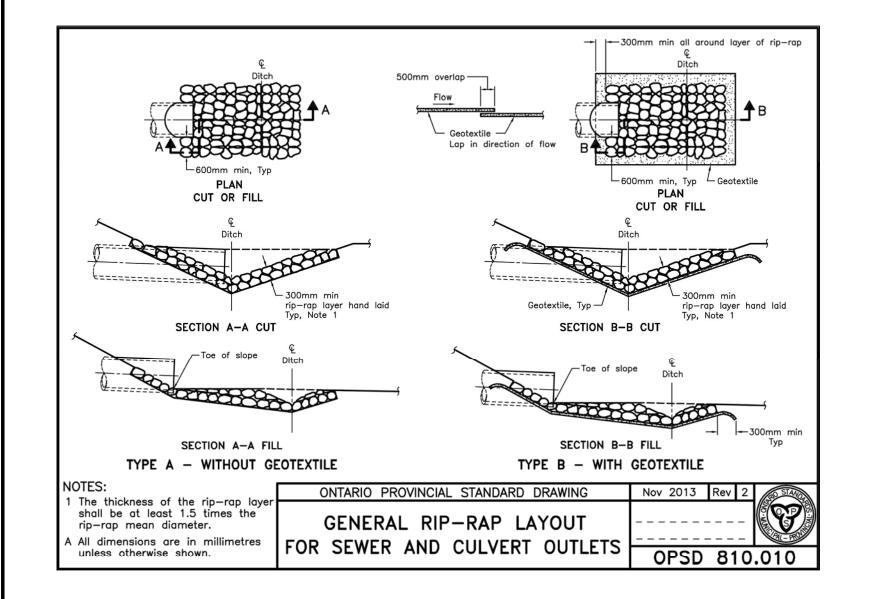
PROJECT NO.: AS SHOWN K.P.B./R.M. CHECKED R.W.P./Z.L. DATE: MAY 2017

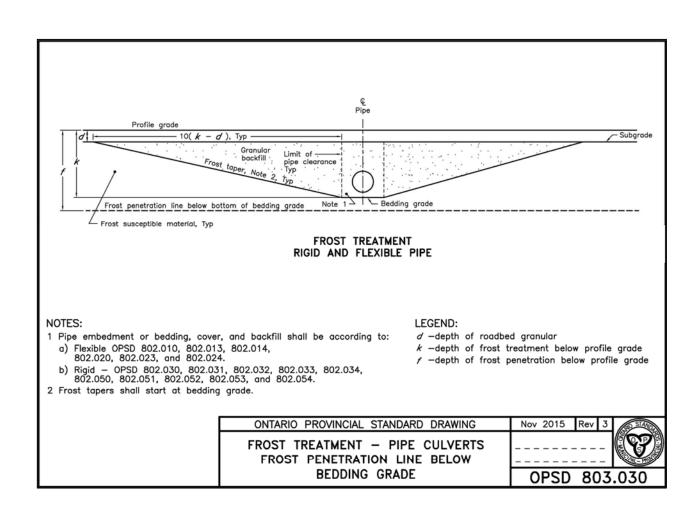
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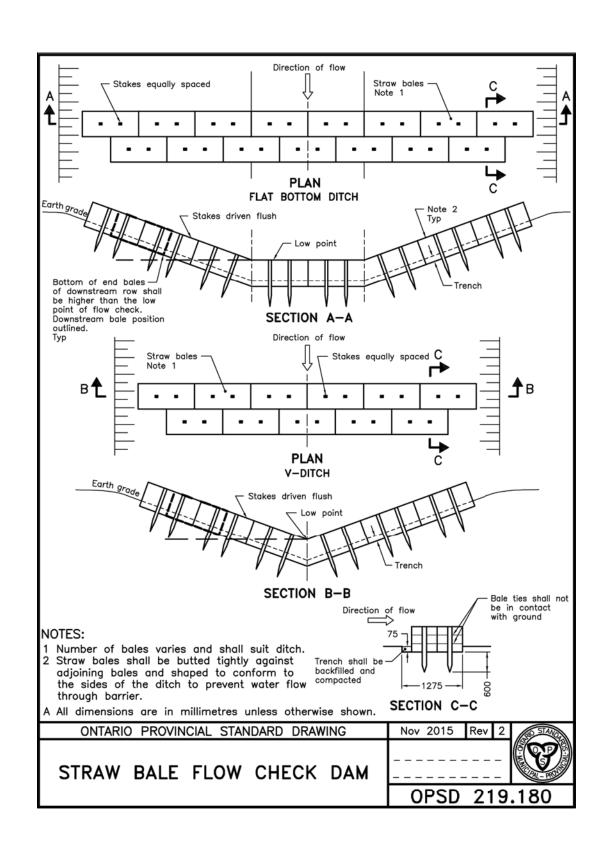
DWG. NO.: | REV. NO.:

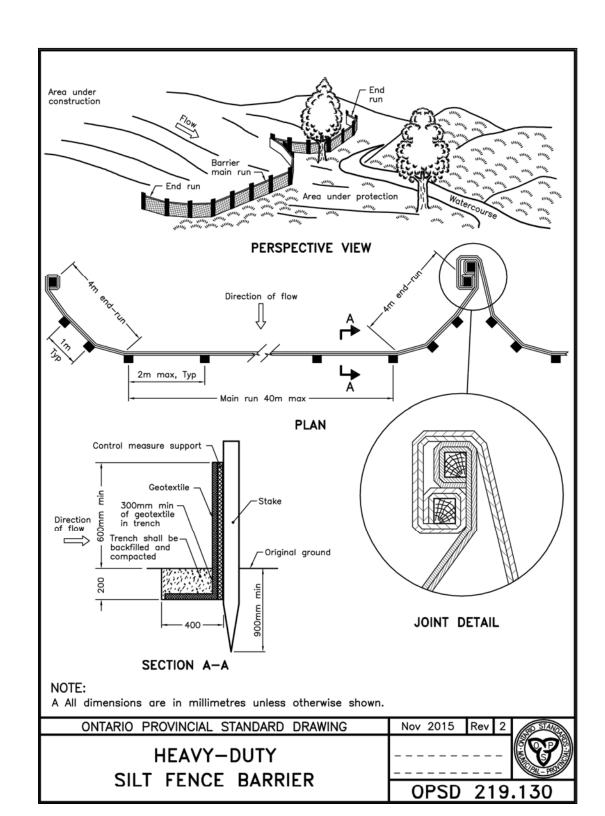


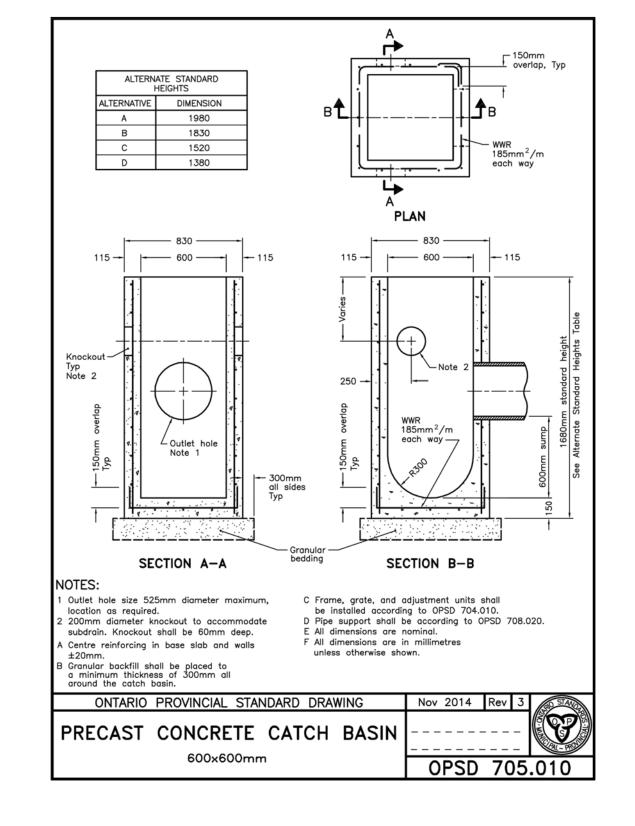


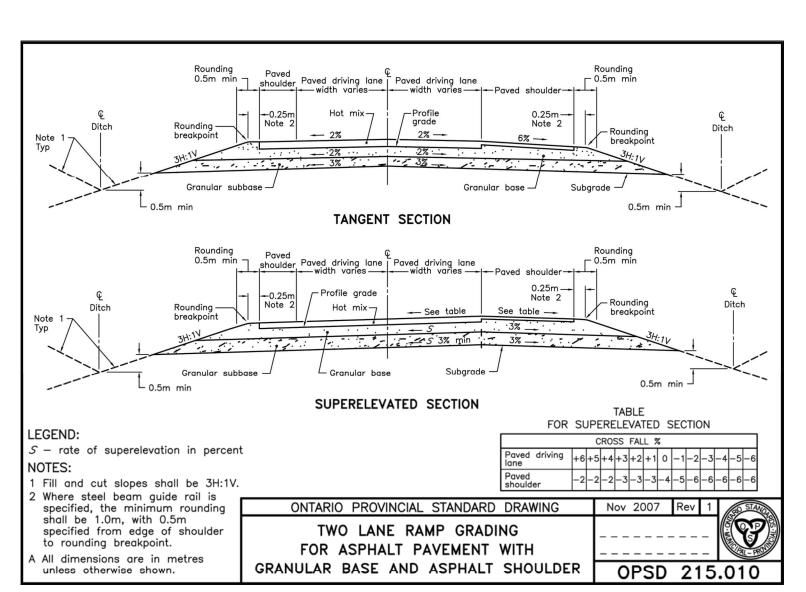




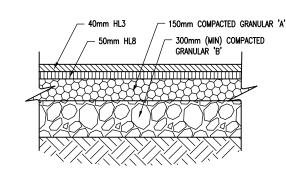




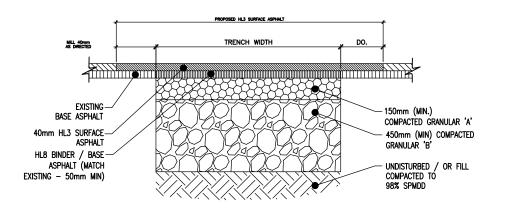






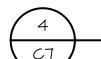






ROADWAY RESTORATION NOTES:

- 1. CONTRACTOR TO OBTAIN ALL NECESSARY ROAD CUT PERMITS PRIOR TO CONSTRUCTION.
- 2. CONTRACTOR TO MAINTAIN A MINIMUM OF ONE LANE OF TRAFFIC AT ALL TIMES. IF TEMPORARY ROAD CLOSURES ARE NECESSARY, THEN CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS WITH NORFOLK COUNTY.
- 3. CONTRACTOR SHALL LOCATE AND PROTECT ALL
- 4. ALL CUTS TO EXISTING ASPHALT AND CONCRETE SHALL BE CLEAN SAW CUTS ONLY.
- 5. BACKFILL FOR ALL SERVICE TRENCHES FROM EDGE OF ASPHALT TO BACK OF SIDEWALK SHALL BE GRANULAR 'B'
- 6. BACKFILL FOR ALL SERVICE TRENCHES FROM BACK OF SIDEWALK TO STREET LINE SHALL BE SELECT
- 7. ALL BEDDING AND BACKFILL SHALL BE COMPACTED TO MIN. 98% SPMDD
- 8. CURBS AND SUBDRAINS SHALL BE RESTORED TO MATCH EXISTING CONDITIONS TO THE SATISFACTION OF NORFOLK COUNTY.
- 9. BOULEVARDS, SHALL BE RESTORED WITH NO.1 NURSERY SOD ON MINIMUM 100mm IMPORTED TOPSOIL TO THE SATISFACTION OF NORFOLK

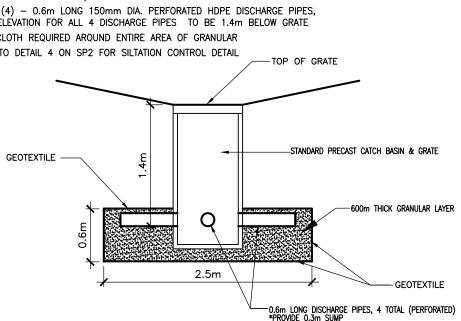


TYPICAL ROAD RESTORATION DETAIL SCALE= N.T.S.

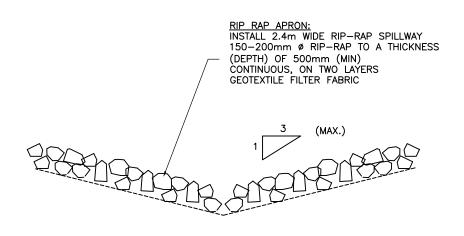
PROPOSED CATCH BASIN AND DRYWELL:

-TOP OF GRATE AT ELEVATION AS PER DRAWING -EXCAVATE AREA, REMOVE EXISTING SOIL AND REPLACE WITH GRAVEL LAYER AS INDICATED. -INSTALL 2.5m x 2.5m x 0.6m GRAVEL LAYER (USE GRAN 'B', C/W FILTER CLOTH -TOTAL THICKNESS OF BURIED GRAVEL TO BE 0.6m -BOTTOM OF GRANULAR LAYER, 2m BELOW TOP OF GRATE. (TOTAL THICKNESS is 0.6m)

-INSTALL (4) - 0.6m LONG 150mm DIA. PERFORATED HDPE DISCHARGE PIPES, INVERT ELEVATION FOR ALL 4 DISCHARGE PIPES TO BE 1.4m BELOW GRATE -FILTER CLOTH REQUIRED AROUND ENTIRE AREA OF GRANULAR * REFER TO DETAIL 4 ON SP2 FOR SILTATION CONTROL DETAIL











ALL DRAWINGS, DETAILS AND SPECIFICATIONS, AND REPORT ANY DISCREPANCIES TO ENGINEER BEFORE PROCEEDING WITH THE WORK.

CONTRACTOR MUST VERIFY ALL JOB DIMENSIONS,

THE FOLLOWING DRAWINGS AND NOTES TO BE CONSIDERED A

PART OF THE CONSTRUCTION DRAWINGS:

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- THE DRAWINGS AND SPECIFICATIONS ARE TO BE USED ONLY FOR THE PROJECT SO NOTED. REPRODUCTION OF THE DOCUMENTS IN PART OR IN WHOLE FOR ANY OTHER PURPOSE, OTHER THAN THIS PROJECT, WITHOUT THE WRITTEN CONSENT OF M C ENGINEERING IS PROHIBITED. DRAWINGS ISSUED FOR GENERAL PURPOSE, NEGOTIATION, LEASE ETC. CARRY ALL THE ABOVE COPYRIGHT PROTECTION.
- □ PRIMARY DIMENSIONS ARE METRIC.



KEY PLAN: N.T.S.

PROPERTY DESCRIPTION: PART OF LOT 12

CONCESSION 8, GEO. WINDHAM TOWNSHIP NORFOLK COUNTY

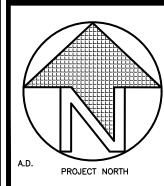
LEGAL PROPERTY BOUNDARY INFORMATION:

DRAWING WAS BASED ON A SURVEY SKETCH P17 06 A9921 PREPARED AND PROVIDED BY JEWITT AND DIXON LTD. ONTARIO LAND SURVEYORS.

SITE BENCHMARK: ELEV. 248.21
TOP OF SOUTH-WEST CORNER OF EXISTING CONCRETE SIDEWALK EAST SIDE OF DOYLE STREET.

4	ISSUED FOR SUBMISSION	NOV. 3rd 2022	K.P.B
3	ISSUED FOR CLIENT REVIEW	APR. 26th 2019	R.M.
2	ISSUED FOR DRAFT PLAN SUBMISSION	OCT. 20th 2019	R.M.
1	ISSUED FOR CLIENT PRE-CONSULT	AUG. 6th 2019	A.D.
DD #610	DESCRIPTION	DATE	BY

DO NOT SCALE DRAWINGS; THESE DRAWINGS SHOW INTENT OF THE DESIGN ONLY OR EXISTING CONDITIONS AND MAY NOT REFLECT EXACT LOCATIONS.





M C ENGINEERING P.O. Box 1002, Simcoe, Ont. N3Y 5B3 Tel: 519-428-6790 Fax: 519-426-8960 E-mail: mail@mcengineering.net A DIVISION OF 392583 ALBERTA LTD.





PROPOSED SUBDIVISION

PROJECT NAME

CHECKED

DATE:

LLOYD WOOD

#32 NIXON ROAD (NORFOLK COUNTY ROAD 25)

WINDHAM CENTRE

DETAIL PAGE

MAY 2017

FILE NAME: 7251.dwg

PROJECT NO .: AS SHOWN 15640/7251 K.P.B./R.M. R.W.P./Z.L.

DWG. NO.: REV. NO.:







J.H. COHOON ENGINEERING LIMITED

CONSULTING ENGINEERS

February 17, 2023

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 32 Nixon Road

Windham Centre, Ontario

Norfolk County

Traffic Considerations

Dear Sir:

In response to request from the owner of the property, Mr. L. Wood, our firm has reviewed the traffic impacts of the proposed development to be located at MN 32 Nixon Street in Windham Centre in Norfolk County.

In support of an application for re-zoning and draft approval of a nine (9) lot subdivision, (9 units total) on the subject property, a traffic brief was requested as part of the preconsultation notes. The proposed engineering drawings relating to the development has been included within Appendix 'A' of this report.

Existing Transportation Network

The subject property is located on the south side of Railway Street in Windham Centre. The property extends to the east so that three (3) of the proposed lots are adjacent to the Barker Street right-of-way. The attached aerial photograph and the key plan presented within Figure No. 1, illustrates the existing transportation network in the area.

The site is not serviced with municipal sidewalks on the existing streets as it is a rural setting for the development. Our firm reached out to Norfolk County and determined that no existing traffic volumes were available for the abutting streets being Nixon Road, Baker Street and Railway Street.



The current zoning for the site is 'RH' – Hamlet Residential Lands which is predominately a single-family residential zone. Additional land uses in the area are also residential with a scattering of some additional lands uses. A land use plan illustrating the existing land uses in the area has been included within Appendix 'B' of this report.



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
Nine (9) Single Detached Dwellings)

= Approximately 2.0 trips per unit for the peak pm hour For the purpose of this analysis, a trip generation of 2.0 was utilized.

In this case, this would translate into about 18 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 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 anticipated to operate without any impacts to the existing road network. The addition of 18 peak hour trips associated with the development on Railway Street and Baker Street would be considered insignificant for this area in Norfolk County. We have included the following information relating to this development.

Site Access

The proposed site plan has been reviewed with consideration of access to the neighbouring / abutting residential streets.

In the review of the site plan in conjunction with the road network, the proposed driveway access locations are provided with suitable sight distance to allow for safe access into the property. Both Railway Street and Baker Lane has existing driveways existing.

Conclusions:

The findings of our analysis of the site complete with considerations of the overall development are as follows:

- The development proposal is to redevelop the subject property to allow for approximately nine (9) single family homes
- The access to the site is intended to be a full movement driveway onto both Railway Street and Baker Lane.
- The development is going to generate only a maximum of 18 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.

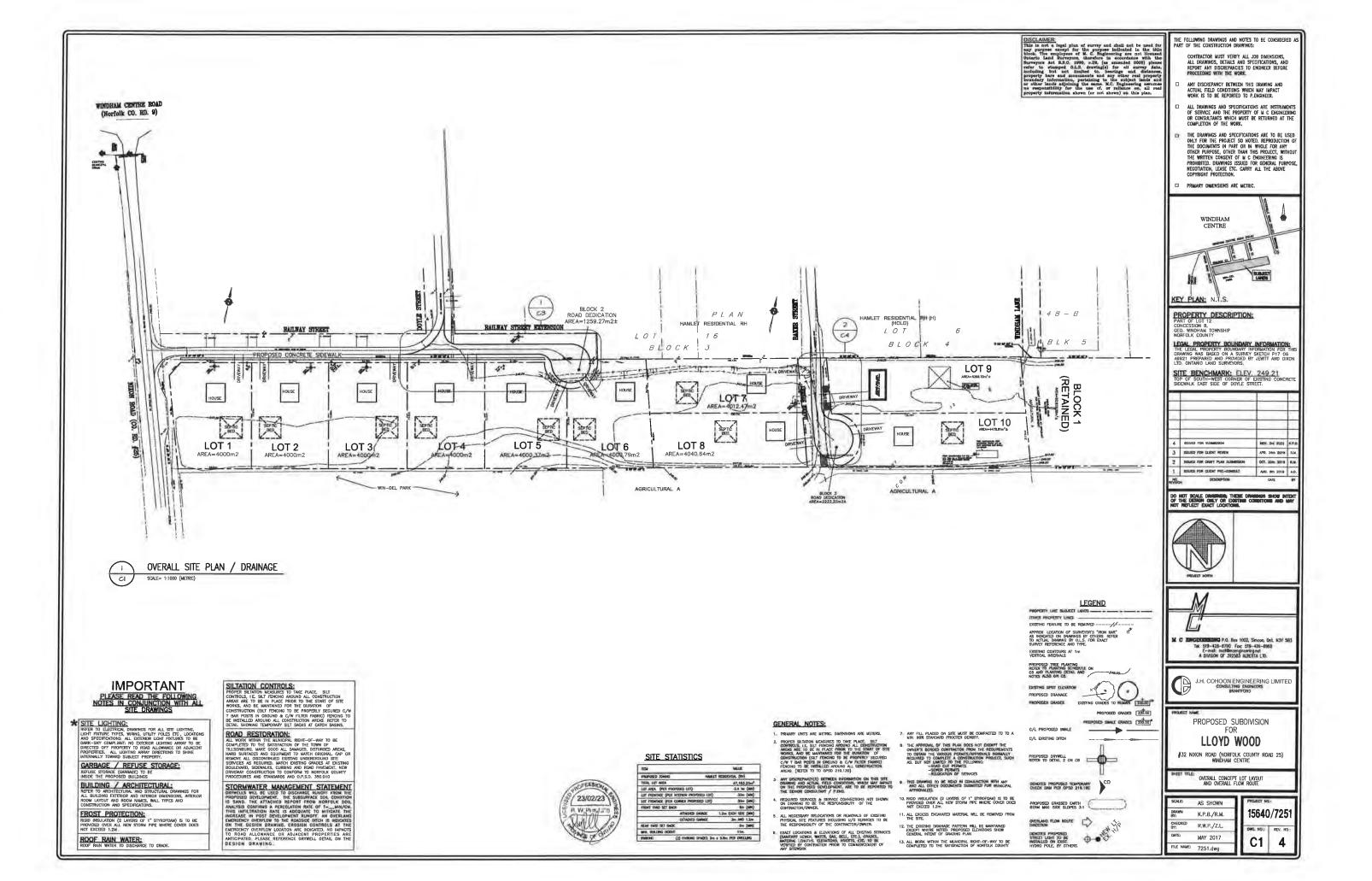
Yours truly,

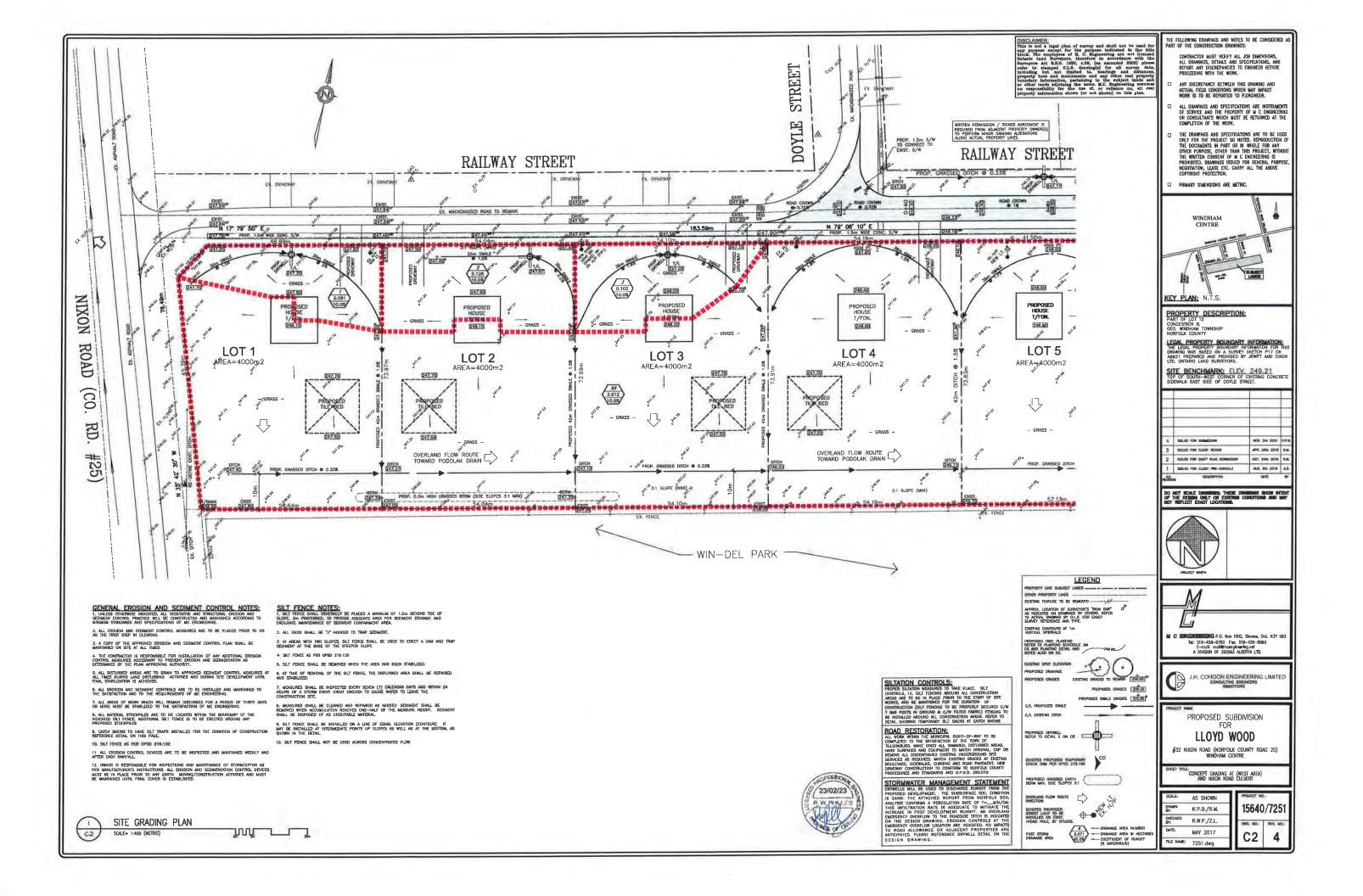
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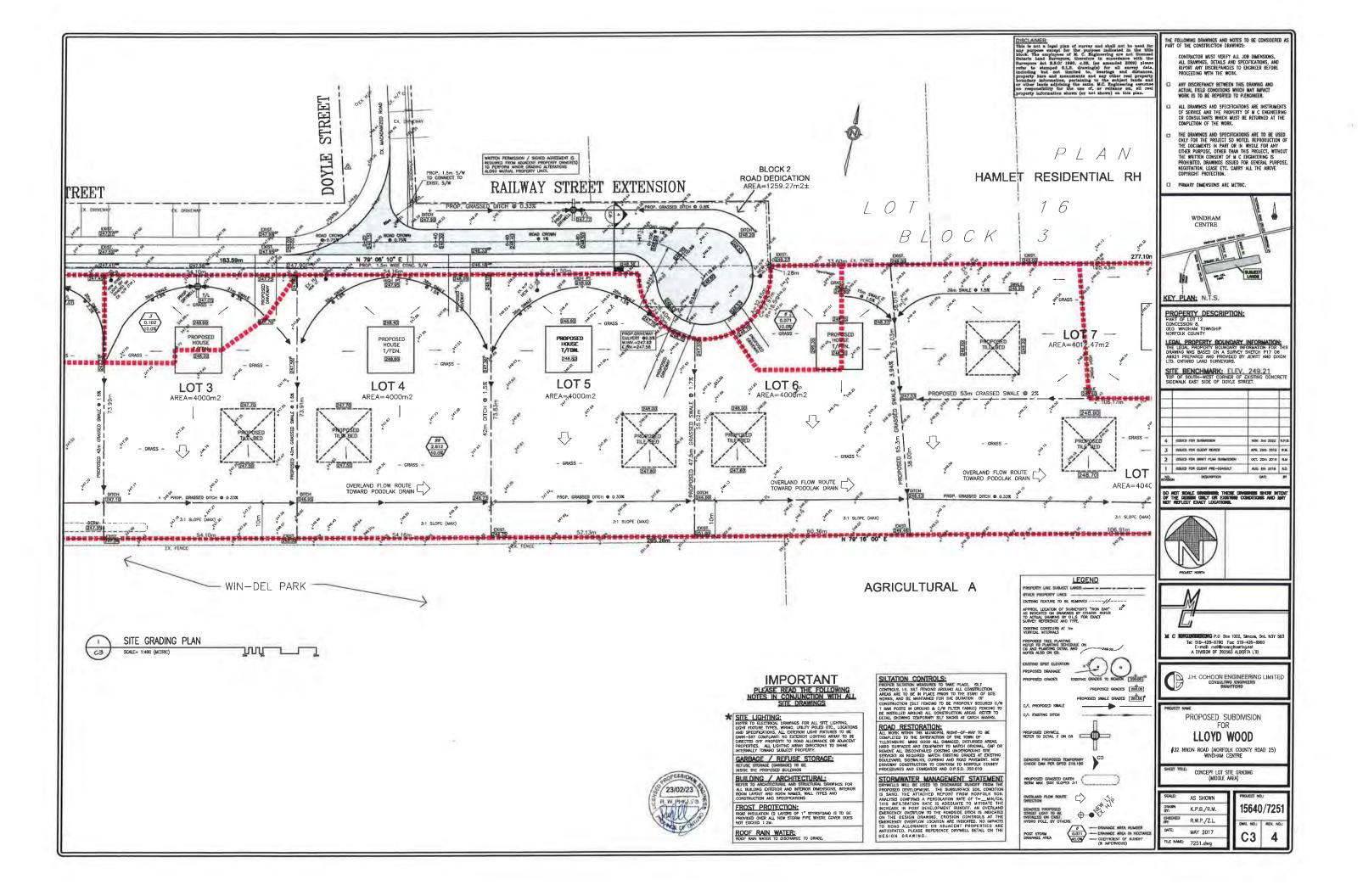
COHOON ENGINEER

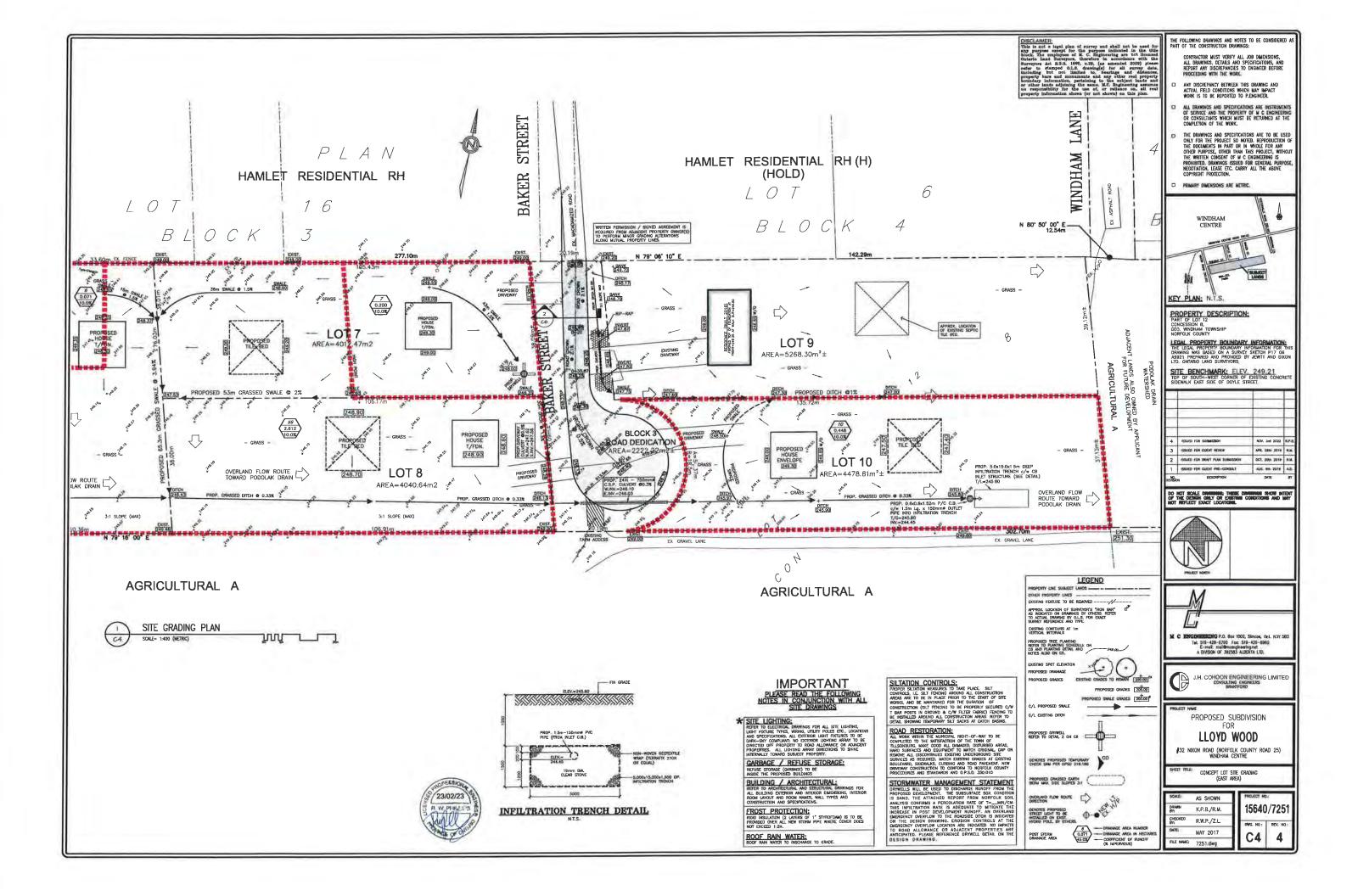
R.W. Phillips, P.Eng

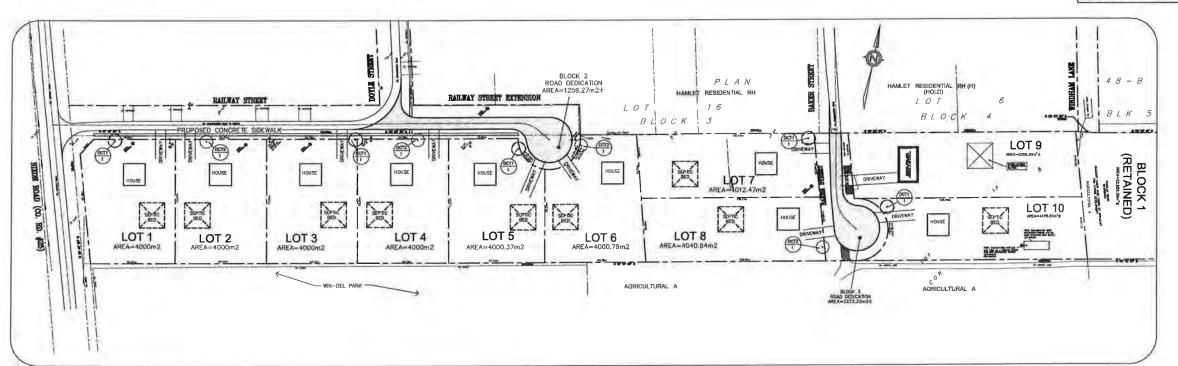
Appendix 'A' J H Cohoon Engineering Limited – Site Development Plans











OVERALL SITE PLAN / DRAINAGE C5

		PLANT	ING SCH	EDULE		
KEY	COMMON NAME	BOTANICAL NAME	THALLD	CONDITION	PROPERTIES	SIZE
			TREES			
DCTI	MACITO JENNY MALT	ACTA MODIFICA		(BAB) W/B	F, FC, MT	7.5m HT
DCT2	HED EMPEROR JAPHNESE HAPLE	ACER PALMATUM 'RED EMPEROR'	4	(808) W/8	FL, FC, NT	4.5m HT

THE NAME OF THESE HEITE CONTRACTOR TO REFER TO SPECIFICATIONS AROUSE MODITED ON BOTH SDCS OF FREE TRUSK (MAX 30) TOWNS TO RESTRAIN MOVIMENT A MEDICAL PRODUCT, VOLUME ST TREETINAP BETALLD AS PER 80 NOT DRIVE STANCES THROUGH ROOT BALL THEE TO BE PLANTED WITH TOP OF MOST BALL LEVEL WITH THEMES GRADE. BACKFILL IN 150mm LIFTS AND THAP TO ELIMINATE AIR POCKETS. APDORGAND PLASTIC FORMS 25mm HIGH WITH EXPANSION 1 PLACE ROCTIONAL CHI LINCOTTURNITO DORI, CUIT AND REMOVE TOR 1 OF THOSE, DRIVEN AND MEMOVE TO HOSTIFALL ALL STRUMENT THIS AND CONTRACTS INCOMP TRATE AND CONTRACTS LOOSEN SURFACE SOIL OF

23/02/23

SOAK BACKFILLED AREA TO ENSURE FULL CONTACT BETWEEN ROOTBALL AND BACKFILL



PLANT MATERIALS:

- 3. ALL TREES SHALL HAVE AN EARTH SAUCER AT ITS BASE WITH A DIAMETER ALL HAVE AN EARTH SAUCER AT ITS BASE TO RETAIN WATER SEE DETAIL EARTH SAUCER TO SHAPE TO RETAIN WATER SEE DETAIL EARTH SAUCER TO HAVE APPROVED MULCH INSTALLED TO A MINIMUM DEPTH OR 2.5" (83MM).
- 4 ALL BURLAP SHALL BE CUT AND BURIED BELOW SURFACE DURING PLANTING.
- 5 ALL EVERGREENS ARE TO WRAPPED THE FIRST WINTER

LANDSCAPE NOTES:

1, ANY PLANT MATERIAL REQUIRES THE APPROVAL OF THE CITY OF NORFOLK COUNTY.

ANY SODDING, PLANTING, OR WORK ON LANDS ABUTTING THE PROPERTY FROM THE LOT LINES TO SIDEWALK AND CURBING, SHALL BE TO THE SATISFACTION OF THE CITY.

4. ALL LANDSCAPING SHALL BE INSTALLED PRIOR TO THE END OF THE FIRST GROWING SEASON FOLLOWING OCCUPANCY OF THE DEVELOPMENT.

5. UNLESS OTHERWISE SPECIFIED ALL LANDSCAPED AREAS TO BE 6. UNLESS OTHERWISE SPECIFIED ALL UNDEVELOPED AREAS SHALL BE UNDISTURBED AND KEPT FREE AND CLEAR OF DEBRIS AND MAINTAINED

7. ALL PLANTING BEDS TO BE PROPERLY MULCHED.

GENERAL PLANTING NOTES:

TOPSOIL:

DIRECT ALL RAIN LEADERS AND SUMP LEADERS AWAY FROM PLANTING BEDS AND TO THE DESIGNATED SWALES.

PLANTINGS MAY BE ADJUSTED TO SUIT UTILITIES STRUCTURES AND AESTHETIC CONCERNS,

LEGEND PROPERTY LINE SUBJECT LANDS ---

EXISTING FEATURE TO BE REMOVED -----

APPROX. LOCATION OF SURVEYOR'S "IRON BAR" AS INDICATED ON DRAWINGS BY OTHERS REFER TO ACTUAL DRAWING BY OLLS FOR EXACT SURVEY REFERENCE AND TYPE. EXISTING CONTOURS AT 1m VERTICAL INTERVALS

THE FOLLOWING DRAWINGS AND NOTES TO BE CONSIDERED AS PART OF THE CONSTRUCTION DRAWINGS:

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- PRIMARY DIMENSIONS ARE METRIC.



KEY PLAN: N.T.

PROPERTY DESCRIPTION:

THE LEGAL PROPERTY BOUNDARY INFORMATION FOR THE LEGAL PROPERTY BOUNDARY INFORMATION FOR TO PRAWING WAS BASED ON A SURVEY SKETCH P17 OF AS921 PREPARED AND PROVIDED BY JEWITT AND DIX. LTD, ONTARIO LAND SURVEYORS.

SITE BENCHMARK: ELEV. 249.21
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Tal: 519-428-6790 Fox: 519-426-8960 E-mail: mail@mcanglneering.nat A DIMSION OF 392583 ALBERTA LTD





PROPOSED SUBDIVISION

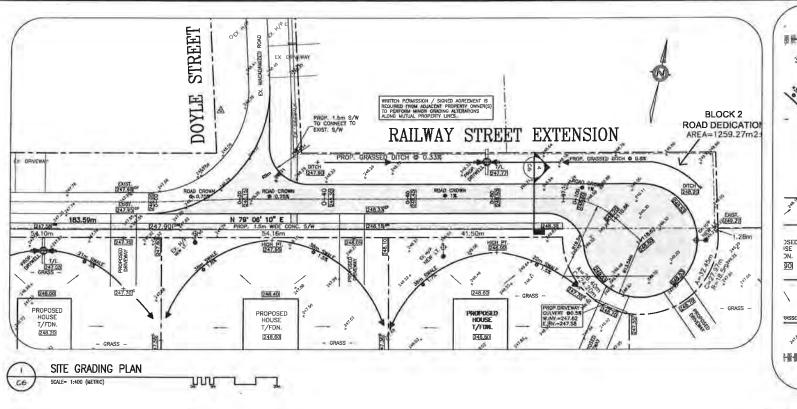
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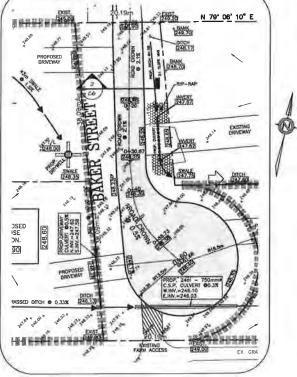
#32 NIXON ROAD (NORFOLK COUNTY ROAD 25)
WINDHAM CENTRE

PLANTING PLAN

SCALE:	AS SHOWN	PROJECT NO	ii ii
DRAWN BY:	K.P.B./R.M.	15640	/72
CHECKED BY:	R.W.P./Z.L	D981 NO+	REV. N
DATE:	MAY 2017	C5	4
FILE NAME:	7251.dwg	69	4

PROPOSED TREE PLANTING
REFER TO PLANTING SCHEDULE ON
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DISCLAIMER:
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This is not a legal for the purpose indicated in the fills
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On tarts I and Surveyor, therefore in socoordance with the
Burveyors Act. R.D. 1950, c.P. (as amanded 2000) please
refer to examped O.L. drevelagely for all nurvey data,
including but not limited to, bearings and distances,
including but not limited to, bearings and distances,
boundary information, pertaining to the subject lands and
or other lands edjecting the same. M.C. Engineering assumes
no responsibility for the use of, or relance or, all resi
supporty information shown (ar not shown) on this plan.

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D PRIMARY DIMENSIONS ARE METRIC.



PROPERTY DESCRIPTION:
PART OF LOT 12
CONCESSION 8,
GEO, WINDHAM TOWNSHIP
NORFOLK COUNTY

TEGN PROPERTY BOUNDARY INFORMATION:
THE LEGAL PROPERTY BOUNDARY INFORMATION FOR THI
DRAWNIG WAS BASED ON A SURVEY SKETCH P17 OB
A9821 PREVANED AND PROVIDED BY JEWITT AND DIXON
LTD, ONTARIO LAND SURVEYORS.

SITE BENCHMARK: FLEV. 249.21
TOP OF SOUTH-WEST CORNER OF EXISTING COI
SIDEWALK EAST SIDE OF DOYLE STREET.

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J.H. COHOON ENGINEERING LIMITED CONSULTING THORSETTES.

PROPOSED SUBDIVISION

LLOYD WOOD

#32 NIXON ROAD (NORFOLK COUNTY ROAD 25)

PLAN & PROFILE - RAILWAY STREET AND BAKER STREET EXTENSION

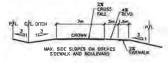
15640/7251 KPB/RM R.W.P./Z.L. MAY 2017 C6 4

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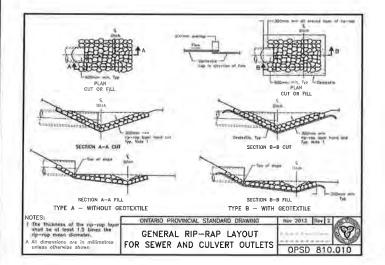
SITE GRADING PLAN

SCALE: N.T.S.





TYPICAL DRIVEWAY CROSS-SECTION (06)



ST.

SECTION A-A

ONTARIO PROVINCIAL STANDARD DRAWING

HEAVY-DUTY

SILT FENCE BARRIER

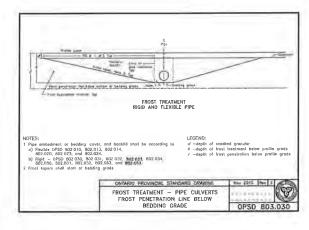
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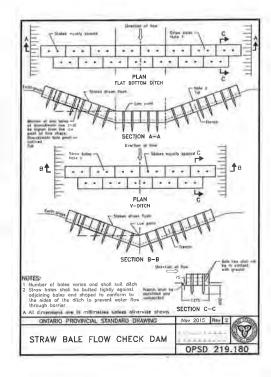
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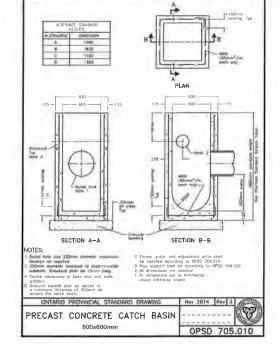
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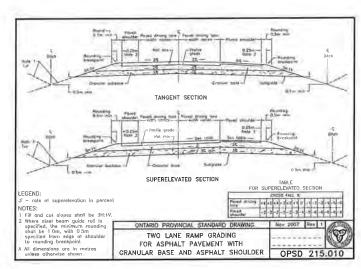
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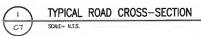
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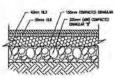




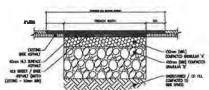












ROADWAY RESTORATION NOTES:

- CONTRACTOR TO MAINTAIN A MINIMUM OF ONE LANE OF TRAFFIC AT ALL TIMES, IF TREMPORARY ROAD CLOSURES ARE NECESSARY, THEN CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS WITH NORFOLK COUNTY.
- 3. CONTRACTOR SHALL LOCATE AND PROTECT ALL

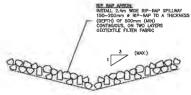


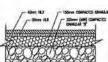
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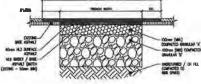
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-NETHAL 25th x 25th x 25th x 20th X 20 2.50

TYPICAL DRYWELL DETAIL (01) SCALE= N.T.S

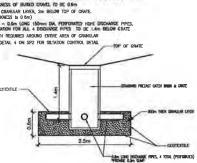




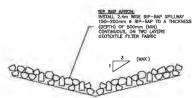


- CONTRACTOR TO DETAIN ALL NECESSARY ROAD CUT PERMITS PRIOR TO CONSTRUCTION
- 4 ALL CUTS TO EXISTING ASPHALT AND CONCRETE SHALL BE CLEAN SAW CUTS ONLY.
- BACKFILL FOR ALL SERVICE TRENCHES FROM EDGE OF ASPHALT TO BACK OF SIDEWALK SHALL BE
- 6 BACKFILL FOR ALL SERVICE TRENCHES FROM BACK OF SIDEWALK TO STREET LINE SHALL BE SELECT NATIVE MATERIAL.
- 7 ALL BEDDING AND BACKFILL SHALL BE COMPACTED TO WAN 98% SPMDD
- CURBS AND SUBDRAINS SHALL BE RESTORED TO MATCH EXISTING CONDITIONS TO THE SATISFACTION OF NORFOLK COUNTY.











THE FOLLOWING DRAWINGS AND NOTES TO BE CONSIDERED AS

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- PRIMARY DIMENSIONS ARE METRIC.



KEY PLAN: N.T.S

PROPERTY DESCRIPTION: CONCESSION 8, GEO. WINDHAM TOWNSHIP NORFOLK COUNTY

THE LEGAL PROPERTY BOUNDARY INFORMATION:
THE LEGAL PROPERTY BOUNDARY INFORMATION FOR TH
DRAWING WAS BASED ON A SURVEY SKETCH P17 OB
A9921 PREPARED AND PROPUED BY JEWITT AND DIXON
LTD, ONTARIO LAND SURVEYORS

SITE BENCHMARK: ELEV 248.21
TOP OF SOUTH-WEST CORNER OF EXISTING CONSIDEWALK EAST SIDE OF DOYLE STREET.

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DO NOT SCALE DINAMINES; THERE DINAMINES SHOW INTENT OF THE DISSION COLLY OR EXISTING COMBITIONS AND MAY NOT REPLECT EXACT LOCATIONS.





GINCESTING P.O. Ber 1002, Simon, Oct. R3Y 583 Tel: 519-428-6790 Fox: 519-428-8960 E-melt: mol@ncmgheering.net A CM/SION OF 392563 ALBERTA LTD.



PROPOSED SUBDIVISION LLOYD WOOD

#32 NIXON ROAD (NORFOLK COUNTY ROAD 25) WINDHAM CENTRE

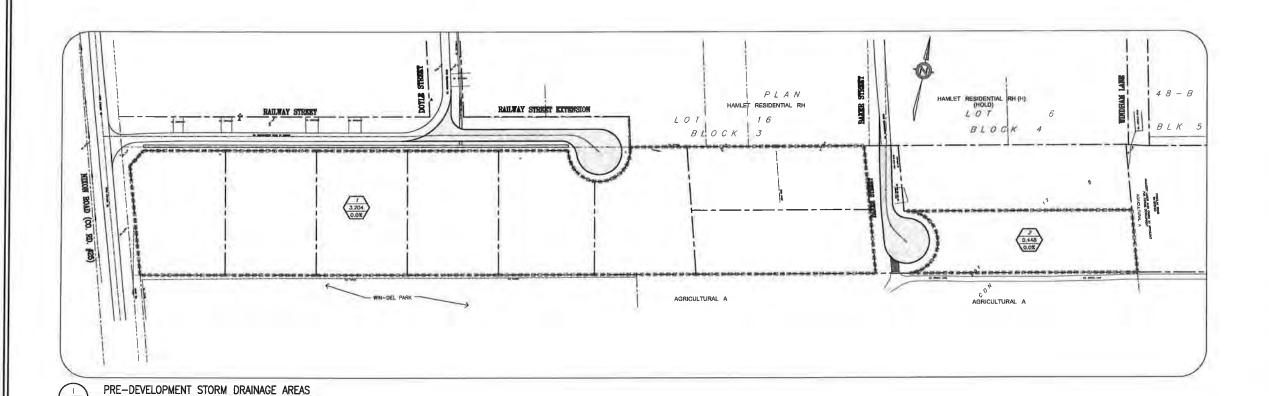
DETAIL PAGE

PLE NAME 7251,dwg

AS SHOWN 15640/7251 K.P.S./R.M. R.W.P./Z.L. WAY 2017

C7 4





C5

SCALE= 1:1000 (METRIC)

LEGEND

APPROX. LOCATION OF SURVEYOR'S "IRON BAR"
AS INDICATED ON DRAWINGS BY OTHERS REFER
TO ACTUAL DRAWING BY OLS. FOR EXACT
SURVEY REFERENCE AND TYPE.

EXISTING CONTOURS AT 1m VERTICAL INTERVALS

23/02/23



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(N. IMPERMOUS)

THE FOLLOWING DRAWINGS AND NOTES TO BE CONSIDERED AS PART OF THE CONSTRUCTION DRAWINGS:

CONTRACTOR MUST VERIFY ALL JOB DIMENSIONS, ALL DRAWINGS, DETAILS AND SPECIFICATIONS, AND REPORT ANY DISCREPANCIES TO ENGINEER BEFORE PROCEEDING WITH THE WORK.

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ALL DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF SERVICE AND THE PROPERTY OF M C ENGINEERING OR CONSULTANTS WHICH MUST BE RETURNED AT THE COMPLETION OF THE WORK.

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PRIMARY DIMENSIONS ARE METRIC.



PROPERTY DESCRIPTION:
PART OF LOT 12
CONCESSION 8,
GEO, WINDHAM TOWNSHIP
NORFOLK COUNTY

HUROULK COUNTY

IEAN PROPERTY BOUNDARY INFORMATION:
THE LEEA, PROPERTY BOUNDARY INFORMATION FOR THI
DRAWNIG WAS BASED ON A SURVEY SKETCH P17 OB
A9821 PREPARED AND PROVIDED BY JEWITT AND DIXON
LTD. ONTARIO LAND SURVEYORS

SITE BENCHMARK: ELEV, 249,21
TOP OF SOUTH-WEST CORNER OF EXISTING CONCRE
SIDEWALK EAST SIDE OF DOYLE STREET.



DO NOT SCALE DIMENSOR, THERE DIMENSOR SHOW INTENT OF THE DESIGN GRAY OR DOSTRON CONDITIONS AND MAY NOT REFLECT EXACT LOCATIONS.



M C ENCLOSED DE P.O. Box 1002, Sincos, Onl. N3Y S83
Tel: 519-428-6780 Fox 519-428-9980
E-molt: moltmomphorning.net
A DMSION OF 392583 ALBERTA LTD.



J.H. COHOON ENGINEERING LIMITED CONSULTING ENGINEERS BRANTFORD

PROPOSED SUBDIVISION

LLOYD WOOD

#32 NIXON ROAD (NORFOLK COUNTY ROAD 25)

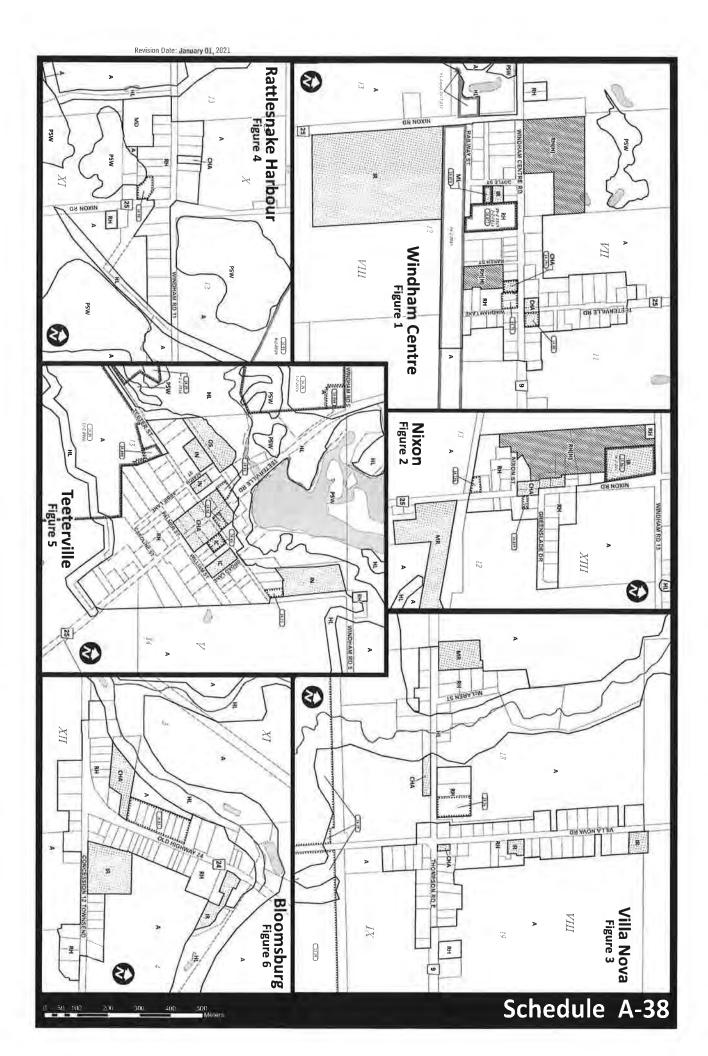
PRE-DEVELOPMENT STORM DRAINAGE AREAS

AS SHOWN 15640/7251 K.P.B.

R.W.P. FEB 2023 C8 0

FILE NAME: 7251 dwg

Appendix 'B' Land Use Aerial Photo of Subject Area Including zoning bylaw provisions for the Area







August 17, 2022

Lloyd Wood C/O Landpro Planning Solutions 707 E Main Street Welland, Ontario, N3T 5L8

Subject: Lot Severance - T-Time and Infiltration Assessment

25 Bakers Street, Windham Centre, ON

Englobe reference: OC.04-02205818-GE-L-0001-01

Dear Sir:

Englobe Corp. (Englobe) is pleased to provide this letter with the results of percolation time and infiltration assessment for the proposed lot severance at 25 Bakers Street in Windham Centre, ON. The project involves the severance of a property and creating ten new residential lots. Each new lot will be serviced with a private onsite sewage system and lots 1 to 3 will have infiltration galleries.

The purpose of the geotechnical investigation is to determine the subsurface soil and groundwater conditions at the proposed septic bed and infiltration gallery locations and provide recommended T times for use in designing the on site sewage system at each new lot and estimated infiltration rates for use in designing the infiltration galleries.

The fieldwork for the assignment was carried out on June 27, 2022 and involved the excavation of twelve test pits (Test Pit TP-01-22 and TP-12-22) to depths of 1.8 to 3.0 m at the locations shown on Drawing 1, appended.

1. Fieldwork

The test pits were advanced with a tracked hydraulic excavator supplied by Mr. Lloyd Wood. Soil samples were recovered from the test pit at select intervals. Groundwater observations were carried out in the open test pits during and upon completion of excavating. The observations are provided on the test pit logs, appended. Upon completion of excavating, the test pits were backfilled with on-site soil.

The fieldwork was monitored by an experienced Engineering Technician who was also responsible for sampling.

The test pits locations and ground surface elevations were surveyed by Englobe. The test pit locations were provided in the field by Mr. Lloyd Wood and it is understood that the locations represent the location of the proposed septic beds and infiltration galleries. The ground surface elevations are referred to the following temporary benchmark (TBM):

TBM: Nail set in the asphalt at the intersection of Nixon Road and Railway Street.

Elevation 100.00 m (local datum).

2. Summarized Conditions

The soil conditions, at the proposed septic beds and infiltration galleries (Test Pit TP-01-22 to TP-12-22) typically comprise a surficial layer of fill overlying native sand and silt deposits that range in composition from sand with trace to some silt and gravel to silt and sand with trace to some gravel and clay. The fill extended to the termination depth of test pits TP-11-22 and TP-12-22.

Groundwater was encountered in test pits TP-02-22, TP-05-22 and TP-10-22 at depths of 1.2 to 1.4 m. It is noteworthy that the soils were observed to be wet in most test pits at depths of 1.5 to 2.5 m. The groundwater conditions at the site may vary locally due to seasonal fluctuations, groundwater regimes at the site or as a consequence of construction activities at the site or adjacent sites.

Twelve soil samples from the test pits excavated were submitted to Englobe's laboratory for particle size analyses and the results are provided on Figures 1 to 12, appended and summarized in Table 1:

Table 1: Summary of Granular Particle Size Analyses

Test Pit Number	Depth (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
TP-01-22 (Sa1)	1.6	0.8	83.2	8.2	7.8
TP-02-22 (Sa1)	0.2	1.0	44.8	39.9	14.3
TP-03-22 (Sa3)	1.5	17.9	38.5	33.1	10.5
TP-04-22 (Sa1)	0.8	0	56.5	35.5	8.0
TP-05-22 (Sa1)	0.7	14	64.1	18.1	3.8
TP-06-22 (Sa2)	1.6	17.9	45.3	33.2	3.6
TP-07-22 (Sa3)	1.5	0	50.9	36.1	13.0
TP-08-22 (Sa2)	0.9	2.0	36.1	53.9	8.0
TP-09-22 (Sa2)	1.3	7.8	44.1	42.2	5.9
TP10-22 (Sa3)	1.6	2.7	53.3	40.4	3.6
TP-11-22 (Sa2)	1.0	14.3	44.8	34.1	6.8
TP-12-22 (Sa2)	1.0	19.2	61.8	14.4	4.6

3. Recommendations

The house lots at this site will be serviced by individual on-site sewage systems. The subgrade soil within the proposed septic beds as shown on Drawing 1, will comprise native sand and silt. The results of nine particle size analyses carried out on samples of the native sand and silt are plotted on Figures 4 to 12, Appended and summarized in Table 1.

The percolation rate of the soil deposits at the tile bed locations were assessed based on the physical characteristics encountered during the subsurface investigation (i.e. structure, density, organics, etc.); and the soil type as described by the Unified Soil Classification System in Supplementary Standard SB-6 of the OBC. Soil classifications and recommended 'T'-times for leaching bed design based on the subsurface conditions encountered are provided in the following table:

Table 2: Soil Classifications and 'T'-Times

Test Pit Number	Location	Sample Depth (m)	Soil Classification	Percolation Time Range (min/cm)	Recommended 'T'-Time (min/cm)
TP-04-22	Lot 1	0.8	SM-SC	8-50	25
TP-05-22	Lot 2	0.7	SM	8-20	20
TP-06-22	Lot 3	1.6	SM-SC	8-50	25
TP-07-22	Lot 4	1.5	SM-SC	8-50	30
TP-08-22	Lot 5	0.9	ML	20-50	35
TP-09-22	Lot 6	1.3	SM-SC	8-50	35
TP-10-22	Lot 7	1.6	SM-SC	8-50	35
TP-11-22	Lot 8	1.0	SM-SC	8-50	30
TP-12-22	Lot 10	1.0	SM	8-20	20

Infiltration galleries are proposed for the front of lots 1 to 3 (TP-01-22 to TP-03-22). The hydraulic conductivities of the grain size distribution sample was assessed using those of the 15 available methods implemented in the spreadsheet "HydrogeoSieveXL ver. 2.2", J.F. Devlin, University of Kansas, 2015, for which the samples in question met acceptance criteria. The calculated hydraulic conductivity of samples 1 to 3 is 10^{-3} to 10^{-4} cm/sec, corresponding to a factored infiltration rate of 20 to 30 mm/hr. It is noteworthy that groundwater seepage was encountered at a depth of 1.2 m in test pit TP-02-22 and this will impact the ability of the soil to infiltrate.

The estimated design infiltration rates are based on recommendations found in "Low Impact Development Stormwater Management Planning and Design Guide, Appendix C" published by the Toronto and Region Conservation Authority (TRCA) and the Credit Valley Conservation Authority (CVC), and the approximate relationship between hydraulic conductivity and infiltration rate. It should be noted that hydraulic conductivity and infiltration rate are distinct concepts and such, unit conversion does not apply.

Geological conditions are innately variable. Information about the subsurface stratigraphy is only available at discrete test pit locations at the time of report preparation. To develop recommendations from the available information, it is necessary to make some assumptions concerning conditions at the site. Adequate inspection should be provided during construction to check that these assumptions are reasonable.

It is the responsibility of the designer to and to carry out field inspections at the time of sewage system and infiltration gallery installation to confirm that the soil and groundwater conditions are consistent with the design assumptions.

We trust that this information is suitable for your immediate requirements. If you have any questions regarding the information presented, please do not hesitate to contact our office.

Yours very truly,

Yours very truly,

Englobe Corp.

Thom Staples, C.E.T.

Senior Project Manager

Brantford Area Manager

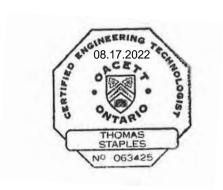
Rob Helwig, P.Geo., QP.

Senior Geoscientist

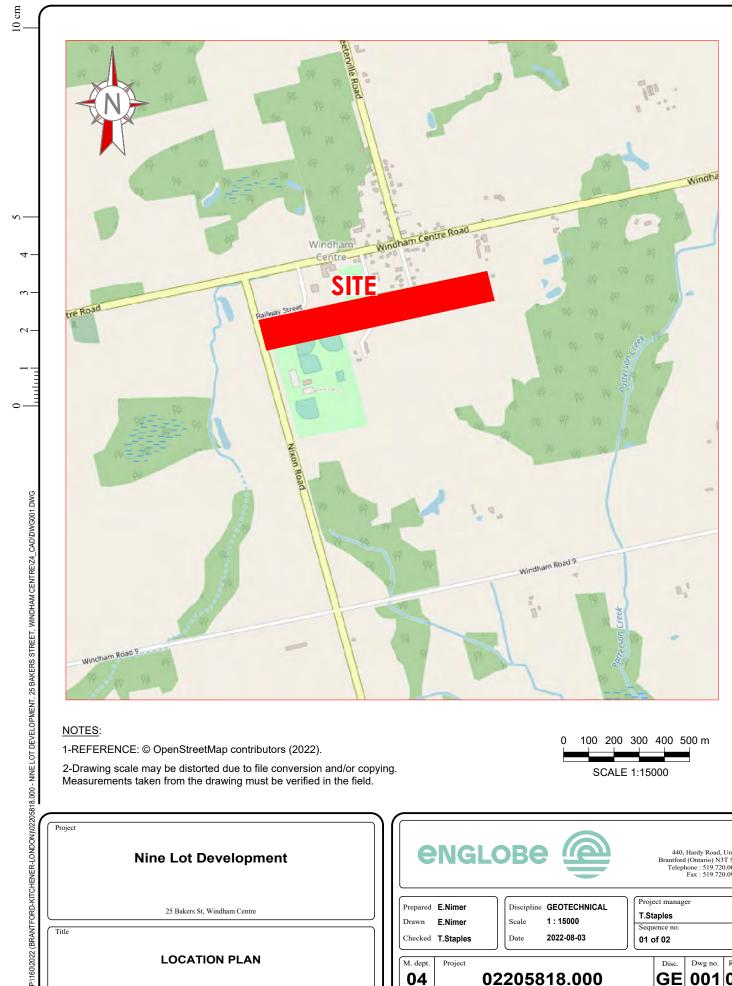
London Operations

Encl. Test Pit Plan

Encl. Drawing 1 - Test Pit Location PlanEncl. Test Pit Log - TP-01-22 to TP-12-22Encl. Figures 1 to 12 - Particle Size Analyses



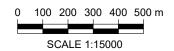


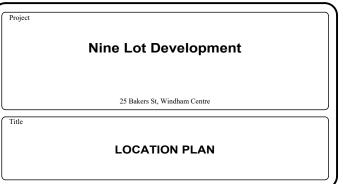


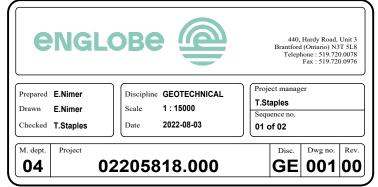
NOTES:

1-REFERENCE: © OpenStreetMap contributors (2022).

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











BOREHOLE LOCATION

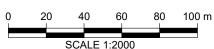
EL. 247.77 GROUND SURFACE ELEVATION (m)

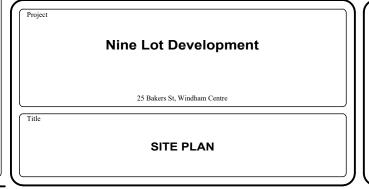
NOTES:

1-REFERENCES: M C Engineering, Proposed subdivision for Lloyd Wood, May 2017, 7251, C1 2- All elevations were interpreted from drawing

referenced above

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







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04

LOG OF BOREHOLE No. TP-01-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits Dynamic Cone Test Drill Type: Undrained Triaxial at 15 0 5 Shelby Tube % Strain at Failure CL Intersection of Nixon Rd and Railwayh St Strength by Shear Strength by Datum: Penetrometer Test Standard Penetration Test N Value G W L Natural Unit Weight kN/m ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Shear Strength m 99.06 Sand, trace silt and clay, with rootlets Brown, moist SAND m SS-01 Sand, some silt and gravel Moist 97.26 Silty seams **™** SS-02 Mottled brown to grey, wet m SS-03 96.06 Terminated at 3.0 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. TP-02-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits 0 Drill Type: Dynamic Cone Test Undrained Triaxial at 15 0 5 Shelby Tube % Strain at Failure CL Intersection of Nixon Rd and Railwayh St Strength by Shear Strength by Datum: Penetrometer Test Standard Penetration Test N Value G W L Natural Unit Weight kN/m ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Shear Strength m 98.52 TOPSOIL 11/ 98.32 SAND SS-01 Sand and silt, some clay trace of gravel Rusty brown 97.42 SAND AND GRAVEL Trace of silt Brown, saturated SS-02 Terminated at 1.8 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	1.1	1.2

LOG OF BOREHOLE No. TP-03-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits Dynamic Cone Test Undrained Triaxial at Drill Type: 15 0 5 Shelby Tube % Strain at Failure CL Intersection of Nixon Rd and Railwayh Stistrength by Shear Strength by Datum: Penetrometer Test Standard Penetration Test N Value OαEΩ—e Zo G W L ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Unit Weight Shear Strength m 98.91 SS-01 Sand, some silt, trace gravel Brown, moist 98.01 SAND SS-02 Sand, some silt, trace of gravel Rusty brown, moist Silty sand, some gravel, some clay with silt seams Moist 96.61 Wet SS-04 96.11 Terminated at 3.8 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. TP-04-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits Dynamic Cone Test Undrained Triaxial at Drill Type: 15 0 5 Shelby Tube % Strain at Failure CL Intersection of Nixon Rd and Railwayh St Strength by Shear Strength by Datum: Penetrometer Test Standard Penetration Test N Value G W L Natural Unit Weight kN/m ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Shear Strength m 99.10 Sand, some silt, trace gravel Brown 98.30 m SS-01 Silty sand, trace gravel Rusty brown, very moist 97.40 Some gravel m SS-02 Mottled brown to grey, very moist 96.60 Silty sand, some gravel SS-03 96.40 Terminated at 3.0 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. TP-05-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits Drill Type: Dynamic Cone Test Undrained Triaxial at Shelby Tube % Strain at Failure CL Intersection of Nixon Rd and Railwayh St Strength by Shear Strength by Datum: Penetrometer Test Standard Penetration Test N Value G W L Natural Unit Weight kN/m ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Shear Strength m 98.70 Sand, some silt, trace to some gravel Brown SAND Some silt and organics, some gravel, trace brown to grey, wet 97.10 Brown to grey, saturated SS-02 Terminated at 2.0 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	1.6	1.6

LOG OF BOREHOLE No. TP-06-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits Dynamic Cone Test Undrained Triaxial at Drill Type: 15 0 5 Shelby Tube % Strain at Failure CL Intersection of Nixon Rd and Railwayh St Strength by Shear Strength by Datum: Penetrometer Test Standard Penetration Test N Value G W L ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Unit Weight Shear Strength m 98.72 SS-01 Sand, some silt, some gravel Dark brown 98.17 SAND m SS-02 Sand, some silt, trace gravel Brown, moist 97.12 Silty sand, some gravel, trace of clay m SS-03 Mottled Brown to grey 96.82 Sand, some silt Brown, moist Dilatant, wet m SS-04 95.92 Terminated at 2.8 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. TP-07-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits Dynamic Cone Test Undrained Triaxial at Drill Type: 15 0 5 Shelby Tube % Strain at Failure CL Intersection of Nixon Rd and Railwayh St Strength by Shear Strength by Datum: Penetrometer Test Standard Penetration Test N Value G W L ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Unit Weight Shear Strength m 98.93 FILL SS-01 Sand Dark Brown, moist 98.43 SS-02 Sand, some silt to silty sand Rusty brown to grey, very moist Some gravel and clay SS-03 96.83 SAND AND GRAVEL m SS-04 Some silt Brown, moist Terminated at 2.8 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. TP-08-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits 0 Drill Type: Dynamic Cone Test Undrained Triaxial at 15 0 5 Shelby Tube % Strain at Failure CL Intersection of Nixon Rd and Railwayh Stistrength by Shear Strength by Datum: Penetrometer Test Standard Penetration Test N Value G W L ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Unit Weight Shear Strength m 99.41 SS-01 Sand, some gravel, some silt Brown, moist 98.71 SILT Sand, trace of gravel and clay Grey, Very moist m ss-02 97.21 SAND AND SILT m SS-03 Some gravel Wet Terminated at 3.0 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. TP-09-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits Drill Type: Dynamic Cone Test Undrained Triaxial at 15 0 5 Shelby Tube % Strain at Failure CL Intersection of Nixon Rd and Railwayh St strength by Shear Strength by Datum: Penetrometer Test Standard Penetration Test N Value G W L ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Unit Weight Shear Strength m 99.62 FILL SS-01 Sand , some silt TOPSOIL Grey and black, moist 16 98.32 SAND ₩ SS-02 Sand, silt, trace of gravel and clay Brown 97.32 Wet **™** SS-03 Terminated at 3.0 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. TP-10-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits Dynamic Cone Test Undrained Triaxial at Drill Type: 15 0 5 Shelby Tube % Strain at Failure CL Intersection of Nixon Rd and Railwayh Stistrength by Shear Strength by Datum: Penetrometer Test Standard Penetration Test N Value G W L ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Unit Weight Shear Strength m 99.25 m Sand, some gravel, some silt Moist 98.25 Grey to black, some organics SS-02 97.65 m SS-03 Silty sand, trace of gravel and clay Brown, very moist 97.05 Sand, some gravel, some silt m SS-04 Brown Terminated at 3.0 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	2.4	none

LOG OF BOREHOLE No. TP-11-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits Dynamic Cone Test Undrained Triaxial at Drill Type: 15 0 5 Shelby Tube % Strain at Failure Shear Strength by CL Intersection of Nixon Rd and Railwayh Stistrength by Datum: Penetrometer Test Standard Penetration Test N Value G W L ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Unit Weight Shear Strength m 99.45 SS-01 Sand, some silt, trace of gravel Brown, moist 98.75 Sand, some gravel, trace of clay SS-02 Dark brown, moist Gravel and cobbles, with rootlets **™** SS-03 Greyish, very moist 96.45 Terminated at 3.0 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

LOG OF BOREHOLE No. TP-12-22 **Englobe** 02205818.000 Project No. Nine Lot Development Sheet No. 1 of 1 Project: 25 Bakers Street, Windham Centre Location: Split Spoon Sample \boxtimes Auger Sample Natural Moisture Content 6/27/2022 Date Drilled: SPT (N) Value Atterberg Limits 15 0 5 Drill Type: Dynamic Cone Test Undrained Triaxial at Shelby Tube % Strain at Failure CL Intersection of Nixon Rd and Railwayh St Strength by Shear Strength by Datum: Penetrometer Test Standard Penetration Test N Value G W L ELEV. SOIL DESCRIPTION Natural Moisture Content % Atterberg Limits (% Dry Weight) Unit Weight Shear Strength m 99.59 SS-01 Sand, some silt, trace to some gravel Moist 98.49 Sand, some gravel, some silt, trace of clay SS-02 97.89 Greyish, very moist 96.79 With organics m SS-03 Grey Terminated at 3.0 m

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none



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	4.75		99.2	7																
	2.00		98.9	Liquid Limit																
	0.850		98.3	<u>'</u>																
	0.425		93.8	Plastic Limit																
	0.250		64.7																	
	0.106		20.7	Plastic Index															_	iaure: 4
-	0.075		10.0				ı L												F	igure: 1
																	_			
	TESTE	ບ BY:		Yuwei Gu Laboratory Techni	cian			F	EVIE	WEDI	BY			Se	Jason Ta nior Labor			ın		
				Reporting of these test r	results constitutes a testir	ng servic	e only. Engineeri	ing interpretation	n or eva	aluation	of test results	s is provided onl	y on wri	tten requ	est.					



					OD 4/11 C:==		D 113/8-8-3		A		10 ==	00==												
				•	GRAIN SIZE		D HYDRO LS-602, 7				SIS RE	PORT												
PROJ	ECT NUM	MBER:	04-02205818.000	PROJECT NAME:	Nine Lot [Develo	opments - 25 E	Bakers Street	, Windh	nam (Centre	0	CLIEN	IT:			Landp	ro Pla	anning	Solu	ions I	nc.		
LAB I	NUMBER	:	S-505	SAMPLE ID:			Test Pit 02-2	22, Sample #	1			s	AMPI	LE DE	PTH	: _				0.2m				
SAMF	LED BY:			Client	D	ATE I	RECEIVED:	J	une 29,	, 202	2	DA	TE C	ОМРІ	ETE	D:			July	7, 20)22			
					p	ARTI	CLE SIZE DIS	STRIBUTION	мто	LS-7	02													
				U.S. BUREAU OF	F SOILS CLASSIFICA							FONTAR	RIO PA	VEM	ENT I	DESI	GNS)						_	
			CLAY	SILT	VER S	Y FINE AND	FINE SAND	MEDIUM SAND	COAR SAN		FINE GRAVEL						GRAVE	L						
				FINES (SILT & CLAY)		UNI	FIED SOILS C			TM D		COARS	SE SAND	T	FIN	E GRA	VEL		co	ARSE G	RAVEL		7	
			·	into (old to old it)		0.015.5		0.30 min 0 %		0.550		2.0 mm						30 mm						Onn
	100.0					<u> Г</u>	0,10	0,1 0,		_0.5 ∐⊕		√̈_ →	_	×."	ري. آ	ું ∏°	25. 16	90, 60,5) _v	<u>^</u>	1 T	П	TŜ	ʻ2.
	90.0	<u></u>					H.,			Ш			-		11						$\perp \! \! \perp$		\perp	
	80.0					Ш				Ш					Ш						\perp		Ш	
NG	70.0									Ш					П						П	П		
PASSI	60.0						'			Ш					Ħ						+		\dagger	
ENT	50.0	 				И				Ш					H						+		+	
PERCENT PASSING	40.0	-			+										+						+		+	
	30.0	<u></u>			+					Ш					Ш	\perp					\perp	\perp	Щ	
	20.0									Ш					Ш								Ш	
	10.0		_																					
		Ĭ																						
	0.0	.001		0.01			0.1				1					1	0						100)
							PARTICI	LE SIZE, mm																
	D60		0.083	D30	0.039	_	D10	0.001			Сс		- 1	8.062		- 1		Cu				0.46		
					•		<u> </u>	0.001								=:0:		Cu				0.46		
			ANALYSIS		TER ANALYSIS		∤ -		% GDA	WEI	(> 4.75 n	GRAIN	SIZE	PRU	PUR	ПОІ	NS, %		1.0					
	SIEVE SI mm	ZE	% PASSING	DIAMETER mm	% PASSING	;					um to 4.7								44.8					
	F2		100.0	0.030	23.7		1	,,			ım to 75 µ								39.9					
	53 37.5		100.0	0.020	22.9						′ (<2 µm)								14.3					
	26.5		100.0	0.017	21.7		1															_		
	22.4		100.0	0.010	19.7		1	SOIL	DESC	RIPT	ION:					SAN	ID and	SILI	, some	Clay	trace	Gra	vel	
	19		100.0	0.007	18.1							•												
	16		100.0	0.005	17.2																			
	13.2		100.0	0.002	14.3																			
	9.5		99.7	0.001	9.9								<u>R</u>	EMAI	RKS									
	6.7		99.5	ATTER	BERG LIMITS																			
	4.75		99.0		1																			
	2.00		98.3 97.2	Liquid Limit																				
	0.850		95.5				-																	
	0.425		93.5	Plastic Limit																				
	0.250		76.6				1																	
	0.106		54.2	Plastic Index																		F	iguı	re: 2
	2.0.0		1				. L																	
	TESTE	D BY:		Yuwei Gu				R	EVIEW	ED B	iΥ					J	ason Ta	aylor	B.A.S	ic.				
	0. L			Laboratory Technic	cian										5		r Labo							
				Reporting of these test re	esults constitutes a testin	g servi	ce only. Engineer	ing interpretation	or evalu	ation o	of test results	is provide	ed only	on writ	ten req	uest.								



															_			
				,	GRAIN SIZE		D HYDRO LS-602, 7				SIS REI	PORT						
PRO.	JECT NUMI	BER:	04-02205818.000	PROJECT NAME:	Nine Lot D	evelo	pments - 25 E	akers Stree	t, Wind	dham	Centre	CLIEN	т:	Landpr	o Planning S	Solutions I	nc.	
LAB	NUMBER:		S-506	SAMPLE ID:			Test Pit 03-2	22, Sample	#3			SAMPL	E DEP1	гн:	1.	.5m		
SAMI	PLED BY:			Client	DA	ATE F	RECEIVED:		June 2	9, 202	22	DATE CO	OMPLET	TED:	July 6	6, 2022		
					P/	RTI	CLE SIZE DIS	TRIBUTIO	N MTO	o i s.	702							
				U.S. BUREAU OI	SOILS CLASSIFICA							F ONTARIO PA	VEMEN'	T DESIGNS)				_
			CLAY	SILT	VERY SA	FINE ND	FINE SAND	MEDIUM SAND		ARSE AND	FINE GRAVEL			GRAVEL]
				FINES (SILT & CLAY)		UNII	FIED SOILS C				D 2487 M SAND	COARSE SAND		INE GRAVEL	COAL	SE GRAVEL		1
				PINES (SIET & CEAT)		6			A.S. ratio	og.								
	100.0					0,015 15	o ide the	0.301411	ķē.	0.95	γ 	20 tage	A.S. TERRO 6.7	Har 02 Har 125 Har	100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3.5 fefer 53.0 fefe		<u>-</u> †aao.
	90.0					Ш								سمرا				
													_	+++				
	80.0					П						4						
Š	70.0					\forall			•	+							+	П
PERCENT PASSING	60.0					+				+							+	H
INT P	50.0					+				+								H
ERCI	40.0					1	1			\perp							\perp	
ь	30.0					Ш												
					1													
	20.0																	
	10.0					\forall												П
	0.0 0.0	01		0.01			0.1				1			10				∐ 100
							PARTICI	E SIZE, mm										
			1		1		COEF	FICIENTS										
	D60		0.240	D30	0.028		D10	0.002			Сс	1	.708		Cu	12	8.50	
	GRAIN	SIZE A	NALYSIS	HYDROME	TER ANALYSIS							GRAIN SIZE	PROPO	ORTIONS, %				
	SIEVE SIZ	Έ	% PASSING	DIAMETER mm	% PASSING						L (> 4.75 n	-			17.9			
			400.0		04.4		<u> </u>	9		_	μm to 4.75	-			38.5			
	53		100.0	0.030	31.1 26.4						μm to 75 μ Υ (<2 μm)				33.1 10.5			
	37.5		100.0	0.020	24.9		<u> </u>		/0	OLA	.ι (\2 μιιι)				10.5			
	26.5		100.0	0.010	21.2			SOI	L DES	CRIP	TION:			Silty SAN	D, some Gra	vel, some	Clay	
	22.4 19		96.3	0.007	18.5													
	16		93.5	0.005	15.6													
	13.2		92.6	0.002	10.5													
	9.5		88.2	0.001	6.9							R	EMARK	<u>s</u>				
	6.7		84.9	ATTERI	BERG LIMITS													
	4.75		82.1	7														
	2.00		76.5	Liquid Limit														
	0.850		70.4	<u> </u>														
	0.425		65.3	Plastic Limit														
	0.250		60.8															
	0.106		48.6	Plastic Index													- -	a
	0.075		43.6				J L										Fig	gure: 3
	TESTED	BY:	-	Yuwei Gu Laboratory Technic	ian			F	REVIEV	WED	BY			Jason Ta Senior Labor	ylor, B.A.Sc. atory Techni	cian		
				Reporting of these test re		servic	e only. Enaineer	ing interpretation	on or eva	luation	of test results	is provided only	on written					
				,			,g501	J				,		,				



			(GRAIN SIZE			OMETER 702 & 70			SIS RI	POR	T									
PROJE	CT NUMBER:	04-02205818.000	PROJECT NAME:	Nine Lot D		,	5 Bakers Stree			Centre		CLIEN	T:			Landpro F	Plannino	g Solut	ions In	c.	
LAB NU	JMBER:	S-507	SAMPLE ID:			Test Pit 04	4-22, Sample	#1				SAMPI				•		0.8m			
SAMPL	ED BY:		Client	D	ATE	RECEIVED:		June 29	9, 20:	22	D	ATE C	OMPL	ETE	D:		Jul	y 7, 20	22		
				n.	A DTI	CI E SIZE I	NETDIDITIO	N MT	116	702					_						
			U.S. BUREAU OF	F SOILS CLASSIFICA			DISTRIBUTIO N MINISTRY O				OF ONTA	RIO PA	VEMI	ENT E	DESI	GNS)					
		CLAY	SILT	VERY	FINE	FINE SANI	MEDITAL	COA	ARSE .ND	FINE GRAVEI						GRAVEL					
	_	•			UNI		CLASSIFICA				1		г			1					l
		I	FINES (SILT & CLAY)			FINE S.				M SAND		RSE SAND				AVEL S		DARSE G			, de
	100.0				0.075.5	O'idoteta	0.20 min	1,A.5 min	o'è	g dagar	20 1010		A.S. TIM	6.7 mm	958	in 13.2 in 16.0 19	994 Jo 5 Ju	3 3 5 mm	53.0 mm		100,0 100
							1	•	\top												Ī
	90.0						$/\!\!\!/$													Ш	1
	80.0				+	+			+				\vdash							Н	1
rh	70.0					H/-														Н	-
PERCENT PASSING	60.0					\mathcal{A}														Ш	4
T PA	50.0				Ш,	<u>/ </u>														Ш	
RCE					كمرا																
PE	40.0																			П]
	30.0														П					Ш	1
	20.0			+																Н	1
	10.0																			Н	-
	0.0]		
	0.001		0.01			0.1 PARTI	CLE SIZE, mm			1					1	.0				1	100
							EFFICIENTS														
	D60	0.094	D30	0.055		D10	0.006			Сс		į	5.172			Cu			15	.31	
	GRAIN SIZE	ANAI YSIS	HYDROME	TER ANALYSIS		1					GRAII	N SIZE	PRO	POR.	TIOI	NS %					
		1				_		% GR	AVE	L (> 4.75											
l °	IEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING			0			μm to 4.							56.	5			
	53	100.0	0.030	13.4				% SIL	T (2	μm to 75	μm):						35.	5			
	37.5	100.0	0.020	12.5				%	CLA	Υ (<2 μn	n):						8.0)			
	26.5	100.0	0.017	12.3			200	L DES	2010	TION						0:16	CAND		N		
	22.4	100.0	0.010	11.2			50	L DES	CRIP	HON:						Silty	SAND,	trace C	лау		
	19	100.0	0.007	10.3																	
	16	100.0	0.005	9.7																	
	13.2	100.0	0.002	8.0																	
	9.5	100.0	0.001	5.5		_						<u>R</u>	EMAF	RKS							
	6.7	100.0	ATTER	BERG LIMITS																	
	4.75	100.0																			
	2.00	99.9	Liquid Limit																		
	0.850	99.2 97.7																			
	0.425	95.3	Plastic Limit																		
	0.250	70.0																			
	0.106	43.5	Plastic Index																	Fig	jure: 4
	0.073					J														- 5	
	TEQTED DV		V. 1140: C.) בו /ורי	VED	DV.						acon Taul	vr D ^ ′	20			
	TESTED BY:	-	Yuwei Gu Laboratory Technic	ian			l	REVIEV	۷ED	זם	-			S		ason Taylo or Laborato					
			Reporting of these test re	sults constitutes a testino	servii	ce only Engine	eering interpretati	on or eva	luation	of test resu	ılts is nrovin	ded only	on writt	en rea	uest						



				GRAIN SIZE						IS RE	PORT										
PROJE	CT NUMBER:	04-02205818.000	PROJECT NAME:	Nine Lot [·	702 & 70 5 Bakers Stree			Centre	С	LIENT	•			Landpro F	Planning	Soluti	ons In	r	
	UMBER:	S-508	SAMPLE ID:			-	5-22, Sample					AMPLI				Lanapro		0.7m	5110 111	<u>. </u>	
	.ED BY:		Client		ATE	RECEIVED:		June 29	9. 2022	·		TE CO			_			7, 20	22		
OAWII I			- Cilotik						, 202.	-					_		04.,	, , , 20.			
			II C DIIDEAII OI	P F SOILS CLASSIFICA			DISTRIBUTIO				E ONTA D	IO DAN	ÆМЕ	NT D	EC16	CNE)					
		CLAY	SILT	VER	Y FINE	FINE SAN	MEDITAL	COA	RSE ND	FINE GRAVEL	ONIAK	IOTA	ENIE	мгр		GRAVEL					ĺ
					UN	IFIED SOILS	CLASSIFICA	TION A	STM D	2487											
		I	FINES (SILT & CLAY)			FINE S			IEDIUM		COARSE			FINE				ARSE GI			
	100.0				0.015	per 0.1ds per	0.20 min	, A. 2. States	03505	y	2,0 mm	,	A.S. THE	6.7 mm	9,510	tr 125 feb 185	2 4 76.2 Later	37,5 mm.	53.0 mm		Jan O Triff
	100.0																$ \mathcal{I} $				1
	90.0											1	•	•	-				\top		
	80.0				\vdash				1			\Box		Н	\forall			+	+		-
r.	70.0				\vdash		++/		+			\Box		Н	+			_	+	Н	-
SSIN	60.0						$+\lambda$		+						\perp				+		4
PERCENT PASSING	50.0																		$\perp \! \! \perp$		
RCE	40.0								Ш										Ш	Ш	
E																					
	30.0																		П		
	20.0								Ш						П				\top	П	
	10.0								+										+		-
	0.0		0.01		Ш	0.1			Ш	1					1	0			Ш.	Ш	_ 100
							CLE SIZE, mm														
		•				со	EFFICIENTS														
	D60	0.275	D30	0.107		D10	0.018			Cc		2.	235			Cu			14.	94	
	GRAIN SIZE	ANALYSIS	HYDROME	TER ANALYSIS							GRAIN	SIZE I	PROF	PORT	ION	NS, %					
8	SIEVE SIZE	% PASSING	DIAMETER	% PASSING	i			% GR	AVEL	(> 4.75 n	nm):						14.0)			
	mm		mm			4	9	6 SAND) (75 µ	ım to 4.7	5 mm):						64.1	1			
	53	100.0	0.030	11.9		4				m to 75 μ							18.1				
	37.5	100.0	0.020	10.5		4		%	CLAY	(<2 μm)	:		4				3.8				
	26.5	100.0 91.7	0.017	9.5 7.0		-	soı	L DESC	CRIPT	ON:				5	SAN	D, some S	ilt, some	Grave	el, trac	e Cla	ay
	22.4	89.8	0.007	6.9		-															
	19 16	89.8	0.005	5.8		1															
	13.2	89.8	0.002	3.8		1															
	9.5	88.1	0.001	2.5								RE	MAR	KS							
	6.7	86.8	ATTER	BERG LIMITS																	
	4.75	86.0				_															
	2.00	83.5	Liquid Limit																		
	0.850	80.8				4															
	0.425	73.8	Plastic Limit																		
	0.250	57.7				-															
	0.106	29.9	Plastic Index																	Fic	jure: 5
	0.075	21.0				_														. 19	u. 0. 0
	TEOTER SV		V C) [] // [· ·	VED 5	· ·						T /					
	TESTED BY:		Yuwei Gu Laboratory Technic	ian				REVIEV	v E D B	T				Se		ason Taylo or Laborato			-		-
-			Reporting of these test re	esults constitutes a testin	a serv	ice only. Engin	eering interpretati	on or eva	luation o	f test results	is provided	d only o	n writte	en real	ıest.						



				GRAIN SIZE					LYS	IS REF	PORT										
PROJE	CT NUMBER:	04-02205818.000	PROJECT NAME:	Nine Lot D			702 & 703 5 Bakers Street		nam C	Centre	С	LIENT	T:			Landpro F	Planning	. Soluti	ione Ir	10	
	JMBER:	S-509	SAMPLE ID:				6-22, Sample #					MPLI				Lanupion		1.6m	0113 111	10.	
SAMPL			Client		ATE I	RECEIVED:		une 29,	2022	2		E CO			_		Jul	y 6, 20	22		
											_				_			, 0, 00			
			II S RIIDEAII OI	PA F SOILS CLASSIFICA			DISTRIBUTION N MINISTRY OF				ONTAR	IO DAY	леме	NT D	FCI	TNC)					
		CLAY	SILT	VERY	FINE ND	FINE SAN	MEDIUM	COAR	RSE	FINE GRAVEL	ONTAK	OIA	LIVIE	411 D		GRAVEL]
		<u> </u>		I	UNI		CLASSIFICAT	ION AS	TM D	2487	<u> </u>		r						_		, 1
		F	TINES (SILT & CLAY)			FINE S			EDIUM :		COARSE		_	FINE				ARSE G]
	100.0				0.075.7	0.1db.freft	0.20 min 0.4	5 min	o ^{şgor}	, 	2.0 mm	,	A.S. IIIII	6.7 mm	9,5 10	tr 13.7 teg 0 day	30 to 105 tota	37,5 mm	530 mm		100 0 mm
	100.0																	$\overline{}$	T		Ī
	90.0														-				\top		1
	80.0											-			+				+	H	1
rh	70.0								\mathbb{H}						\mathbb{H}				+	+	Н
PERCENT PASSING	60.0					<u> </u>	$A \rightarrow A$		Ш						Ш				\bot	Ш	\dashv
T PA	50.0								Ш										Ш		
RCE																					
PE	40.0				P																J
	30.0								Ш						П				\top	Ħ	1
	20.0														+				+	$^{+}$	1
	10.0														+				+		\mathbf{H}
	0.0	+ +				1									Щ				$\perp \perp$		_
	0.001		0.01			0.1 PARTI	CLE SIZE, mm			1					10	0					100
							EFFICIENTS												—		
	D60	0.192	D30	0.061		D10	0.014			Сс		1.	368			Cu			13	.67	
	GRAIN SIZE	ANALYSIS	HYDROME	TER ANALYSIS		1					GRAIN	SIZE I	PROF	PORT	ION	NS. %					
	IEVE SIZE		DIAMETER					% GRA	VEL	(> 4.75 m						-,	17.9	9			
ľ	mm	% PASSING	mm	% PASSING			%	SAND	(75 µ	ım to 4.75	mm):						45.3	3			
	53	100.0	0.030	15.2		1		% SIL1	Γ (2 μ	m to 75 μ	m):						33.2	2			
	37.5	100.0	0.020	12.1		1		% (CLAY	(<2 µm):							3.6				
	26.5	92.7	0.017	11.0			SOIL	DESC	DIDTI	ON:					Ç;	Ity SAND,	como G	ravol	traco	Clay	
	22.4	92.7	0.010	8.6			3012	DESC	KIF II	ON.					JI	ity SAND,	SOITIE C	ııaveı,	liace	Clay	
	19	92.7	0.007	7.3																	
	16	91.6	0.005	5.9																	
	13.2	89.0	0.002	3.6																	
	9.5	86.7	0.001	2.4								RE	MAR	KS							
	6.7	83.8 82.1	ATTER	BERG LIMITS																	
	4.75	78.5				ł															
	2.00	75.3	Liquid Limit																		
	0.850	72.4				1															
	0.425	68.7	Plastic Limit																		
	0.230	47.0				1															
	0.075	36.8	Plastic Index																	Fig	gure: 6
				•		•															
	TESTED BY:		Yuwei Gu				R	EVIEW	ED B'	Y					J۶	ason Taylo	r, B.A.S	Sc.			
			Laboratory Technic	ian					_					S		r Laborato					
			Reporting of these test re	sults constitutes a testino	servio	e only Engine	eering interpretation	or evalu	ation o	f test results	is provided	l only o	n writte	n rea	ıest						



																		_				
				GRAIN SIZE		HYDRO -S-602, 7			YS	SIS RE	PORT											
L			DDG 1777										_									
PROJI	ECT NUMBE	ER: 04-02205818.000	PROJECT NAME:	Nine Lot De	evelo	pments - 25 B	Bakers Street	, Windha	am (Centre	(CLIEN	Т: _			Landpro	o Plar	nning (Solutio	ons In	C.	
LAB N	UMBER:	S-510	SAMPLE ID:			Test Pit 07-2	22, Sample #	3			s	AMPL	E DE	PTH:	· _			1	.5m			
SAMP	LED BY:		Client	DA	TE R	ECEIVED:	J	une 29, 2	2022	2	DA	TE C	OMPL	ETE	D:			July	7, 202	22		
				PA	RTIC	CLE SIZE DIS	TRIBUTION	. мто і	S-70	02												
	_		U.S. BUREAU OF	SOILS CLASSIFICAT	ION (F ONTAR	RIO PA	VEMI	ENT D	ESIC	SNS)						
	L	CLAY	SILT	VERY SAN	FINE (D	FINE SAND	MEDIUM SAND	COARS SAND		FINE GRAVEL						GRAVEL						
	Г		FINES (SILT & CLAY)		UNIF	TED SOILS CI FINE SAN				SAND	COARS	E SAND		FINE	GRA	VEL	1	COA	RSE GR	AVEL		1
	L		<u> </u>		0.015 100				03595		20 min		A.S. TREET				O fata O fat					100 O THE
	100.0				99,.	0,10	0,5, 0,6	, 		1	→ 1	1 1	* ₂	(^) T	ا <mark>د</mark> ا رده	12, 100	(30%)	Jos.	<u>δ</u> 2	1 1	П	→
	90.0				1				Ш											\perp		_
	80.0				Ш				Ш											Ш		
ING	70.0					1			П													.]
PERCENT PASSING	60.0				$\top /$				Ħ											\Box		1
ENT	50.0								Ħ						Н					H		-
PERC	40.0			+++/					+											\vdash		-
	30.0			+	+				+					H				_	_	\vdash		-
	20.0			+-1	4				Щ											\sqcup		4
	10.0				Ш				Ш													
	0.0																					
	0.001		0.01			0.1				1					10)						100
							LE SIZE, mm															
	D60	0.093	D30	0.042		D10	0.001			Сс		15	5.329			(Cu			75.	.72	
	GRAIN S	ZE ANALYSIS	HYDROME	TER ANALYSIS		Г					GRAIN	SIZF	PRO	POR'	TION	S. %						
	SIEVE SIZE		DIAMETER			F		% GRAV	/EL	(> 4.75						-,						
ľ	mm	% PASSING	mm	% PASSING						µm to 4.7								50.9				
	53	100.0	0.030	23.3				% SILT	(2 μ	ım to 75	μm):							36.1				
	37.5	100.0	0.020	22.1				% CI	LAY	/ (<2 µm)):							13.0				
	26.5	100.0	0.017	21.0			SOIL	DESCR	IPT	ION:						Silt	ty SAI	ND, so	me C	lay		
	22.4	100.0	0.010	18.0		_																
	19	100.0	0.007	16.5 15.6																		
	16	100.0	0.003	13.0																		
	9.5	100.0	0.001	9.1		F						RI	EMAF	KS								
	6.7	100.0		<u> </u>																		
	4.75	100.0	ATTERB	BERG LIMITS																		
	2.00	99.9	Linuid Line																			
	0.850	99.9	Liquid Limit																			
	0.425	98.4	Plastic Limit																			
	0.250	94.1	Souv Ellint																			
	0.106	68.3	Plastic Index																			
	0.075	49.1				L															Fig	gure: 7
									_													
	TESTED B	<u> </u>	Yuwei Gu Laboratory Technici			R	EVIEWE	DΒ	SY				S		son Ta							
			Reporting of these test res	sults constitutes a testing	service	e only. Engineeri	ing interpretation	or evaluat	tion c	of test result	's is provide	ed only o	on writt	en requ	uest.							
						, ,	- /		_					- 1						_		



			(GRAIN SIZE A				LYSIS	S REP	ORT									
PROJE	CT NUMBER:	. 04-02205818.000	PROJECT NAME:	Nine Lot Dev	LS-602,	702 & 703 5 Bakers Stree		nam Cer	ntre	CLI	ENT:			Landpro P	Planning	Solutio	ns Inc	:	
	JMBER:	S-511	SAMPLE ID:			3-22, Sample #				_	/IPLE DI			-		0.9m			
SAMPL			Client	DAT	TE RECEIVED:		June 29,	2022		DATE	СОМР	LETE	D:		July	6, 202	2		
				DAI	entor is elde i	- TOTAL DISTRICT	· MTO	* 5 702		_			_						\neg
			U.S. BUREAU OF	PAF SOILS CLASSIFICATI	RTICLE SIZE D ION (AS USED IN				TION OF C	ONTARIO	PAVEM	IENT I	DESIG	SNS)					
		CLAY	SILT	VERY FI SAND	INE FINE CAND	MEDITAL	COAR	ESE	FINE RAVEL					GRAVEL					
	_				JNIFIED SOILS					:= mp.a		TINIT.	7041		50	on		_	
		P	INES (SILT & CLAY)		FINE S.			EDIUM SAN		COARSE S			E GRAV			ARSE GRA			THE T
	100.0				a of Stefen a Johnstein	0.250 min	Q.5 ratio	0.850 mm	γS) fulfi	A.S. THE	67 77	9,5 m	23. 16.00 tags	27 365 m	37,5 mm	3,0 mm		Jago Trifa
							+	┼╬╁		+		11		_					
	90.0												Ш						
	80.0		11111										$\parallel \parallel$				\Box	\parallel	
Ş	70.0			+ + + + +									H		\vdash		+	+	
ASSIP	60.0			+ + + + + + + + + + + + + + + + + + + +	/	+ + +		+++		+++	+	+	\mathbb{H}		\vdash		+	+	
PERCENT PASSING	50.0			$++$ μ		+++						+	\mathbb{H}				\dashv	+	
ERCF	40.0			\bot \bot \bot \bot								\perp	Ш				\square		
P.	30.0												Ш				Ш		
			سر ⊺		$\lceil \rceil \rceil \rceil$														
	20.0																	\parallel	
	10.0	-											$\parallel \parallel$				\Box	+	
	0.0		0.01		0.1			1					10)			Ш	10) 00
						CLE SIZE, mm													
		ı		1		EFFICIENTS										1			
	D60	0.072	D30	0.026	D10	0.003			Cc		3.063			Cu			22.8	30	
	GRAIN SIZE	ANALYSIS	HYDROME	TER ANALYSIS					G	BRAIN SI	ZE PRO	OPOR	TION	S, %					
s	IEVE SIZE	% PASSING	DIAMETER	% PASSING			% GRA	VEL (>	4.75 mn	n):					2.0				
	mm		mm			%			to 4.75 r						36.1				
	53	100.0	0.030	32.0					to 75 μm	1):					53.9				
	37.5	100.0	0.020	26.4			% C	CLAY (<	<2 μm):						8.0				
	26.5	100.0	0.017	24.6 18.4		son	. DESCI	RIPTION	N:				Sa	ndy SILT,	trace G	ravel, tr	ace C	lay	
	22.4	100.0	0.010	14.3	_														_
	19	100.0	0.005	12.0															
	13.2	100.0	0.002	8.0															
	9.5	98.5	0.001	5.1							REMA	RKS							
	6.7	98.2	47750																
	4.75	98.0	ATTERE	BERG LIMITS															
	2.00	96.6	Liquid Limit																
	0.850	95.3	Elquia Ell'ilit																
	0.425	93.6	Plastic Limit																
	0.250	90.7																	
	0.106	72.9	Plastic Index																
	0.075	61.9																Figu	ure: 8
	TESTED BY:		Yuwei Gu Laboratory Technici	an		R	EVIEW	ED BY				S		son Taylo Laborato					
				sults constitutes a testing s					-4		-6			Laborato	.,				



			(GRAIN SIZE /					YSIS F	REPO	RT									
PP∩ IF	CT NUMBER	. 04-02205818 000	PROJECT NAME:	Nine Lot De		602, 702 8			m Centre		CLI	FNT:			l andnus	Dlanning	· Calut	iana la	_	
PROJECT NUMBER: LAB NUMBER: SAMPLED BY:		S-512	SAMPLE ID:	Nine Lot Developments - 25 Bakers Street, Windham Centre Test Pit 09-22, Sample #2								IPLE [Landpro Planning Solutions Inc.					
			Client	DA	TE RECEI		Jun	e 29, 2	2022		DATE			•			y 6, 20	22		
		-				-					•			•			, -, -			
			U.S. BUREAU OF	PA SOILS CLASSIFICAT		IZE DISTRIB SED IN MINIST				N OF ON	TARIO	PAVE	MENT	DES	IGNS)					
		CLAY	SILT	VERY	FINE EIN	E SAND ME		COARSI	E FIN	E		1.1,12	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	DED	GRAVEL					
					1	OILS CLASSI		ATION ASTM D 2487												
		I	FINES (SILT & CLAY)			FINE SAND	8 5	MEDIUM SAND			COARSE SAND		FINE GRAVEL			COARSE GRAVEL				
	100.0				ogister olop	gr. 0.250 ri	0,825 rate		0.850 mm	2,9 mg	Y	Nº 15	4.8 min 6.7 min 9.5 min		Page 13.2 age 19.0 c			53.0 mm		100.0 ftfff
	100.0													Щ	-			Ī		1
	90.0								-	_	1	\top								
	80.0							+						+				+	Н	1
7.h	70.0					-												+		-
SSINC	60.0				<u> </u>			\perp										4	Ш	
PERCENT PASSING	50.0																			
RCEN																				
PE	40.0																			
	30.0																	+	Н	
	20.0							+						+				+	Н	
	10.0																	++	Н	-
	0.0				Ш				Щ											
	0.001		0.01		0.1	PARTICLE SIZI	Fmm		1						10				1	100
						COEFFICIE														
	D60	0.118	D30	0.041	D10		0.007		Сс			2.09	4		Cı	ı		17.	53	
	GRAIN SIZI	E ANALYSIS	HYDROME	TER ANALYSIS						GR	AIN SI	ZE PR	OPO	RTIC	NS. %			—		
	SIEVE SIZE		DIAMETER				%	GRAV	EL (> 4.				1			7.8	3			
l `	mm	% PASSING	mm	% PASSING			% SA	ND (75 µm to	4.75 mr	n):					44.	1			
	53	100.0	0.030	24.3			%	SILT	(2 µm to	75 µm):						42.	2			
	37.5	100.0	0.020	20.9				% CL	AY (<2	um):						5.9)			
	26.5	100.0	0.017	18.6			SOIL D	ESCD	IDTION:					٥,٨	ND and SI	T trace	Grave	al trac	n Cla	.,
	22.4	100.0	0.010	13.5			JOIL D	LJUN	ir HON.					37	IND and Si	LI, liace	Glave	л, шасе	- Cia	у
	19	100.0	0.007	10.2																
	16	97.9	0.005	8.8																
	13.2	95.1	0.002	5.9																
	9.5	94.1	0.001	3.6								REM	ARKS	i						
	6.7	93.0 92.2	ATTERE	BERG LIMITS																
	4.75	89.1																		
	2.00	85.9	Liquid Limit																	
	0.850	82.7																		
	0.425	78.9	Plastic Limit																	
	0.106	58.3																		
	0.075	48.1	Plastic Index																Fig	ure: 9
	-	1		•																
	TESTED BY		Yuwei Gu				REV	IEWE	D BY						Jason Tayl	or. B.A S	Sc.			
	. 20. 20 01	·	Laboratory Technic	ian			11.2								or Laborat					
			Reporting of these test re	sults constitutes a testing	service only.	Engineering inter	nretation or	evaluat	ion of test re	sults is pr	ovided o	nlv on w	ritten re	aues	,					



					GRAIN SIZE A		_	METE 02 & 7			_YS	IS REI	PORT	Γ											
PROJE	CT NUM	/BER:	04-02205818.000	PROJECT NAME:	Nine Lot Dev						am C	Centre	(CLIENT	Г:			l andnr	n Pla	nnina	Soluti	one I	nc		
LAB NUMBER:			S-513	- SAMPLE ID:													1.6m	0113 11	110.						
SAMPLED BY:				- Client						ne 29, 2022 DATE COMPLETE					-										
SAWIF				Ollotti			_		oui	10 20,	2022	-								outy	7,20				
				II C DIIDEAII OI				STRIBUT	- 1				ONTAI	DIO DA	леме	NT D	Tele	'NC)							
			CLAY	SILT	VERY FI	NE	NE SAND	AMERICA GOLD			SE FINE		OF ONTARIO PAVEMENT DESI					GRAVEL						7	
					Ų	NIFIED		CLASSIFICATION AST												_		_			
				FINES (SILT & CLAY)		opi firm o notific				MEDIUM SA			COARSE SAND		ART.	FINE GRAVEL			COARSE GRAVEL				┙	THE .	
	100.0					,015 mm 0.10k	· · · · · · · · · · · · · · · · · · ·	0,50 mm	0,825 85		- O-SE		2.0 mm		W. B. L.	6.7 mm	9,5 ftfff	13.2 rate	20.00 20.00	365 ar	3 ^{1,5} 11	23.0 mil		(§	DO THE
	90.0												-	\Box								Ц		\perp	
	80.0							سو	-		Ш						Ш					Ш		Ш	
								Y I																	
ING	70.0						$\overline{}$															П			
PASS	60.0					1	/															П			
PERCENT PASSING	50.0										Ш											+		\dagger	
PER	40.0	1																				++		+	
	30.0	-			++						Н						\Box					+		+	
	20.0	-			+				-		Н			+			\Box			_	_	++	+	+	
	10.0																					$\perp \downarrow$		\perp	
	0.0	\vdash	+++														Щ					Ш		Ц	
	0.	.001		0.01		0.1	PARTICI	LE SIZE, 1	mm			1					10)						100)
								FICIENT														—			
	D60		0.126	D30	0.049	D1		0.0				Сс		1.	386			(Cu			8	3.97		
	GRAIN	N SIZE A	NALYSIS	HYDROME	TER ANALYSIS		Г						GRAIN	I SIZE	PROF	PORT	TION	IS, %							
ş	SIEVE SIZ	ZE	% PASSING	DIAMETER	% PASSING				%	GRA	VEL	(> 4.75 n	nm):							2.7					
	mm		76 T AGGIRG	mm	78 T AGGING				% S.	AND (75 µ	ım to 4.75	5 mm):							53.3					
	53		100.0	0.030	19.3		-	% SILT (2 μm to 75 μm): % CLAY (<2 μm):												40.4					
	37.5		100.0	0.020 0.017	13.2	_				% C	LAY	(<2 μm):	: 							3.6					
	26.5		100.0	0.017	7.7			8	SOIL D	ESCF	RIPTI	ON:					Si	Ity SAN	ND, tra	ace Gi	avel,	trace	Clay	′	
	22.4 19		100.0	0.007	5.5																				
	16		100.0	0.005	4.8																				
	13.2		99.3	0.002	3.6																				
	9.5		98.9	0.001	2.4									RE	MAR	KS									
	6.7		98.1	ATTER	BERG LIMITS																				
	4.75		97.3		-	_																			
	2.00		93.7	Liquid Limit																					
	0.850		86.7																						
	0.425		82.0	Plastic Limit																					
	0.106		56.5																						
	0.075		44.0	Plastic Index											_						_		Fig	gure	e: 10
							-																		
	TESTE	D BY:		Yuwei Gu					RE\	/IEWE	ED B	Y	_				Ja	ison Ta	aylor,	B.A.S	D.				
				Laboratory Technic	ian —										_	S	enio	r Labor	atory	Techi	nician				
				Reporting of these test re	sults constitutes a testing se	ervice only.	Engineer	ing interpre	etation o	r evalua	ation o	f test results	is provide	ed only o	n writte	n requ	uest.								



				GRAIN SIZE A				YSIS RI	EPORT					
					•	702 & 703								
PROJECT NUMBER:		ER: 04-02205818.0	PROJECT NAME	Nine Lot De	t, Windha	m Centre	CLIENT	:	Landpro Planning Solutions Inc.					
LAB N	UMBER:	S-514	SAMPLE ID:		Test Pit 1	1-22, Sample #	‡2		SAMPLE	E DEPTH:		1.0	m	
SAMPLED BY:			Client	DA1	TE RECEIVED:		June 29, 2	2022	DATE CO	MPLETED	:	July 7,	2022	
				PAI	RTICLE SIZE D	DISTRIBUTIO	N, MTO L	S-702						
	Г			F SOILS CLASSIFICAT		140044114	COARSI		OF ONTARIO PAV	EMENT DI				
	L	CLAY	SILT	SANI		SAND	SAND GRAVEL		L		GRAVEL			
			FINES (SILT & CLAY)		FINE S.	AND			COARSE SAND	FINE (GRAVEL	COARS		
					0.015 tale 0.100 tale	0.750 refer	2.5 mi		20 tata	4.8 min 6.7 min	9.5 mir 13.2 mir	9997 455 ag 31.	3,0 min	1000 100
	100.0				1111		· 	111			11 6.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	```	ΤŤ
	90.0													+
	80.0						\bot		_		-		+++	Ш
	70.0						•			Ш			ШШ	Ш
SING														
PASS	60.0													
PERCENT PASSING	50.0													
PER	40.0						+++			+++			+++	+
	30.0									+++			++++	+
	20.0						\perp			++++	-		+++	Ш
	10.0													
	0.0													
	0.001	I	0.01		0.1			i			10			100
						ICLE SIZE, mm								
	D60	0.229	D30	0.044	D10	0.005		Сс	1.1	553	Ι (Cu	41.8	13
					¬	0.000	-		'					
		IZE ANALYSIS		ETER ANALYSIS	_		% GRAV	/EL (> 4.75	GRAIN SIZE F	ROPORT	ION5, %	14.3		
,	SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING		9/		75 µm to 4.				44.8		
	F2	100.0	0.030	25.0	_			(2 µm to 75	-			34.1		
	53 37.5	100.0	0.020	21.3				_AY (<2 μn				6.8		
	26.5	100.0	0.017	19.1										
	22.4	95.8	0.010	14.6		SOI	L DESCR	IPTION:			Silty SAN	D, some Grav	el, trace Cl	lay
	19	92.3	0.007	11.6						•				
	16	91.0	0.005	9.5										
	13.2	89.9	0.002	6.8										
	9.5	87.4	0.001	4.7					<u>RE</u>	MARKS				
	6.7	86.8	ATTER	BERG LIMITS										
	4.75	85.7		1	_									
	2.00	83.3	Liquid Limit											
	0.850	73.7	+		_									
	0.425	62.6	— Plastic Limit											
	0.250	44.7			-									
	0.106	40.9	— Plastic Index										ŀ	Figure: 11
	0.070	l		1										-
	TESTED E	BY:	Yuwei Gu			F	REVIEWE	D BY			Jason Ta	ylor, B.A.Sc.		
	LOILDE		Laboratory Technic	zian		·	v IL V V [Se		atory Technici	an	
			Penarting of these test re	esults constitutes a testing s	envice only Engine	eering interpretation	n or evaluat	ion of test resu	ulte is provided only on	written requ	act			



			(GRAIN SIZE AN				PORT						
DDO I	CT NUMBER.	04 02205949 000	DRO IECT NAME.		•	702 & 703		CI IENT.						
PROJECT NUMBER:		04-02205818.000	PROJECT NAME:	Nine Lot Deve	iopments - 25	bakers Street	, Windham Centre			Landpro Planning Solutions Inc.				
LAB N	UMBER:	S-515	SAMPLE ID:		Test Pit 12-22, Sample #2			SAMPLE D	DEPTH:	1.0m				
SAMPLED BY:			Client	DATE	RECEIVED:	J	une 29, 2022	DATE COM	PLETED:	July 7, 2022				
				PART	ICLE SIZE D	ISTRIBUTION	, MTO LS-702							
				SOILS CLASSIFICATION VERY FINE		MEDITINA	TRANSPORTATION C	OF ONTARIO PAVE!			\neg			
		CLAY	SILT	SAND	11.12.0.1.13	SAND	SAND GRAVEL ION ASTM D 2487		GRAVEL	GRAVEL				
		F	INES (SILT & CLAY)		FINE SA	ND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL				
				opt	State O'Top tage	0.250 min 0.85	Sept. 089 per	20 Mars	tr 6,144 0,244 12,744	of State State State	Jog O Refer			
	100.0			0.7		1 1		<u> </u>	6. 4. 1.6.	4. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3. 3.	ΤŤ			
	90.0													
	80.0										$\perp \downarrow \downarrow$			
	70.0						•							
SING						 	<u> </u>							
PERCENT PASSING	60.0													
CENT	50.0													
PER	40.0					+++								
	30.0										+H			
	20.0													
	10.0													
	0.0	_+_+												
	0.001		0.01		0.1		i		10		100			
						CLE SIZE, mm								
	D60	0.385	D30	0.152	D10	0.012	Cc	4.96	8 (u 31.7	76			
	GRAIN SIZE	ANAI YSIS	HYDROME	TER ANALYSIS				GRAIN SIZE PR	OPORTIONS %	•				
	SIEVE SIZE	ANALIGIO	DIAMETER	LICANALISIO	1		% GRAVEL (> 4.75		Ci Cittiono, 70	19.2				
· ·	mm	% PASSING	mm	% PASSING			SAND (75 µm to 4.7	-		61.8				
	53	100.0	0.030	12.1			% SILT (2 μm to 75	μm):		14.4				
	37.5	100.0	0.020	11.6			% CLAY (<2 μm):		4.6				
	26.5	90.0	0.017	11.1		SOII	DESCRIPTION:		SAND some	Gravel, some Silt, trace	e Clav			
	22.4	90.0	0.010	9.5	_	JOIL			5, 115, 30116	only only nace	- J.u,			
	19	86.8	0.007	7.6	↓									
	16	85.3	0.005	6.6	-									
	13.2	84.9	0.002	4.6	-			DELL	ADKE					
	9.5	82.7 81.9	0.001	2.9	-			<u>REM/</u>	ARKS					
	6.7	80.8	ATTERE	BERG LIMITS										
	4.75	78.1			-									
	2.00	76.2	Liquid Limit											
	0.850	64.5			1									
	0.425	44.5	Plastic Limit											
	0.106	23.1	Di+i I I		1									
	0.075	19.0	Plastic Index		_						Figure: 12			
	TESTED BY:		Yuwei Gu Laboratory Technici	an	_ ·	RI	EVIEWED BY			ylor, B.A.Sc. atory Technician				

(a division of 002068251 Ontario Inc.) 55 Gibson Drive, Simcoe ON N3Y3L1, 519 410 6111, email: norfolksoils@gmail.com

March 30, 2021

Invoice #: 2021052

To: Lloyd Wood Trucking & Excavating

800 Brantford Rd,

LaSalette ON N0E 1H0

Project: Soils Analysis Properties of Lloyd Wood, 25 Baker St, West End of Property Windham Centre ON Norfolk County

Soils analysis in accordance with Section 8.2.1.2 of the Ontario Building Code, The Unified soil Classification System, and ASTM D6913 of which the soils gradation distribution graph representing the sample provided is attached.

Our Fee in Total: \$300.00

HST 894069806 \$ 39.00

Total \$339.00

Please make cheques Payable to: D R Free
Please call to arrange for e-transfer payment
Payment Due on Receipt of Invoice

(a division of 002068251 Ontario Inc.) 55 Gibson Drive, Simcoe ON N3Y3L1, 519 410 6111, email: norfolksoils@gmail.com

March 30, 2021

Invoice #: 2021049

To: Lloyd Wood Trucking & Excavating

800 Brantford Rd.

LaSalette ON NOE 1H0

Project: Soils Analysis Properties of Lloyd Wood, 25 Baker St, West End of Property, Windham Centre ON Norfolk County

Soils analysis in accordance with Section 8.2.1.2 of the Ontario Building Code, The Unified soil Classification System, and ASTM D6913 of which the distribution graph representing the sample provided is attached.

Based on the testing of the materials as provided for testing, It is our opinion that the **Percolation Rate is T = 8 min/cm.** The drainage characteristics of the soil for septic system appears to be suitable for an in-ground leeching bed system.

The Laboratory Classification of the soils SM – Gravelly Sands, with low fines content <12% specifically 3.94% of soil passing the No #200 sieve.

The Coefficient of Uniformity = NA Coefficient of Curvature = NA

I trust this meets with your requirements for the soil sample provided.

Yours Truly,

D Free

D. R. Free, MBA, CPA, CET BCIN 109582

Encls



Sieve Analysis Data Sheet

ASTM D422-63(2007)

Project Name:	SA2021049	Tested By:	DRF	Date:	2021-03-30		
Location:	25 Baker Street, West End of Property, Windham Centre ON Norfolk County	Checked By:	DRF BCIN 109582	Date:	2021-03-30		
Cllent	Lloyd Wood Trucking & Excavating 800 Brantford Rd, LaSalette ON N0E 1H0	Property Owner	Lloyd Wood	-			
Boring No:	1	Test Number:	1				
Sample Depth:	NA	Gnd Elev.:	NA				
USCS Soil Classification: AASHTO Soil Classification: Weight of Container (g): 76.0 Weight of Dry Sample (g): 444.3		and stavelly dands, filles 12/6					
		A-1-a					
		Weight of Container & Soil (g): 568					
vveignt or t	Ory Sample (g): 444.3	Moisture Content %		t %	9.8%		

Sieve Number	Diameter (mm)	Mass of Sieve (g)	Mass of Sieve & Soil (g)	Soil Retained (g)	Soll Retained (%)	Soil Passing (%)
#4	4.75	749.6	836.3	86.7	19.5	80.5
#10	2.00	670.0	774.1	104.1	23.4	76.6
#16	1.18	653.0	685.5	32.5	7.3	73.2
#30	0.85	582.6	630.0	47.4	10.7	62.5
#50	0.43	561.6	616.5	54.9	12.4	50.1
#100	0.25	529.2	598.1	68.9	15.5	34.6
#200	0.075	513.1	545,4	32.3	7.3	27.4
Pan	Marian A.	283.1	300.6	17.5	3.9	0.0
			TOTAL:	444.3	100.0	3.0

Medium Fine #200 SILT/CLAY 100 90 80 70 % Passing 60 50 40 30 20 10 0 10.00 1.00 0.10 0.01 Particle Diameter (mm)

Grain Size Distribution Curve Results:

% Sand: % Fines: 100.000

% Gravel: 19.500 76.561 3.939

D₃₀:

#VALUE! #VALUE!

Notice to Reader & Limitations:

These test results are unique to this soil sample and for the client as identified on the date for which the tests were performed. These test results cannot be used by any other party other than the client stated above within the text of this report without the consultants prior written approval.

(a division of 002068251 Ontario Inc.) 55 Gibson Drive, Simcoe ON N3Y3L1, 519 410 6111, email: norfolksoils@gmail.com

March 30, 2021

Invoice #: 2021049

To: Lloyd Wood Trucking & Excavating

800 Brantford Rd,

LaSalette ON N0E 1H0

Project: Soils Analysis Properties of Lloyd Wood, 25 Baker St, West End of Property, Windham Centre ON Norfolk County

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Our Fee in Total: \$300.00

HST 894069806 \$ 39.00

Total \$339.00

Please make cheques Payable to: D R Free
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Payment Due on Receipt of Invoice

(a division of 002068251 Ontario Inc.)
55 Gibson Drive, Simcoe ON N3Y3L1, 519 410 6111, email: norfolksoils@gmail.com

March 30, 2021

Invoice #: 20210450

To: Lloyd Wood Trucking & Excavating

800 Brantford Rd,

LaSalette ON N0E 1H0

Project: Soils Analysis Properties of Lloyd Wood, 25 Baker St, Behind the School, Windham Centre ON Norfolk County

Soils analysis in accordance with Section 8.2.1.2 of the Ontario Building Code, The Unified soil Classification System, and ASTM D6913 of which the distribution graph representing the sample provided is attached.

Based on the testing of the materials as provided for testing, It is our opinion that the **Percolation Rate is T = 8 \text{ min/cm}.** The drainage characteristics of the soil for septic system appears to be suitable for an in-ground leeching bed system.

The Laboratory Classification of the soils SP – Poorly Graded Sands, with low fines content <12% specifically 3.40% of soil passing the No #200 sieve.

The Coefficient of Uniformity = 5.00 Coefficient of Curvature = 0.67

I trust this meets with your requirements for the soil sample provided.

Yours Truly,

D Free

D. R. Free, MBA, CPA, CET BCIN 109582



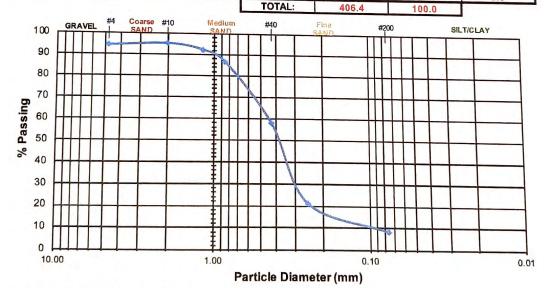
Encls

Sieve Analysis Data Sheet

ASTM D422-63(2007)

		/				
Project Name:	SA2021050	Tested By:	DRF	Date:	2021-03-30	
Location:	25 Baker Street, Behind School Windham Centre ON Norfolk County			Date:	2021-03-30	-
Cllent	Lloyd Wood Trucking & Excavating 800 Brantford Rd, LaSalette ON N0E 1H0	Property Owner	Lloyd Wood	•		
Boring No:	2	Test Number:	1			
Sample Depth:	NA	Gnd Elev.:				
	USCS Soil Classification	The state of the s	l – Silty Gravelly Sand	s, fines <1	2%	
AASHTO Soil Classification:		A-1-a				
Weight of Container (g): 76.0 Weight of Dry Sample (g): 406.4		_	Weight of Container	& Soil (g):	529.5	
		Moisture Content % 1				

Sieve Number	Diameter (mm)	Mass of Sleve (g)	Mass of Sieve & Soil (g)	Soll Retained	Soll Retained	Soil Passing
#4	4.75	749.6		(g)	(%)	(%)
#10	2.00		772.8	23.2	5.7	94.3
		670.0	689.4	19.4	4.8	95.2
#16	1.18	653.0	661,2	8.2	2.0	92.3
#30	0.85	582.6	605.7	23.1	5.7	
#50	0.43	561.6	679.1			86.6
#100	0.25			117.5	28.9	57.7
		529.2	677.9	148.7	36.6	21.1
#200	0.075	513.1	565.6	52.5	12.9	8.2
Pan		283.1	296.9	13.8	3.4	0.0
					0.4	0.0



Grain Size Distribution Curve Results:



% Gravel: 5.700 % Sand: 90.904 % Fines: 3.396 100.000 D₁₀: 0.090 D₃₀: 0.300 D₆₀: 0.450 C_u: 5.00 C_c: 0.667

Notice to Reader & Limitations:

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(a division of 002068251 Ontario Inc.) 55 Gibson Drive, Simcoe ON N3Y3L1, 519 410 6111, email: norfolksoils@gmail.com

March 30, 2021

Invoice #: 2021050

To: Lloyd Wood Trucking & Excavating

800 Brantford Rd,

LaSalette ON N0E 1H0

Project: Soils Analysis Properties of Lloyd Wood, 25 Baker St, Behind the School, Windham Centre ON Norfolk County

Soils analysis in accordance with Section 8.2.1.2 of the Ontario Building Code, The Unified soil Classification System, and ASTM D6913 of which the soils gradation distribution graph representing the sample provided is attached.

Our Fee in Total: \$300.00

HST 894069806 \$ 39.00

Total \$339.00

Please make cheques Payable to: D R Free
Please call to arrange for e-transfer payment
Payment Due on Receipt of Invoice

(a division of 002068251 Ontario Inc.) 55 Gibson Drive, Simcoe ON N3Y3L1, 519 410 6111, email: norfolksoils@gmail.com

March 30, 2021

Invoice #: 2021051

To: Lloyd Wood Trucking & Excavating

800 Brantford Rd,

LaSalette ON N0E 1H0

Project: Soils Analysis Properties of Lloyd Wood, 25 Baker St, West Side of Property/End of Doyle, Windham Centre ON Norfolk County

Soils analysis in accordance with Section 8.2.1.2 of the Ontario Building Code, The Unified soil Classification System, and ASTM D6913 of which the distribution graph representing the sample provided is attached.

Based on the testing of the materials as provided for testing, It is our opinion that the **Percolation Rate is T = 10 /cm.** The drainage characteristics of the soil for septic system appears to be suitable for an in-ground leeching bed system.

The Laboratory Classification of the soils SP – Poorly Graded Sands, with low fines content <12% specifically 5.19% of soil passing the No #200 sieve.

The Coefficient of Uniformity = 2.11 Coefficient of Curvature = 1.60

I trust this meets with your requirements for the soil sample provided.

Yours Truly,

D Free

D. R. Free, MBA, CPA, CET BCIN 109582



Encls

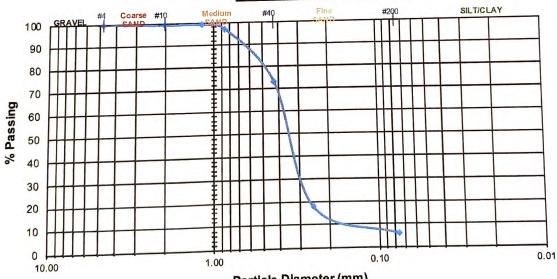
Sieve Analysis Data Sheet

ASTM D422-63(2007)

	AST	M D422-63(20		Date:	2021-03-30
Project Name:	SA2021051	Tested By:	DRF	Date.	
	25 Baker Street, West Side of Property/End of Doyle, Windham Centre ON Norfolk County	Checked By:	DRF BCIN 109582	Date:	2021-03-30
Client	Lloyd Wood Trucking &	Property Owner			
Boring No:	3	Test Number:			
Sample Depth:	NA	Gnd Elev.:	NA NA		
	USCS Soil Classification	SF	P - Poorl Graded Sand	s, fines <1	2%
	AASHTO Soll Classification		A-1-a		

Weight of Container & Soil (g): 557.8 76.0 Weight of Container (g): 9.6% **Moisture Content %** 435.6

Weight of Dry Sample (g): 435.6		Moisture Content //				
Sieve Number	Diameter (mm)	Mass of Sieve	Mass of Sieve & Soil (g)	Soll Retained	Soil Retained (%)	Soil Passing (%)
"4	4.75	749.6	749.6	0.0	0.0	100.0
#4		670.0	673.0	3.0	0.7	99.3
#10	2.00		656.3	3.3	0.8	99.2
#16	1.18	653.0		9.6	2.2	97.0
#30	0.85	582.6	592.2		24.2	72.8
#50	0.43	561.6	667.2	105.6		
	0.25	529.2	769.0	239.8	55.1	17.7
#100		513.1	564.8	51.7	11.9	5.9
#200	0.075			22.6	5.2	0.0
Pan		283.1	305.7	A STATE OF THE PARTY OF THE PAR	100.0	
			TOTAL:	435.6	100.0	_



Particle Diameter (mm)

Grain Size Distribution Curve Results:

5.700 % Gravel: % Sand: 89.112 5.188 % Fines:

100.000

Notice to Reader & Limitations:

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(a division of 002068251 Ontario Inc.)
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March 30, 2021

Invoice #: 2021051

To: Lloyd Wood Trucking & Excavating

800 Brantford Rd,

LaSalette ON N0E 1H0

Project: Soils Analysis Properties of Lloyd Wood, 25 Baker St, West Side of Property/End of Doyle, Windham Centre ON Norfolk County

Soils analysis in accordance with Section 8.2.1.2 of the Ontario Building Code, The Unified soil Classification System, and ASTM D6913 of which the soils gradation distribution graph representing the sample provided is attached.

Our Fee in Total: \$300.00

HST 894069806 \$ 39.00

Total \$339.00

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Payment Due on Receipt of Invoice

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March 30, 2021

Invoice #: 2021052

To: Lloyd Wood Trucking & Excavating

800 Brantford Rd,

LaSalette ON N0E 1H0

Project: Soils Analysis Properties of Lloyd Wood, 25 Baker St, West End of Property Windham Centre ON Norfolk County

Soils analysis in accordance with Section 8.2.1.2 of the Ontario Building Code, The Unified soil Classification System, and ASTM D6913 of which the distribution graph representing the sample provided is attached.

Based on the testing of the materials as provided for testing, It is our opinion that the **Percolation Rate is T = 8 \text{ min/cm}.** The drainage characteristics of the soil for septic system appears to be suitable for an in-ground leeching bed system.

The Laboratory Classification of the soils SM – Gravelly Sands, with low fines content <12% specifically 1.94% of soil passing the No #200 sieve.

The Coefficient of Uniformity = NA Coefficient of Curvature = NA

I trust this meets with your requirements for the soil sample provided.

Yours Truly,

D Free

D. R. Free, MBA, CPA, CET BCIN 109582



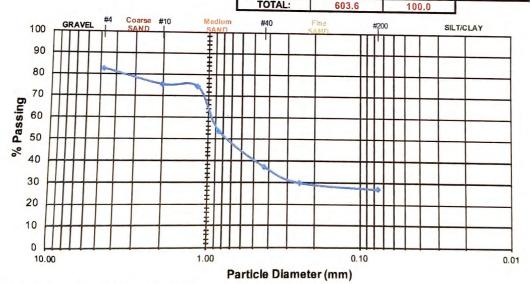
Encls

Sieve Analysis Data Sheet

ASTM D422-63(2007)

Project Name:	SA2021052	Tested By:	DRF	Date:	2021-03-30		
Location:	25 Baker Street, West End of Property, Windham Centre ON Norfolk County	Checked By:	DRF BCIN 109582	Date:	2021-03-30	-	
Client	Lloyd Wood Trucking & Excavating 800 Brantford Rd, LaSalette ON N0E 1H0	Property Owner	Lloyd Wood	-		_	
Boring No:	4	Test Number:	1				
Sample Depth:	NA	Gnd Elev.:	NA				
USCS Soil Classification:		Tariny Sands, with thies Content < 12%					
AASHTO Soil Classification:		A-1-a					
Weight of Container (g): 76.4 Weight of Dry Sample (g): 603.6		Weight of Container & Soil (g): 733.2					
	ory Sample (g): 603.6	-	Moisture Content	%	8.1%		

Sieve Number	Diameter (mm)	Mass of Sieve (g)	Mass of Sieve & Soll (g)	Soil Retained	Soll Retained	Soil Passing (%)
#4	4.75	749.6	854.5	104.9	17.4	82.6
#10	2.00	670.0	819.2	149.2	24.7	75.3
#16	1.18	653.0	703.9	50.9	8.4	74.2
#30	0.85	582.6	707.3	124.7	20.7	53.5
#50	0.43	561.6	662.0	100.4	16.6	36.9
#100	0.25	529.2	573.1	43.9	7.3	
#200	0.075	513.1	531.0	17.9	3.0	29.6
Pan		283.1	294.8	11.7	1.9	26.7 0.0
			TOTAL:	603.6	100.0	0.0



Grain Size Distribution Curve Results:

% Gravel: _____ % Sand: _____ % Fines: ____ Not

D₁₀: NA NA NA

C_u: #VALUE! C_c: #VALUE!

Notice to Reader & Limitations:

17.400

80.662

1.938

100.000

These test results are unique to this soil sample and for the client as identified on the date for which the tests were performed. These test results cannot be used by any other party other than the client stated above within the text of this report without the consultants prior written approval.



PLANNING JUSTIFICATION REPORT

DRAFT PLAN OF SUBDIVISION APPLICATION

25 Baker's Lane Windham Centre, Norfolk County

February 2023



1 Introduction

LandPro Planning Solutions Inc. (LandPro) was retained by the property owner, Mr. Lloyd Wood ("the Owner"), to assist with developing a nine (9) lot subdivision. This letter provides justification for a Draft Plan of Subdivision application for the subject property at 25 Baker's Lane, Windham Centre. The application proposes to create nine (9) new lots suitable for future low-density residential development in the form of single detached dwellings.

The subject property is located on the west side of Baker's Lane, south of Baker Street and Windham Lane, and east of Nixon Road. See **Figure 1** below.



Figure 1 - Location of 25 Baker's Lane

2 Proposed Development

The proposed application at 25 Baker's Lane proposes to create nine (9) new residential lots. This application follows two (2) severance applications to sever two (2) lots from the east end of the subject property; one (1) with the existing dwelling and one (1) vacant lot further to the east. The Draft Plan of Subdivision application looks to develop the remainder of the subject property and ROW.

Lots 1 through 6 are proposed to have frontage and access to Railway Street. While Baker Street (PART 3, PLAN 37R-10119) appears to extend through the subject property and is to be used to access Lot 7, Lot 8, Lot 9 and the previously severed "Severance Parcel A".



The subject property is located within the urban area of Windham Centre which formerly operated as a railway. This proposal provides a unique opportunity for infill development and to develop an underutilized property. The proposed Draft Plan of Subdivision is displayed in **Figure 2** below.

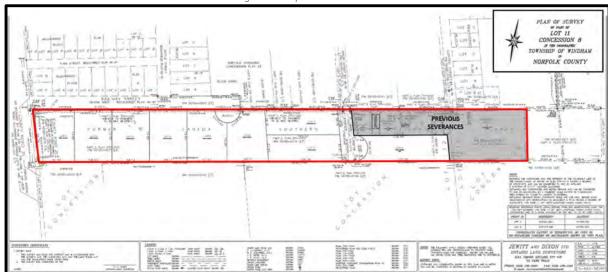


Figure 2: Proposed Subdivision

3 Land Use Planning Framework

In preparing this application, several policy and regulatory documents were reviewed that need to be addressed to demonstrate good planning. They include the following:

- 1. Planning Act, R.S.O 1990 c.P.13
- 2. Provincial Policy Statement (2020);
- 3. Norfolk County Official Plan (cons. 2021);
- 4. Norfolk County Zoning By-law 1-Z-2014

The proposed development was assessed against these regulations and associated policies. A detailed review is below.

3.1 Planning Act, R.S.O 1990 c.P.13

The Planning Act is the provincial legislation and provides the basis for land use planning in Ontario, identifying tools for managing how, where and when land use change occurs.

The purposes of the *Act* as outline in **Section 1.1** are **(a)** to promote sustainable economic development in a healthy natural environment, **(b)** to provide for a land use planning system led by provincial policy, **(c)** to integrate matters of provincial interest in provincial and municipal decisions, **(d)** to provide for planning processes that are fair, **(e)** to encourage co-operation and coordination among various interests, **(f)** to recognize the decision-making authority and accountability of municipal councils in planning.



The matters of Provincial Interest are outlined in **Section 2** of the *Act*. This application *shall have regard* to the following matters: *c*), *e*), *f*), *g*), *h*), *j*), *l*), *m*), *n*), *o*), *p*), *q*), *and r*).

As for **Section 51(24)**, this application meets the following criteria: a), b), c), d), e), f), h), i), j), k), l), and m).

3.2 Provincial Policy Statement, 2020 (PPS)

The PPS provides policy direction on matters of provincial interest for all land use development throughout Ontario. It provides direction for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural and built environment. This policy is based on three overlying principles: 1) Building Strong Healthy Communities; 2) Wise Use and Management of Resources; and 3) Protecting Public Health and Safety.

The subject property is in the Hamlet of Windham Centre, defined as a Settlement Area by the PPS.

The PPS provides policy direction for Settlement Areas to focus the growth and development to the urban areas (1.1.3.1), to ensure efficient and mixed land use patterns (1.1.3.2), to promote municipal public transit, housing options, and utilization of existing infrastructure (1.1.3.3), to meet appropriate development standards (1.1.3.4), and to provide a range and mix of housing options (1.4.3).

The proposed application follows two (2) previous severance applications. This application intends to make efficient use of the subject property by creating a nine (9) lot subdivision on the decommissioned railway lands. This proposal represents the efficient use of lands and infill development within the Hamlet as it allows for new single detached dwellings to be constructed. This application will provide additional housing by introducing up to nine (9) new single detached homes to the housing stock each with the potential for Additional Dwelling Units (ADUs) to further provide a mix of housing options in the area. The proposed development will utilize existing municipal infrastructure.

This application is consistent with the Provincial Policy Statement.

3.3 Norfolk County Official Plan

The Norfolk County Official Plan (NCOP) contains objectives, policies and mapping that describe the County's vision for the next 20+ years, including their approach to managing growth, growing the economy, protecting the natural environment, resources, and agricultural land, and providing sustainable infrastructure.

The property is located within the Hamlet of Windham Centre, and the NCOP designates the property as "Hamlet". Figure 3, below, shows the property designation.



Powersky significant (P)

Nametr OP

Subject

Property

Agricultural OP

Subject

Property

Figure 3: Norfolk County Official Plan

Draft Plan of Subdivision applications are permitted under 9.6.4 of the NCOP. In accordance with the policies in this section, the land use designations and policies must be complied with (9.6.4.a).

The County shall also confirm the availability of adequate servicing infrastructure (9.6.4.b) and shall be considered premature if not available (9.6.4.c). All plans of subdivision shall be subject to a subdivision agreement between the County and the developer (9.6.4.h). All lots within a plan of subdivision shall have frontage on a public road maintained on a year-round basis, constructed to an acceptable County standard (9.6.4.e).

Upon the approval of this application, the proposed road allowances will be brought up to County standards and assumed by the County. The proposed lots all have frontage to a year-round maintained public road (Railway Street & Baker Street) and are intended to be serviced through private servicing. The lots are of sufficient area to accommodate private septic systems and water supply.

The subject property also has Significant Woodlands along the southern boundary. As the Pre-Consultation notes suggest, the property does not meet the size criteria to require an EIS, it has no interior forest habitat, and it is highly unlikely that it contains any rare, threatened or endangered wildlife of plant species. Additionally, the subject property is heavily disturbed albeit the woodland area contains some relatively mature trees of around 40 years old.

The proposed application ensures an efficient development pattern through infilling an underutilized lot in the Hamlet to provide new single detached dwellings.

This application conforms with the Norfolk County Official Plan.



3.4 Norfolk County Zoning By-Law 1-Z-2014

Norfolk County Zoning By-Law 1-Z-2014 regulates the subject property. The current zoning of the property is *Hamlet Residential (RH)*, as presented in **Figure 4** below.

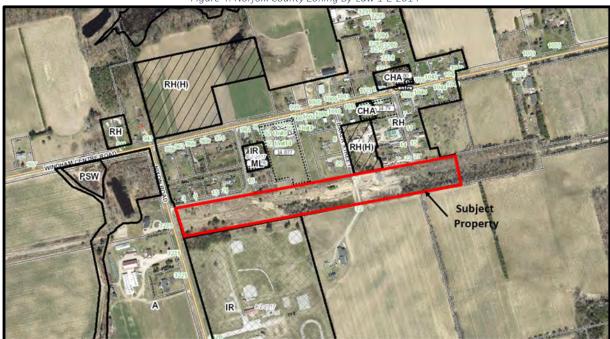


Figure 4: Norfolk County Zoning By-Law 1-Z-2014

The Norfolk County Zoning By-law (ZBL) has been developed to implement the policy direction of the NCOP. The existing zoning permits single detached dwellings on the property which is the intended use of each lot.

The subject lands are currently zoned appropriately with no zoning deficiencies. Single detached dwellings are a permitted use in the *Hamlet Residential* zone.

The proposed Draft Plan of Subdivision is compatible with the RH zoning. Please see RH zone provisions below in **Table 1**.

Table 1: Norfolk County Zoning By-Law 1-Z-2014 – RH Zone Provisions

Zone Provisions	Required	Proposed	Comment
Min. Lot Area	4000m ²	4000m ² to 4457m ²	Complies
Min. Lot Frontage	30m	37.97m to 54.17m	Complies
Min. Front Yard	6m	-	At future Building Permit stage
Min Exterior Side Yard	6m	-	At future Building Permit stage
Min. Interior Side Yard	3m & 1.2m	-	At future Building Permit stage
Min. Rear Yard	9m	-	At future Building Permit stage
Max. Building Height	11m	-	At future Building Permit stage



As shown in **Table 1** above, the proposed lots intend to facilitate the construction of new single detached dwellings entirely built within the setbacks and provisions outlined the zoning by-law.

The proposed subdivision and lot configuration conforms to Norfolk County Zoning By-Law.

4 ANALYSIS

Based on our review of the existing context, the proposed plan and applicable policy, it is our opinion that the proposed Draft Plan of Subdivision application is appropriate for the subject property.

This proposal is intended to create nine (9) new lots each on private servicing with access and frontage on a year-round, maintained public road. The proposed application represents the efficient use of land and infill development within the Hamlet.

This application has regard for Section 1.1, Section 2 and Section 51(24) of the Planning Act. The matters of Provincial Interest that this application has regard to are: c), e), f), g), h), h

This proposal is consistent with the Provincial Policy Statement which encourages infill development within the settlement area boundaries. This application will facilitate the construction of up to nine (9) new single detached dwellings which further adds to the housing stock. This application focuses growth and development within the settlement area through the ensuring the efficient use of land and by utilizing existing infrastructure.

This proposed Draft Plan of Subdivision application conforms with the Norfolk County Official Plan designates the property as *Hamlet*. The proposed application ensures an efficient development pattern through infilling an underutilized lot in the Hamlet to provide new single detached dwellings. Additionally, the proposed lots all have frontage to a year-round maintained public road (Railway Street & Baker Street).

The proposal conforms to the Norfolk County Zoning By-Law as the property is zoned as *Hamlet Residential*. The future dwellings will be designed to fit the existing and future character of the neighbourhood. Single detached dwellings are a permitted use in the RH zone and intends to meet all other provisions set out by the zoning by-law.

This application is consistent with the Provincial Policy Statement, conforms with the Norfolk County Official Plan, conforms with the Norfolk County Zoning By-Law and represents good planning.

5 CLOSING

The application is consistent with the Planning Act and Provincial Policy Statement, and conforms to the Norfolk County Official Plan and the Norfolk County Zoning By-Law.

It is our opinion that the applications represent good planning and should be approved.



LandPro Planning Solutions Inc.

Mitchell Baker, BES

Planner

No.

289-680-6134



mitchell@landproplan.ca



landproplan.ca

Michael Sullivan, M.Pl., RPP, MCIP President



289-687-3730



mike@landproplan.ca



LAND PRO PLANNING SOLUTIONS

LandPro Planning Solutions Inc.

110 James St., Suite 204 St. Catharines, ON L2R 7E8 28 Colborne St. N. Simcoe, ON, N3Y 3T9

March 2, 2023

Mr. Mohammad Alam 185 Robinson Street, Simcoe, ON N3Y 5L6 Mohammad.Alam@norfolkcounty.ca

Re: Draft Plan of Subdivision

25 Baker's Street, Windham Centre

Norfolk County

LandPro Planning Solutions Inc. ("Agent") has been retained by Mr. Lloyd Wood ("Owner") to assist in obtaining the required approvals for the proposed nine (9) lot Draft Plan of Subdivision.

This letter introduces the submission of this applications which comprises of the following:

- 1. County Application Form, commissioned
- 2. Planning Justification Brief (LandPro Planning Solutions, February 2023)
- 3. Survey Draft Plan of Subdivision (Jewitt & Dixon, February 2022)
- 4. Functional Servicing Report (J.H Cohoon Engineering Ltd., February 2023)
- 5. Traffic Brief (J.H Cohoon Engineering Ltd., February 2023)
- 6. Lot Grading Plans (J.H Cohoon Engineering Ltd., February 2023)
- 7. Geotechnical Brief (Englobe Corp., February 2022)
- 8. Soils Analysis (Norfolk Soils Analysis, March 2022)
- 9. All associated application fees (\$10,058.00 plus \$75 per lot; TOTAL = \$10,733.00)

The fees for the application are to be paid directly by the property owner(s). We trust this submission fulfills the County's requirements for a complete application and look forward to receiving confirmation of the same.

You are welcome to call our office at 289-687-3730 or by email at mitchell@landproplan.ca with any questions or concerns.

LANDPRO PLANNING SOLUTIONS Inc.

Mitchell Baker, BES Planner

Con't

289-680-3164

M

mitchell@landproplan.ca



landproplan.ca

Michael Sullivan, M.Pl., RPP, MCIP

President

Cont.

289-687-3730



mike@landproplan.ca



landproplan.ca

FUNCTIONAL SERVICING REPORT PROPOSED RESIDENTIAL DEVELOPMENT LLOYD WOOD SUBDIVISION

Windham Centre 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: 15640 Feb 2023

INTRODUCTION

The following Functional Servicing Report was prepared by J.H. Cohoon Engineering Limited for Mr. L. Wood in support of future planning applications relating to the site located at MN 32 Nixon Road, in Norfolk County. This report was prepared to demonstrate the servicing scheme for the proposed residential development that is to occur on the subject lands.

The development approach is to develop the site in a single-phase residential single-family development that will consist of 9 residential lots as illustrated on the draft plan of subdivision included within Appendix 'A' of this report.

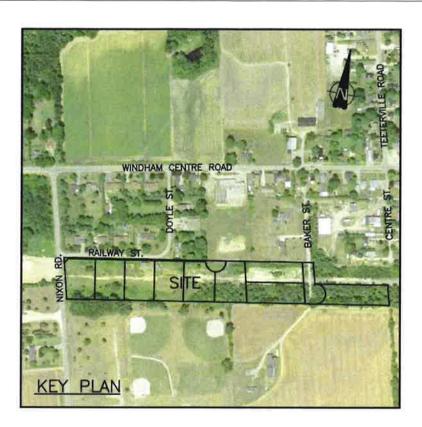
The site is located on the south side of Railway Street in Windham Centre, on the southeast corner of the intersection of Railway Street and Nixon Road in Norfolk County. The overall subdivision area is 3.968 Ha in size with the parcel of land being proposed to be made up of 0.322 ha of Roads and 3.646 Hectares of residential lots.

The objective of this report is to document the servicing strategy to be utilized for the site in a proposed initial development. Full services will be installed (i.e., sanitary, storm and water) within the development and connected to the existing municipal system in the existing municipal road allowances or abutting the subject lot. The owner will assume full responsibility for the installation and maintenance of the services on the property.

PROPOSED DEVELOPMENT CONCEPT

The proposed development is to be constructed on the south side of Railway Street and an extension of Barker Street in the Town of Windham Centre. As indicated the parcel of land is some 3.968 hectares in size. A key map illustrating the site location is provided in Figure 1.

The anticipated development is intended to be a series of townhouses of various styles with a total of approximately 86 units with future development to occur on this site. The development is illustrated on the plans prepared by J H Cohoon Engineering Limited being drawings which have been included within Appendix 'A' of this report



Site Location – Key Plan Figure No. 1

SANITARY SEWERS & APPURTENANCES

3.1 Design Flows

This site is proposed to be constructed on individual private services. The proposed lots are to be developed with individual septic systems designed in accordance with the requirements of the Ontario Building Code.

The proposed septic systems are shown generically on the engineering plans included within Appendix 'B' of this report. The septic systems are proposed to be constructed in the rear of the proposed residences. The schematic details of the proposed development and the required septic systems have been included within Appendix 'C' of this report.

The design of the system(s) was carried out in accordance with the requirements of the Ontario Building Code including the following assumptions for the design of the system

Typical Building Residence

Three Bedroom Ranch Style House with 20 fixture Units

Soils

As per Englobe Report dated Aug 17, 2022 (refer to Appendix 'D' of this report).

WATER SERVICING AND FIRE PROTECTION

The provision of water to the proposed residences will be provided through the provision of individual wells located on the subject lands in accordance with the requirements of the Ontario building Code.

In this case, fire protection will be provided from the Norfolk County Fire department through the use of rural fire-fighting techniques. The Norfolk Fire Department is accredited as being able to provide Superior Tanker Shuttle Service as provided by the Fire Underwriters Survey. (Refer to Appendix 'E' of this report). The site is located within approximately 6.0km of the Teeterville Fire Station located at Mn 186 Teeter Street, Teeterville.

STORM SEWERS & APPURTENANCES

Storm Sewers / Storm water Management

The site is intended to be serviced through the municipal drain located adjacent to the site. The site is intended to provide its own stormwater management controls on the property to reduce the impact of the site on the existing drainage system. The overflow from this site will be directed into the Podolak Drain that is located west of the property. Infiltration techniques are being proposed on this site to reduce the discharge from the property.

Pre-development Condition

The site presently drains in a south westly direction towards the Podolak Drain. We have included the overall plan as provided by Norfolk County with respect to the Pololak Drain that shows that although the subject lands are outside of the contributing area, it is our opinion that the site is directed in that direction.

The runoff characteristics of this site are determined utilizing the "MIDUSS" stormwater management computer simulation program. In accordance with the Norfolk County Standards, the following design storms are being utilized within this proposed development.

Design Storm

Chicago Storm – 3 Hour Duration Design Storms

$$I = A / (t + B) ** C$$

Where:	Design Strom Event	Α	В	C
	5 Year Storm	771.901	6.241	0.786
	100 Year Storm	1274.631	7.540	0.796

The runoff characteristics of the various storm events and input parameters are included in Appendix 'F'.

The results of the stormwater management analysis can be summarized as follows:

Design Storm Event	Peak Discharge Rate (cms)
5	0.159
100	0.448

As indicated, the proposed scheme is intended to reduce the rate of runoff to below the pre-development rate for all storm events up to and including the 100-year storm event.

Post-Development Condition

In this application, the proposed drainage scheme involves the grading of the property to direct the runoff into a series of infiltration galleries on the property.

The proposed development is anticipated to increase the percentage impervious surfaces to be approximately $10.0\,\%$

In this application, we have determined that the following is representative of this particular site.

Smallest Lot Area		=	4,000 sq. m.
Total Area		=	4,000 sq.
Impervious Surfaces			
House	=	200	sq.
Driveway (15m x 6m)	=	90	sq.
Total Impervious Surfac	es		2
	=	290 s	sq.

This result in an impervious area of approximately 7.3 %. We note that this relates to the smallest lot within the subdivision. Other lots within the subdivision exceed 4,500 sq. m. which would result in the % impervious being even lower. However, for the purposes of this analysis, the % impervious was taken at 10% for the residential lots.

The overland flow from this site is directed towards the Pololak Drain. However, the inclusion of the end of the line, infiltration gallery which has been sized for collecting the required volume to reduce the runoff rate (overall) to the predevelopment runoff rates.

The runoff characteristics of the developed site were determined utilizing the "MIDUSS" stormwater management computer simulation program. The runoff characteristics of the post development condition is shown within "Appendix 'G" of this report.

The sizing of the infiltration gallery was completed as follows:

Volume of Water to be Storey (during the 100 year storm event)

= 44.292 cu.m.

Size of Infiltration Gallery

= 15.0 m x 5 m x 1.5 m

= 112.5 cu.m.

Void Ratio

= 0.4

Volume Stored in Gallery

 $= 15 \times 5 \times 1.5 \times 0.4$

= 45 cu.m.

(No allowance for infiltration has been included in the analysis.

The results of the analysis can be summarized as follows:

	Design Storm Event	Pre-Development Runoff Results (cms)	Overall Post-Development Runoff Results (cms Without SWM	s) With SWM
8	5	0.048	0.140	0.042
	100	0.380	0.533	0.380

These results indicate that restriction of the runoff has resulted in the discharge rates being equal to and below the pre-development runoff rates for all storm events.

In addition, quality controls are proposed in accordance with the MOE guidelines as published by the Ministry of the Environment. We are proposing a grassed swale to be constructed as an overland flow route on the site. During the 5-year storm event, the velocity in the flat bottom swale is estimated to be approximately 0.5 m/s with a flow distance of greater than 90m.

During construction a siltation and erosion control strategy is proposed. The erosion control measures should be in place and maintained by the contractor until a complete vegetation cover is in place.

GRADING

Road grades will be established for the proposed development and are illustrated on the plans appended to the report. Minimum (0.50%) and maximum (6.0%) grades have been used in accordance with City of Welland design criteria.

UTILITIES

Coordination of these services will be required with Union Gas, the hydro utility, Bell, and the local cable tv provider (if available)

CONCLUSIONS

The preceding sections of this report outline the 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.

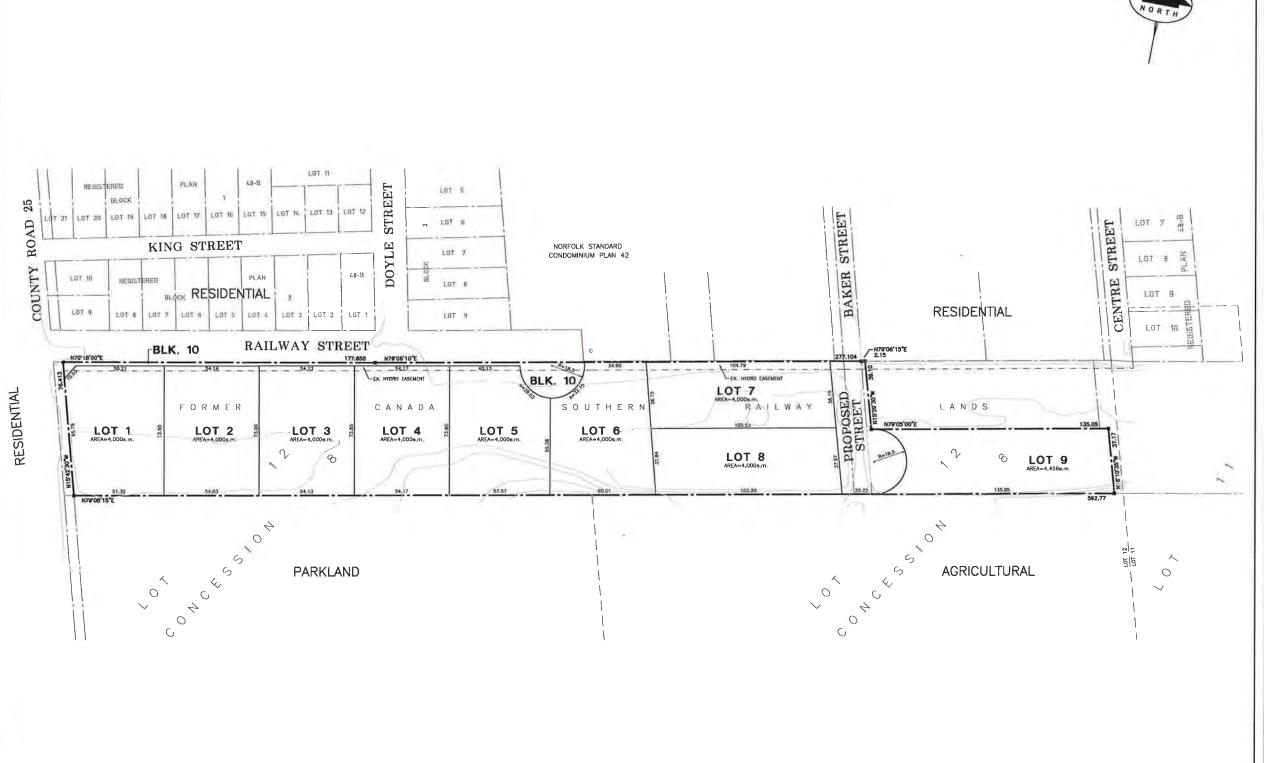
Report Prepared By:

J.H. COHOON ENGINEERING LIMITED

R. W. Phillips, P.Eng.

Appendix 'A'
Proposed Draft Plan of Subdivision – Job 15640 – DP1
As prepared by J H Cohoon Engineering Limited





DRAFT PLAN OF SUBDIVISION

PART OF LOT 12 CONCESSION 8 GEOGRAPHIC TOWNSHIP OF WINDHAM NORFOLK COUNTY



SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN

KIM HUSTED, O.L S. JEWITT AND DIXON LTD

OWNER'S CERTIFICATE

LLOYD WOOD

G — SEE PLAN
H — INDIVIDUAL WELLS
I — SAND & GRAVEL
J — SEE PLAN
K — INDIVIDUAL SEPTIC SYSTEMS
L — SEE PLAN

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

A - SEE PLAN
B - SEE PLAN
C - SEE PLAN
D - RESIDENTIAL-SINGLE FAMILY
E - SEE PLAN
F - SEE PLAN

AREA SCHEDULE

LOTS = 3 646 ha ROADS = 0 322 ha TOTAL = 3 968 ha

J.H. COHOON ENGINEERING LIMITED

RAWN: K.P.B

440 HARDY ROAD , UNIT \$1 , BRANTFORD — CNTARID , N3T 5LB TEL (319) 753-2656 FAX (519) 753-4263 www.cohoaneng.com

SCALE: 1:1000

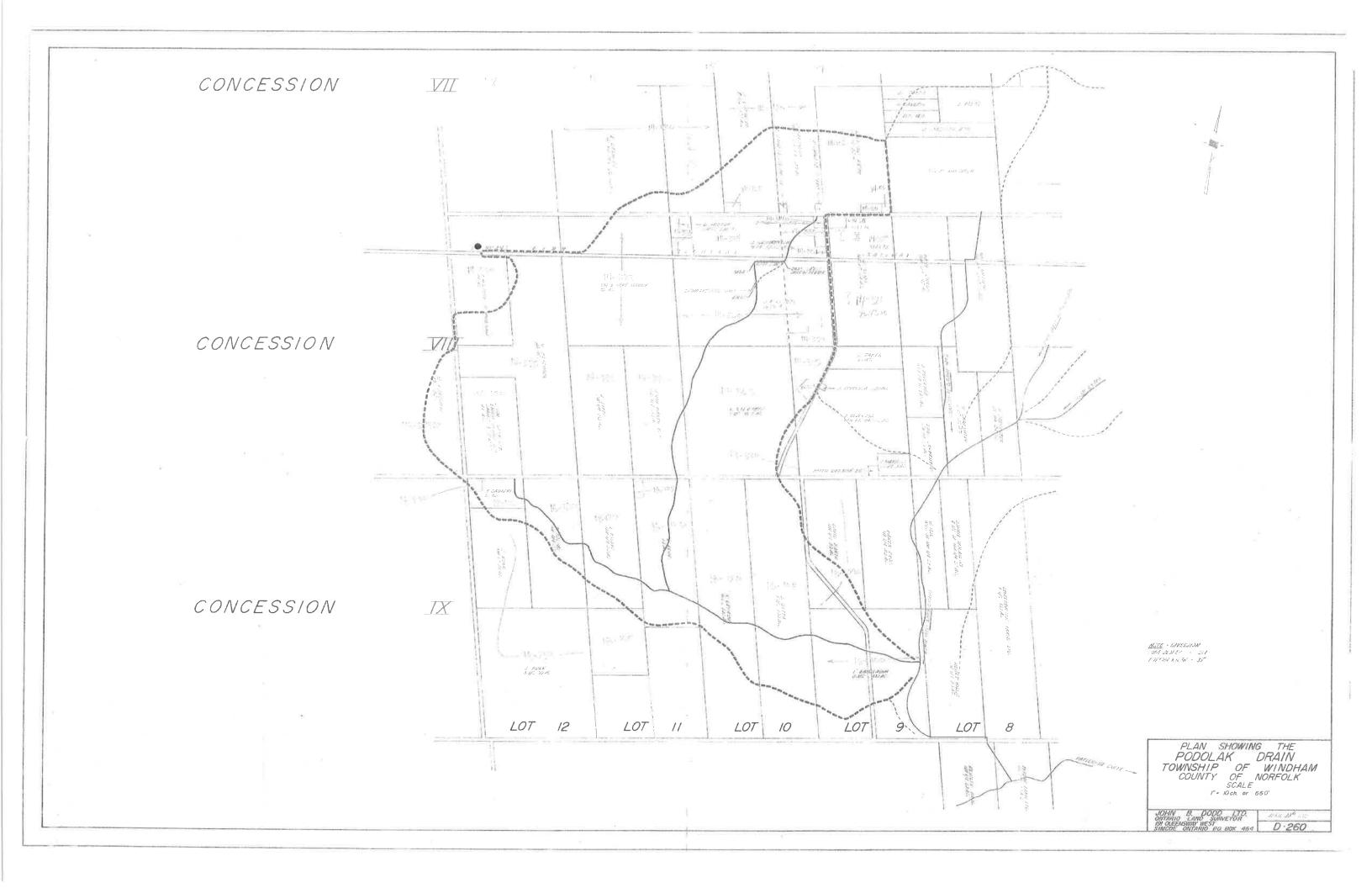
SIGN: R.W.P.

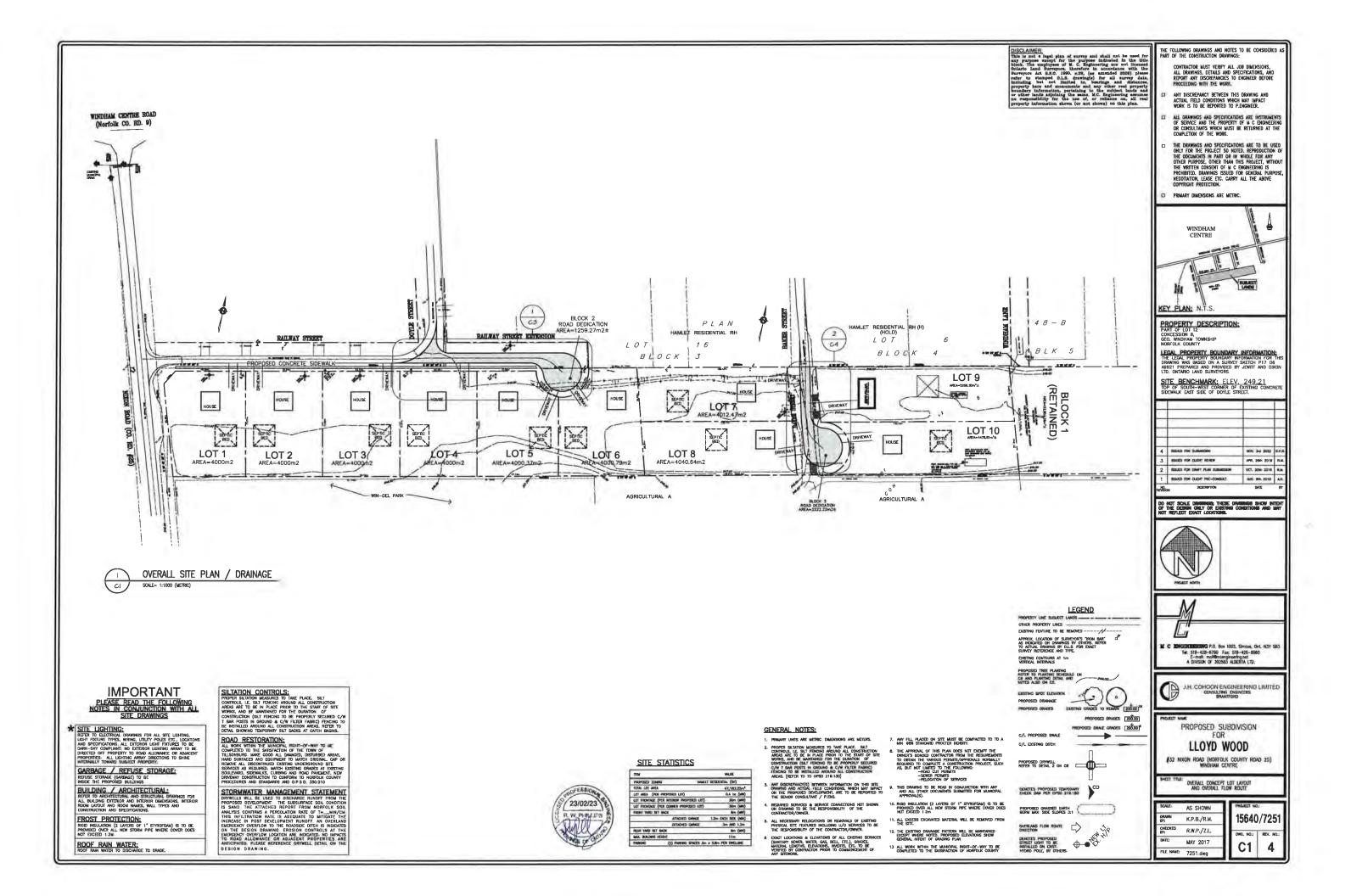
DATE: OCT. 4/22

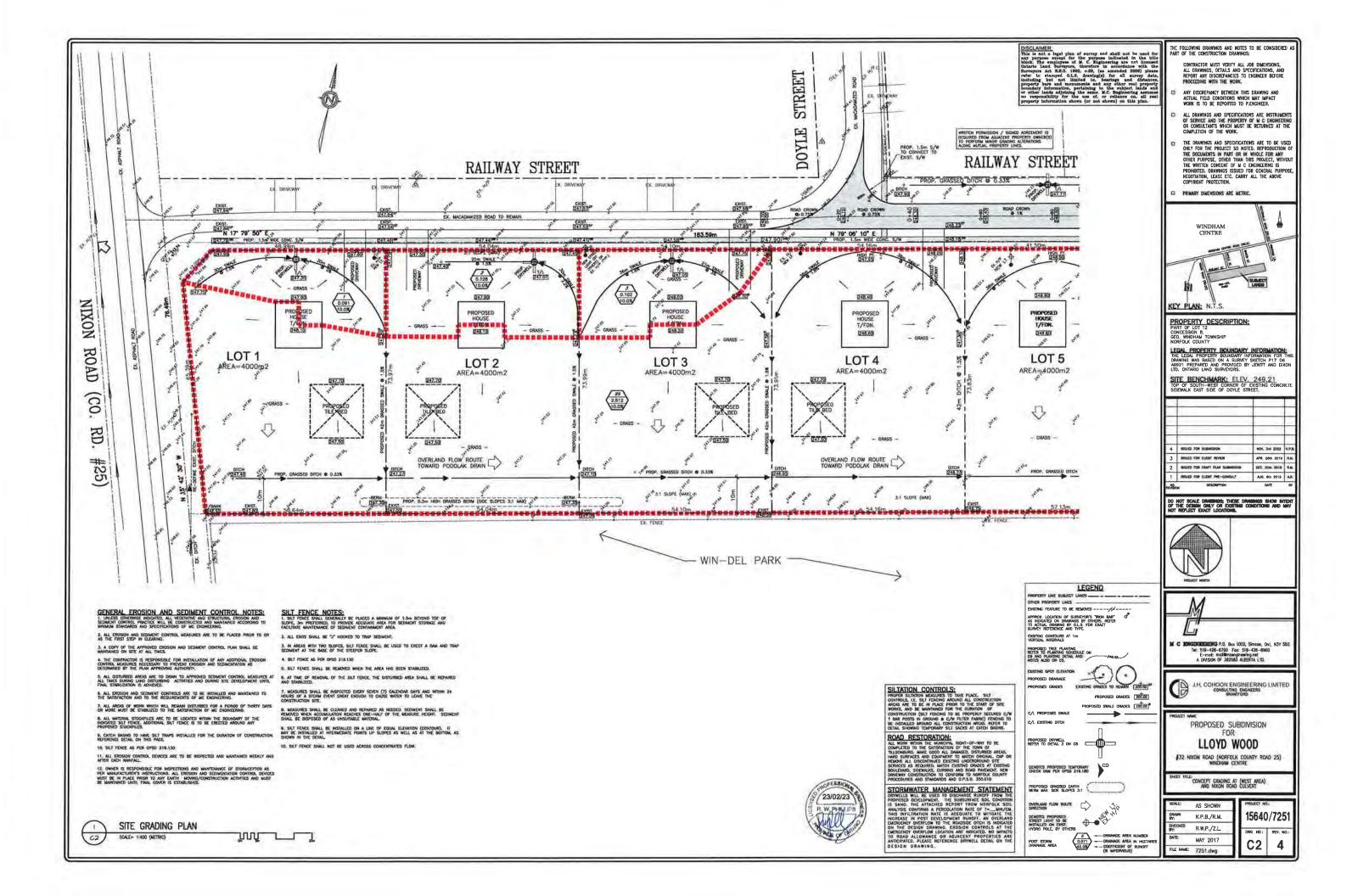
DP1

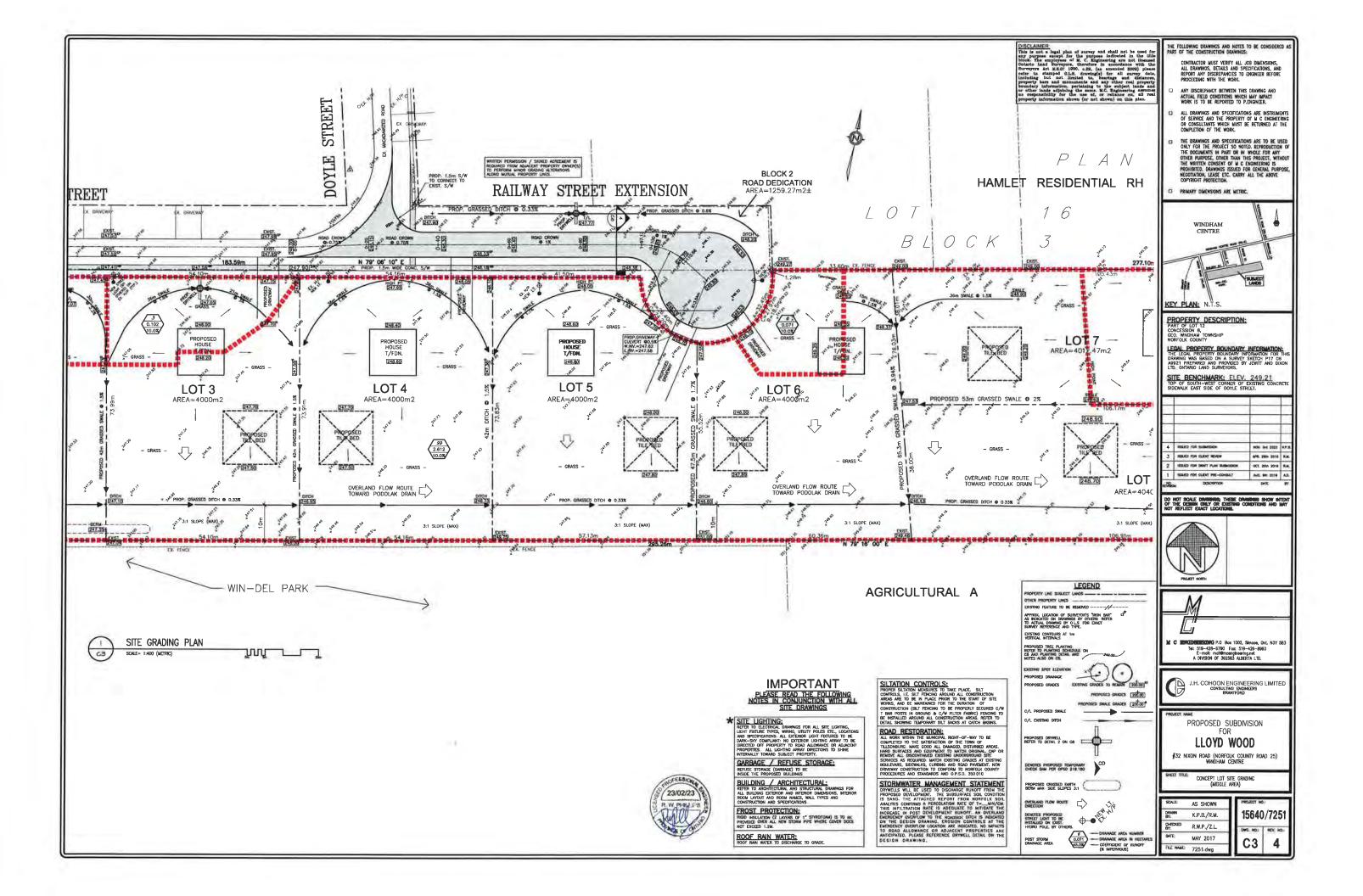
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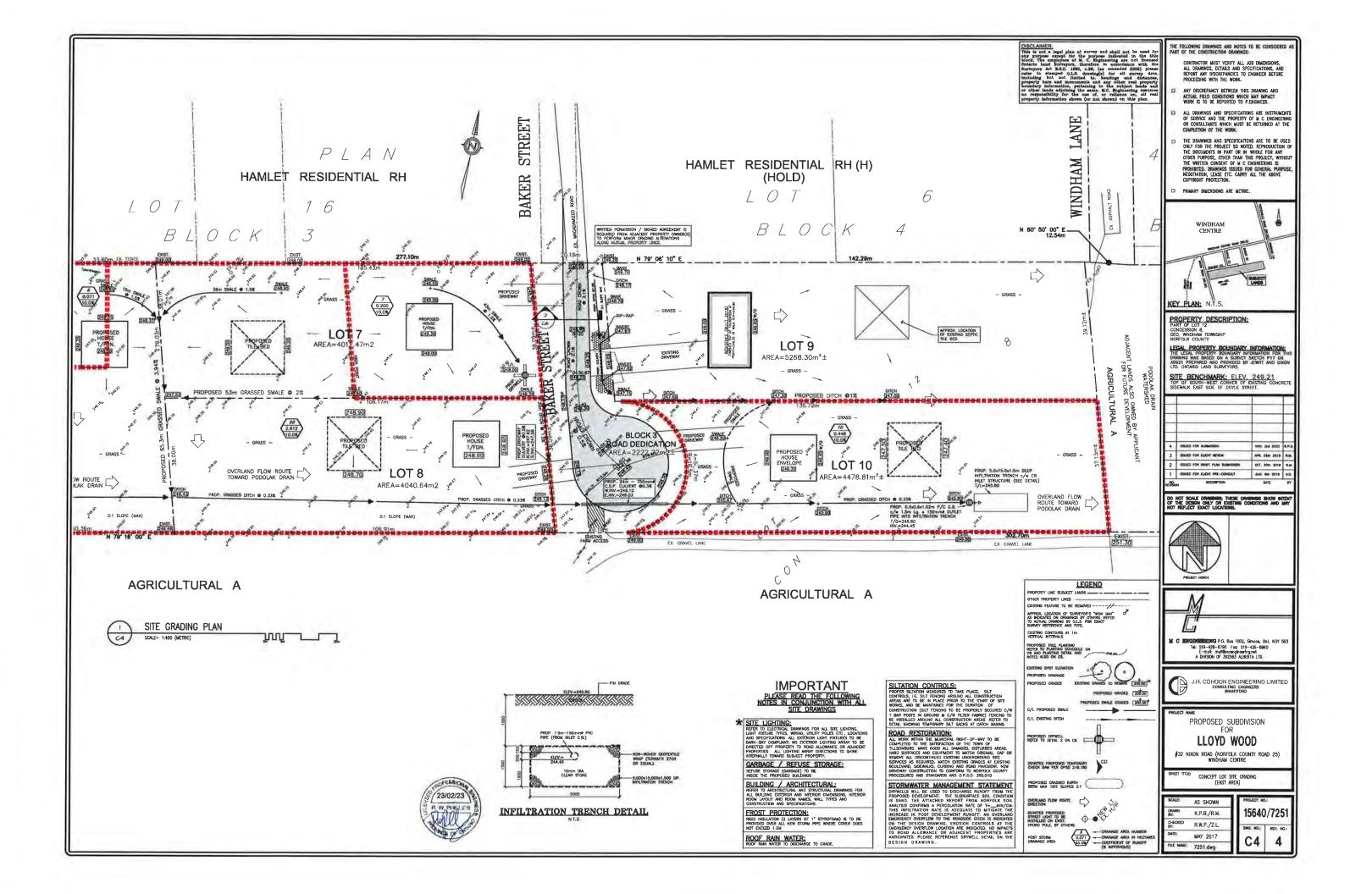
Appendix 'B' Proposed Residential Development Engineering Plans as originally prepared by MC Engineering and Modified by J H Cohoon Engineering Limited











BLOCK 2 ROAD DEDICATION AREA=1259.27m2± 48 - B PLAN HAMLET RESIDENTIAL (HOLD) RESIDENTIAL RH RAILWAY STREET EXTENSION LOT LOT BLK 5 BIOG BLOCK W 40 (1) BLOCK 1 (RETAINED) HOUSE (1) HOUSE HOUSE SOUTH C LOT 10 8 SOP NO BED 8 LOT 8 BENT. LOT 5 LOT 4 LOT 1 LOT 2 LOT 3 LOT 6 8 BENEVE . AREA = 4000m2 AREA=4000m2 AREA=4000.37m2 AREA=4000.79m2 Theor. AGRICULTURAL A AGRICULTURAL A

> PLANTING SCHEDULE FOR TYP PLANTING DETAIL AND NOTES REFER TO PAGE 5P4

REMOVE WRAP FROM TREES. REMOVE ALL TAGS, LABELS, THE TO BE PLANTED WITH TOP OF MOOT BALL LEVEL WITH BACKFILL IN 150mm LIFTS AND TAMP ELIMINATE AIR POCKETS. PLACE ROOTENIL ON UNCONTURED SOIL OUT AND WEIGHT TO 1 OF THINE, BUTLEP AND WIFE BASKET DIS MODIFIELD ALL RESIDENCE WHAT IS NO DECIMANAL. LOOSEH SUSPACE SOL

CAREFULLY REMOVE ANY LOOSE SOIL AROUND TRUNK: TOP OF ROOTBALL SHOULD NOT BE DISTURBED OR COVERED WITH SOIL. SOAK BACKFILLED AREA TO ENSURE FULL CONTACT BETWEEN ROOTBALL AND BACKFIL!



OVERALL SITE PLAN / DRAINAGE

SCALE= 1:1000 (METRIC)

C5



PLANT MATERIALS:

- T. ALL TITE PITS SHALL BE AT LEAST 2-FT. (BODNU) WODEN
 THAN BALL OF THE TREE DIE PLANTION AND SHALL BE
 DEEP ENOUGH SO THAT THE TOP OF BALL IS AT THE SAME
 LEVAL AS SUFROJUCIONED, GROUET, A MISSIANLO OF B' (150ML)
 OF BACKFILL SHALL BE PLACED UNDER BALL THEE PITS AND
 NOT TO BE LEFT OPEN OVER MORIT.
- 2. SHRUB BEDS SHALL BE EXCAVATED TO A DEPTH OF 18" (450MM) AND FILLED WITH APPROVED BACKFILL MATERIAL
- ALL TREES SHALL HAVE AN EARTH SAUCER AT ITS BASE WITH A DUMETER AS LANGE AS EXCANATED AND TO SHAPE TO RETAIN WATER, SEE DETAIL EARTH SAUCER TO HAVE APPROVED MULCH INSTALLED TO A MINIMUM DEPTH OR 2.5" (6.3MJ).
- 4. ALL BURLAP SHALL BE CUT AND BURIED BELOW SURFACE DURING PLANTING
- 5. ALL EVERGREENS ARE TO WRAPPED THE FIRST WINTER

LANDSCAPE NOTES:

1. ANY PLANT MATERIAL REQUIRES THE APPROVAL OF THE CITY OF NORFOLK COUNTY. 2. PLANT MATERIAL OR FENCING SHALL BE MINIMUM TO BE PROVIDED BY THE OWNER, ANY ADDITIONS MUST COMPLY WITH THE ZONING BY-LAW.

3. ART SODDING, PLANTING, OR WORK ON LANDS ABUTTING THE PROPERTY FROM THE LOT LINES TO SIDEWALK AND CLIRENING, SHALL BE TO THE SATISFACTION OF THE CITY.

4. ALL LANDSCAPING SHALL BE INSTALLED PRIOR TO THE END OF THE FIRST GROWING SEASON FOLLOWING OCCUPANCY OF THE DEVELOPMENT. 5. UNLESS OTHERWISE SPECIFIED ALL LANDSCAPED AREAS TO BE SODDED.

6, UNLESS OTHERWISE SPECIFIED ALL UNDEVELOPED AREAS SHALL BE UNDISTURBED AND KEPT FREE AND CLEAR OF DEBRIS AND MAINTAINED.

7. ALL PLANTING BEDS TO BE PROPERLY MULCHED.

DISCAMMEN.
This is not a logal plan of survey and shall not be used any purpose except for the purpose indicated in the thick. The sunpleyees of M. E. Engineering are not like the control of the contro

GENERAL PLANTING NOTES:

ALL SHRUB BEDS AND TREES TO BE BACKFILLED WITH COOD QUALITY TOPSOIL SCARIFIED FREE OF ALL STONES, ROOTS, BRANCHES LARGER THAN 1" (25MM) AND COMPACTED TO B5% SFID.

ALL SUBSOIL TO BE SCARIFIED TO A DEPTH OF 6" (150 MM) PRIOR TO THE INSTALLATION OF TOPSOIL TO ENSURE NO HARDPAN CONDITIONS

MULCH:

PLANTING MATERIAL
CONTRACTOR TO VERIFY ALL PLANT MATERIAL ON DRAWING(S) AND
PLANT MATERIAL LIST(S) REPORT ALL DISCREPANCIES PLANTINGS MAY BE ADJUSTED TO SUIT UTILITIES STRUCTURES AND AESTHETIC CONCERNS,

UPON INSTALLATION AREAS SHOULD BE WATERED SO AS TO SATURATE SOD AND THE UPPER 4" (100MM) OF BACKFILL TOPSOIL AFTER SOD AND SOIL HAVE DRIED SUFFICIENTLY TO PREVENT DAMAGE, IT SHALL BE ROLLED WITH A ROLLER.

LEGEND

PEPERN UNE SUBJECT LANCE DISTING FEATURE TO BE REMOVED -----

EXISTING CONTOURS AT 1m VERTICAL INTERVALS

PROPOSED TREE PLANTING RUTER TO PLANTING SCHEDALE ON CB AND PLANTING DETAIL AND NOTES ALSO ON CS.

THE FOLLOWING DRAWINGS AND NOTES TO BE CONSIDERED A PART OF THE CONSTRUCTION GRAWINGS:

- ANY DISCREPANCY BETWEEN THIS DRAWING AND ACTUAL FIELD CONDITIONS WHICH MAY IMPACT WORK IS TO BE REPORTED TO PLENGINEER.
- ALL DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF SERVICE AND THE PROPERTY OF M C ENGINEERING OR CONSULTANTS WHICH MUST BE RETURNED AT THE COMPLETION OF THE WORK.
- THE DRAWINGS AND SPECIFICATIONS ARE TO BE USED ONLY FOR THE PROJECT SO MOTED. REPRODUCTION OF THE DOCUMENTS IN FAST OR IN WHOLE FOR ANY OTHER PRIPOSE, OTHER THAN THIS PROJECT, WITHOUT THE WITTEN CONSENT OF IN C ENGINEERING IS PROMISTICLE DAWARDS ISSUED FOR CENTRAL PRODUCTION. LESSE ETC. CARRY ALL THE ABOVE COMPRESSED AND TOTATION, LESSE ETC. CARRY ALL THE ABOVE COMPRESSED AND TOTATION.
- PRIMARY DIMENSIONS ARE METRIC.



PROPERTY DESCRIPTION:

PART OF LOT 12 CONCESSION 8, GEO. WINDHAM TOWNSHIP NORFOLK COUNTY

LEGAL PROPERTY BOUNDARY INFORMATION FOR DRAWING WAS BASED ON A SURVEY SKETCH P17 06 A921 PREPARED AND PROVIDED BY JEWITT AND DIX LTD. ONTARIO LAND SURVEYORS.

SITE BENCHMARK: FLEV. 249.21
TOP OF SOUTH-WEST CORNER OF EXISTING CO.
SIDEWALK EAST SIDE OF DOYLE STREET.

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4	SSUED FOR SUBMISSION	NOV. 3rd 2022	,
3	STREET FOR CLUCK HOUSE	APR. 28th 2019	1
2	SSUED FOR DIGIT FLAH SAMESTON	OCT. 20th 2018	
1	TARREST FOR ELECT PIC-COMMAT	AUG 8th 2019	ĺ
HO	OESCHIPTION	DATE	Ī

DO NOT SCALE DRAWNOS; THESE DRAWNOS SHOW INTEN OF THE DESIGN CHILY OR EXISTING CONDITIONS AND MAY NOT REFLECT EXACT LOCATIONS.





COURTEMON P.O. Sear 1002, Siemon, Ont. N.Y 583
Tel: 519-428-6790 Fac: 519-426-8960
E-moil: moil@moengheering.net
A DIVISION OF 392583 ALBERTA LTD.



J,H, COHOON ENGINEERING LIMITE CONSULTING ENGINEERS BRANTFORD

PROPOSED SUBDIVISION

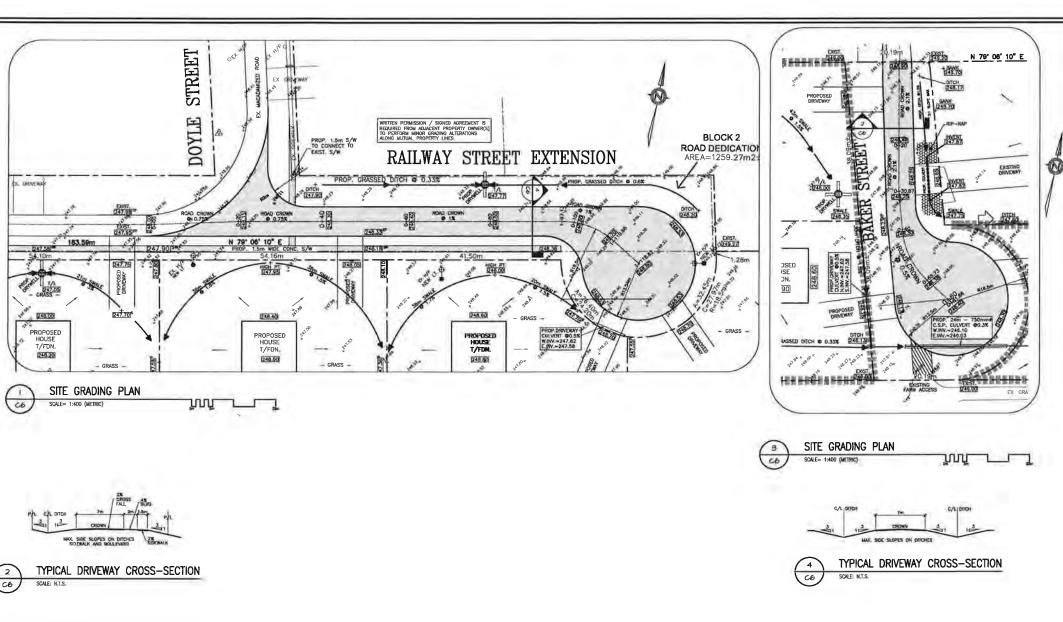
LLOYD WOOD

#32 NIXON ROAD (NORFOLK COUNTY ROAD 25)
WINDHAM CENTRE

PLANTING PLAN

AS SHOWN 15640/7251 K.P.B./R.M. R.W.P./Z.L.

MAY 2017 C5 4 FILE NAME: 7251.dwg



THE FOLLOWING DRAWINGS AND NOTES TO BE CONSIDERED PART OF THE CONSTRUCTION DRAWINGS:

ANY DISCREPANCY BETWEEN THIS DRAWING AND ACTUAL FIELD CONDITIONS WHICH MAY IMPACT WORK IS TO BE REPORTED TO P.ENGINEER.

ALL DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF SERVICE AND THE PROPERTY OF M C ENGINEERING OR CONSULTANTS WHICH MUST BE RETURNED AT THE COMPLETION OF THE WORK.

THE DRAWINGS AND SPECIFICATIONS ARE TO BE USED ONLY FOR THE PROJECT SO MOTED. REPRODUCTION OF THE DOCUMENTS IN PART OR IN WHOLE FOR ANY OTHER PURPOSE, OTHER THAN THIS PROJECT, WITHOUT THE WITHTO FORSENT OF M. E-DEGIMERMOR IS PROHIBITED. DRAWINGS ISSUED FOR GENERAL PURPOSE, REGOTATION, LEASE ETC. CARRY ALL THE ABOVE COPYRIGHT PROTECTION.

PRIMARY DIMENSIONS ARE METRIC.



PROPERTY DESCRIPTION: PART OF LOT 12 CONCESSION B, GEO. WINDHAM TOWNSHIP NORFOLK COUNTY

FIG. PROPERTY BOUNDARY INFORMATION:
THE LEGAL PROPERTY BOUNDARY INFORMATION FOR THI
DRAWING WAS BASED ON A SORWEY SKETCH P17 O.6
A9921 PREPARED AND PROVIDED BY JEWITT AND DIXON
LITO, OMNATIO LAND SURVEYORS.

SITE BENCHMARK: FLEV. 249.21 TOP OF SOUTH-WEST CORNER OF EXISTING CONSIDEWALK EAST SIDE OF DOYLE STREET.

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4	STATE I'M SUMMERON	NOV. 3rd 2022	K
3	MEANS FOR CLASH WINE	AFE. 28% 3010	
2	COURT FOR DAY! FUM SUBMISSION	OCT. 20th 2019	F
1	HENRY FOR CLICK! PRE-CONSULT	KIE DIA 2019	,
. 19	DESCRIPTION	DATE	7

DO NOT SCALE DIVIDINGS; THESE DISJURICES SHOW INTERNO OF THE DESIGN ONLY OR EXISTING CONCINCIAL AND MAY NOT REPLECT EXACT LOCATIONS.







J.H. COHOON ENGINEERING LIMITE CONSULTING ENGINEERS SHOWLERS

PROPOSED SUBDIVISION

LLOYD WOOD

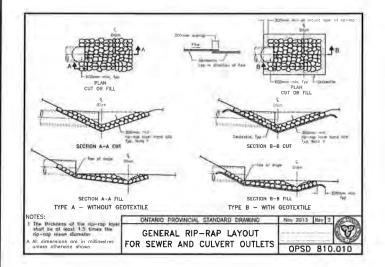
32 NIXON ROAD (NORFOLK COUNTY ROAD 25)

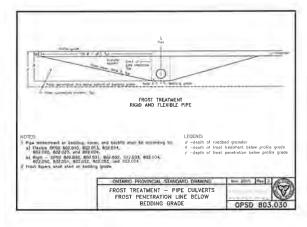
PLAN & PROFILE - RAILWAY STREET AND BAKER STREET EXTENSION

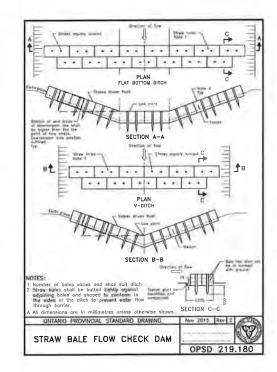
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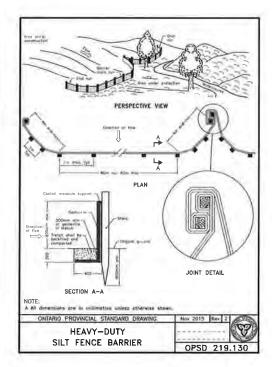
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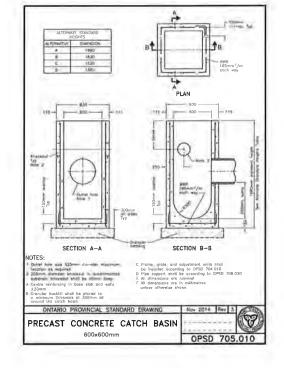


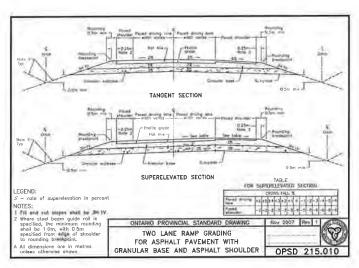






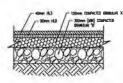






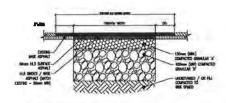


TYPICAL ROAD CROSS-SECTION





TYPICAL ASPHALT DETAIL



ROADWAY RESTORATION NOTES:

- 1 CONTRACTOR TO OBTAIN ALL NECESSARY ROAD CLIT PERMITS PRIOR TO CONSTRUCTION. CONTRACTOR TO MAINTAIN A MINIMUM OF ONE LANE OF TRAFFIC AT ALL TIMES. IF TEMPORARY ROAD CLOSURES ARE NECESSARY, THEN CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS WITH NORFOLK COUNTY.
- 3. CONTRACTOR SHALL LOCATE AND PROTECT ALL
- 4 ALL CUTS TO EXISTING ASPHALT AND CONCRETE SHALL BE CLEAN SAW CUTS ONLY.
- 5. BACKFILL FOR ALL SERVICE TRENCHES FROM EDGE OF ASPHALT TO BACK OF SIDEWALK SHALL BE GRANULAR 'A'
- 8 BACKFILL FOR ALL SERVICE TRENCHES FROM BACK OF SIDEWALK TO STREET LINE SHALL BE SELECT NATIVE MATERIAL.
- 7 ALL BEDDING AND BACKFILL SHALL BE COMPACTED TO MIN 98% SPMOD
- 8. CURBS AND SUBDRAINS SHALL BE RESTORED TO MATCH EXISTING CONDITIONS TO THE SATISFACTION OF MORPOLK COUNTY.



TYPICAL ROAD RESTORATION DETAIL

PROPOSED CATCH BASH AND DOTWELL

-TOP OF GANTE AT ELEMINOR AS PER DAWNIG

-DECAME MAD REBAYE ESSING SOIL AND REPLACE WITH GRAVEL LAYER AS MOCATED.

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BOTTOM OF GANALAR LAYER, AN BOOM TOP OF GRAVE.

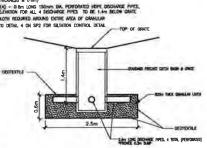
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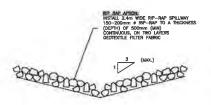
-TOPA OF GRAVE.

REFER TO DETAIL 4 ON SP2 FOR SILATION CONTROL DETAIL.





TYPICAL DRYWELL DETAIL SCALE= N.T.S.





TYPICAL RIP-RAP DETAIL

THE FOLLOWING DRAWINGS AND HOTES TO BE CONSIDERED A

CONTRACTOR MUST VERIFY ALL JOB DIMENSIONS ALL DRAWINGS, DETAILS AND SPECIFICATIONS, AND REPORT ANY DISCREPANCIES TO ENGINEER BEFORE PROCEEDING WITH THE WORK.

- ANY DISCREPANCY BETWEEN THIS DRAWING AND ACTUAL FIELD CONDITIONS WHICH MAY IMPACT WORK IS TO BE REPORTED TO P.ENGINEER.
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DO NOT SCALE DIMININGS; THESE DIMININGS SHOW INTENT OF THE DESIGN ONLY OR EXISTING CONDITIONS AND MAY NOT REFLECT EXACT LOCATIONS.





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PROPOSED SUBDIVISION LLOYD WOOD

#32 NIXON ROAD (NORFOLK COUNTY ROAD 25)
WINDHAM CENTRE

DETAIL PAGE

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SIDEWALK EAST SIDE OF DOYLE STREET.



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J.H. COHOON ENGINEERING LIMITED CONSULTING ENGINEERS

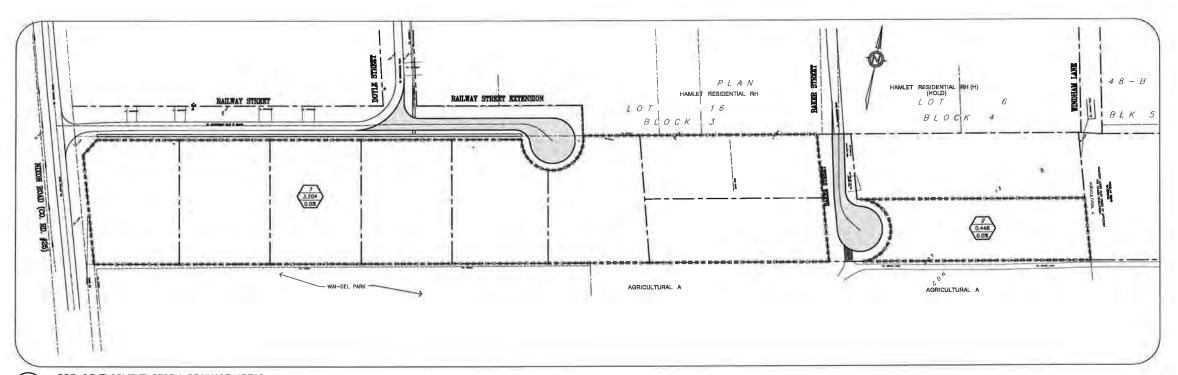
PROPOSED SUBDIVISION

LLOYD WOOD

\$32 NIXON ROAD (NORFOLK COUNTY ROAD 25) WINDHAM CENTRE

PRE-DEVELOPMENT STORM DRAINAGE AREAS

AS SHOWN 15640/7251 K.P.B. R.W.P. FEB 2023 C8 0



PRE-DEVELOPMENT STORM DRAINAGE AREAS

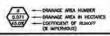
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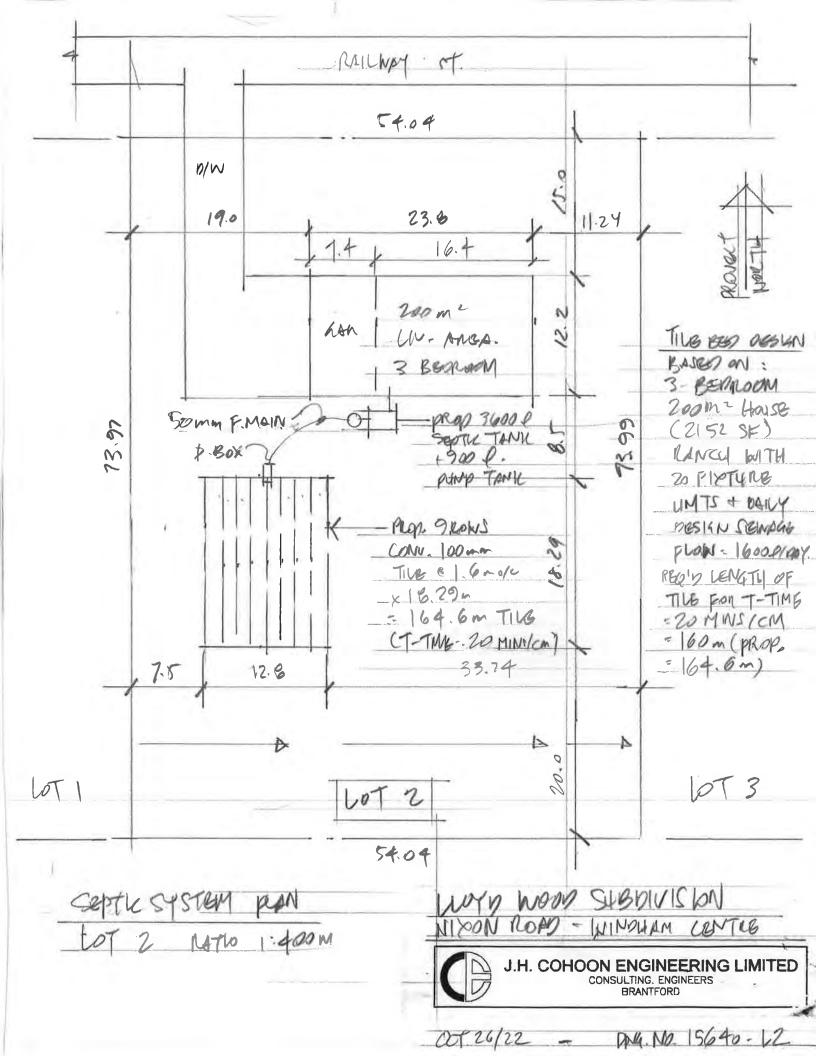
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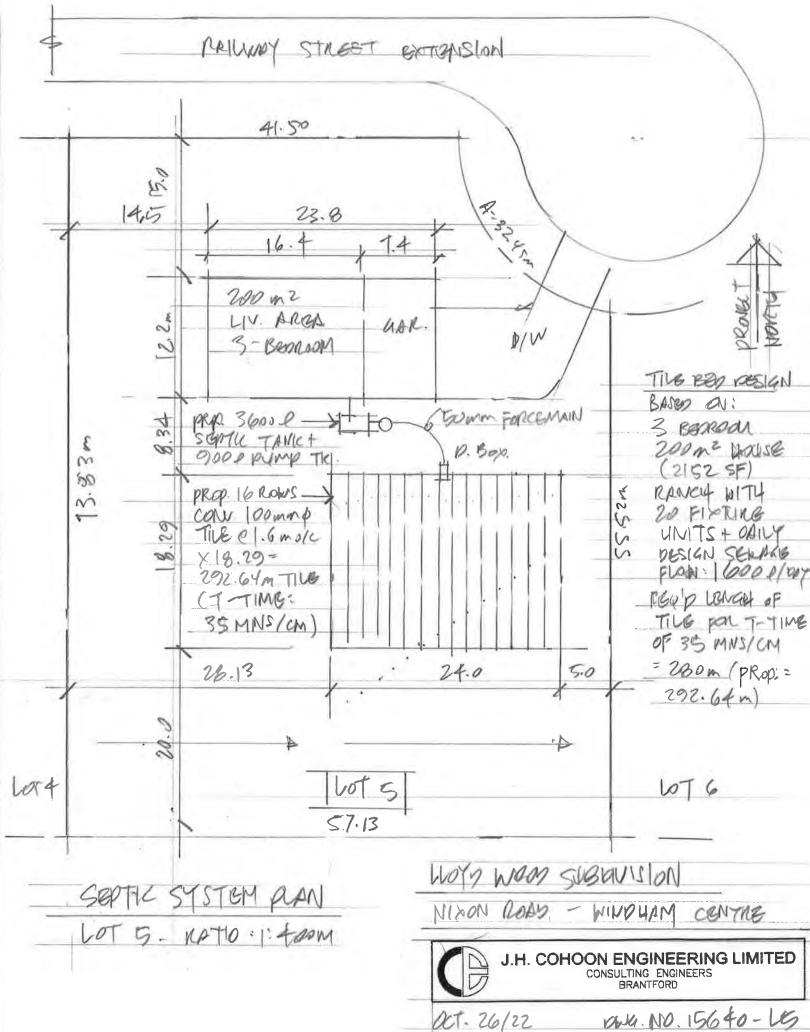
EXISTING CONTOURS AT 1m VERTICAL INTERVALS



Feb 2023

Appendix 'C'
Typical Lot and Septic Designs for Lot 2 and Lot 5
As prepared by J H Cohoon Engineering Limited





DULL NO. 15640- LG

Feb 2023

Appendix 'D'
Proposed Geotechnical Investigation
T-Time and Infiltration Analysis
as prepared by Englobe Inc. dated August 17, 2022



August 17, 2022

Lloyd Wood C/O Landpro Planning Solutions 707 E Main Street Welland, Ontario, N3T 5L8

Subject:

Lot Severance - T-Time and Infiltration Assessment

25 Bakers Street, Windham Centre, ON

Englobe reference: OC.04-02205818-GE-L-0001-01

Dear Sir:

Englobe Corp. (Englobe) is pleased to provide this letter with the results of percolation time and infiltration assessment for the proposed lot severance at 25 Bakers Street in Windham Centre, ON. The project involves the severance of a property and creating ten new residential lots. Each new lot will be serviced with a private onsite sewage system and lots 1 to 3 will have infiltration galleries.

The purpose of the geotechnical investigation is to determine the subsurface soil and groundwater conditions at the proposed septic bed and infiltration gallery locations and provide recommended T times for use in designing the on site sewage system at each new lot and estimated infiltration rates for use in designing the infiltration galleries.

The fieldwork for the assignment was carried out on June 27, 2022 and involved the excavation of twelve test pits (Test Pit TP-01-22 and TP-12-22) to depths of 1.8 to 3.0 m at the locations shown on Drawing 1, appended.

1. Fieldwork

The test pits were advanced with a tracked hydraulic excavator supplied by Mr. Lloyd Wood. Soil samples were recovered from the test pit at select intervals. Groundwater observations were carried out in the open test pits during and upon completion of excavating. The observations are provided on the test pit logs, appended. Upon completion of excavating, the test pits were backfilled with on-site soil.

The fieldwork was monitored by an experienced Engineering Technician who was also responsible for sampling.

The test pits locations and ground surface elevations were surveyed by Englobe. The test pit locations were provided in the field by Mr. Lloyd Wood and it is understood that the locations represent the location of the proposed septic beds and infiltration galleries. The ground surface elevations are referred to the following temporary benchmark (TBM):

TBM: Nail set in the asphalt at the intersection of Nixon Road and Railway Street.

Elevation 100.00 m (local datum).

2. Summarized Conditions

The soil conditions, at the proposed septic beds and infiltration galleries (Test Pit TP-01-22 to TP-12-22) typically comprise a surficial layer of fill overlying native sand and silt deposits that range in composition from sand with trace to some silt and gravel to silt and sand with trace to some gravel and clay. The fill extended to the termination depth of test pits TP-11-22 and TP-12-22.

Groundwater was encountered in test pits TP-02-22, TP-05-22 and TP-10-22 at depths of 1.2 to 1.4 m. It is noteworthy that the soils were observed to be wet in most test pits at depths of 1.5 to 2.5 m. The groundwater conditions at the site may vary locally due to seasonal fluctuations, groundwater regimes at the site or as a consequence of construction activities at the site or adjacent sites.

Twelve soil samples from the test pits excavated were submitted to Englobe's laboratory for particle size analyses and the results are provided on Figures 1 to 12, appended and summarized in Table 1:

Table 1: Summary of Granular Particle Size Analyses

Test Pit Number	Depth (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
TP-01-22 (Sa1)	1.6	0.8	83.2	8.2	7.8
TP-02-22 (Sa1)	0.2	1.0	44.8	39.9	14.3
TP-03-22 (Sa3)	1.5	17.9	38.5	33.1	10.5
TP-04-22 (Sa1)	0.8	0	56.5	35.5	8.0
TP-05-22 (Sa1)	0.7	14	64.1	18.1	3.8
TP-06-22 (Sa2)	1.6	17.9	45.3	33.2	3.6
TP-07-22 (Sa3)	1.5	0	50.9	36.1	13.0
TP-08-22 (Sa2)	0.9	2.0	36.1	53.9	8.0
TP-09-22 (Sa2)	1.3	7.8	44.1	42.2	5.9
TP10-22 (Sa3)	1.6	2.7	53.3	40.4	3.6
TP-11-22 (Sa2)	1.0	14.3	44.8	34.1	6.8
TP-12-22 (Sa2)	1.0	19.2	61.8	14.4	4.6

3. Recommendations

The house lots at this site will be serviced by individual on-site sewage systems. The subgrade soil within the proposed septic beds as shown on Drawing 1, will comprise native sand and silt. The results of nine particle size analyses carried out on samples of the native sand and silt are plotted on Figures 4 to 12, Appended and summarized in Table 1.

The percolation rate of the soil deposits at the tile bed locations were assessed based on the physical characteristics encountered during the subsurface investigation (i.e. structure, density, organics, etc.); and the soil type as described by the Unified Soil Classification System in Supplementary Standard SB-6 of the OBC. Soil classifications and recommended 'T'-times for leaching bed design based on the subsurface conditions encountered are provided in the following table:

Table 2: Soil Classifications and 'T'-Times

Test Pit Number	Location	Sample Depth (m)	Soil Classification	Percolation Time Range (min/cm)	Recommended 'T'-Time (min/cm)
TP-04-22	Lot 1	0.8	SM-SC	8-50	25
TP-05-22	Lot 2	0.7	SM	8-20	20
TP-06-22	Lot 3	1.6	SM-SC	8-50	25
TP-07-22	Lot 4	1.5	SM-SC	8-50	30
TP-08-22	Lot 5	0.9	ML	20-50	35
TP-09-22	Lot 6	1.3	SM-SC	8-50	35
TP-10-22	Lot 7	1.6	SM-SC	8-50	35
TP-11-22	Lot 8	1.0	SM-SC	8-50	30
TP-12-22	Lot 10	1.0	SM	8-20	20

Infiltration galleries are proposed for the front of lots 1 to 3 (TP-01-22 to TP-03-22). The hydraulic conductivities of the grain size distribution sample was assessed using those of the 15 available methods implemented in the spreadsheet "HydrogeoSieveXL ver. 2.2", J.F. Devlin, University of Kansas, 2015, for which the samples in question met acceptance criteria. The calculated hydraulic conductivity of samples 1 to 3 is 10⁻³ to 10⁻⁴ cm/sec, corresponding to a factored infiltration rate of 20 to 30 mm/hr. It is noteworthy that groundwater seepage was encountered at a depth of 1.2 m in test pit TP-02-22 and this will impact the ability of the soil to infiltrate.

The estimated design infiltration rates are based on recommendations found in "Low Impact Development Stormwater Management Planning and Design Guide, Appendix C" published by the Toronto and Region Conservation Authority (TRCA) and the Credit Valley Conservation Authority (CVC), and the approximate relationship between hydraulic conductivity and infiltration rate. It should be noted that hydraulic conductivity and infiltration rate are distinct concepts and such, unit conversion does not apply.

Geological conditions are innately variable. Information about the subsurface stratigraphy is only available at discrete test pit locations at the time of report preparation. To develop recommendations from the available information, it is necessary to make some assumptions concerning conditions at the site. Adequate inspection should be provided during construction to check that these assumptions are reasonable.

It is the responsibility of the designer to and to carry out field inspections at the time of sewage system and infiltration gallery installation to confirm that the soil and groundwater conditions are consistent with the design assumptions.

We trust that this information is suitable for your immediate requirements. If you have any questions regarding the information presented, please do not hesitate to contact our office.

Yours very truly,

Yours very truly,

Englobe Corp.

Thom Staples, C.E.T.

Senior Project Manager

Brantford Area Manager

Rob Helwig, P.Geo., QP.

Senior Geoscientist

London Operations

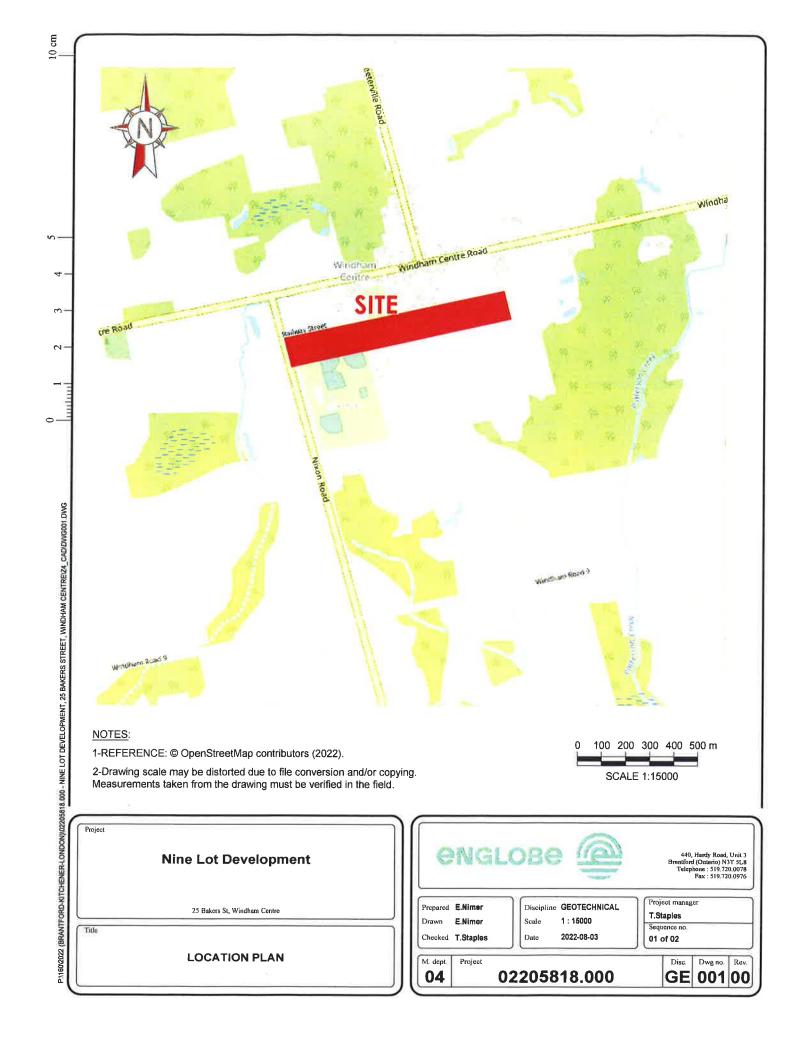
Encl. Test Pit Plan

Encl. Drawing 1 - Test Pit Location Plan

Encl. Test Pit Log - TP-01-22 to TP-12-22

Encl. Figures 1 to 12 - Particle Size Analyses







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Upon Completion	none	none

Project No	02205818.000								DRAW				09	-
Project:	Nine Lot Development			_					_ s	Sheet N	lo	_	of _	-
ocation:	25 Bakers Street, Windha	m Centre	_	-		_		_			_	_		_
oate Drilled	6/27/2022		1	Split Spoo Auger Sal SPT (N) V Dynamic (nple alue			Atterber	Moisture (g Limits ed Triaxia		F		X -○ 0 15 ⊕5	
atum:	CL Intersection of Nixon R	Rd and Rail	wa	Shelby Tu Yn St Vane Tes	be ength by		•s	Shear S	n at Failure strength by meter Tes	1			10	
SY MBO	SOIL DESCRIPTION	ELEV,	DEPTH	Star 20 Shear S		netration T	est N Val	Nat Atlert	tural Moist berg Limits	ure Conte	ent % Veight)	SAZP-IES	Ø=Ω=@	
FILL		99.62	H 0	50		00 1	50 20				30		8 Z	
	d , some silt	-											\$S-0°	1
Grey	d, silt, trace of gravel and clay	98.62	1									3	SS-02	2
			2											
Wet		97.32										©	SS-03	3
		96.62												
	Terminated at 3.0 m		3											

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

	AP. I CD. I														
roject:	Nine Lot Development		_							-	Sheet N	lo. 🖃	1_	of _	_
ocation:	25 Bakers Street, Windha	m Centre			_										
			_	Split Spoor		е	\boxtimes								
ate Drilled	6/27/2022			Auger Sam SPT (N) Va					Natural Atterber		Content			× ⊸	
rill Type:				Dynamic C	one Tes	st			Undrain	ed Triaxi				0	
atum:	CL Intersection of Nixon R	d and Rail	wa	Shelby Tub	e wath by				% Strair Shear S	n at Failu trenath b			1	10	
			4.5	Vane Test	igiti by		♣ S		Penetro						
S		ELEV.	P	Stand	ard Per	etration T	est N Val	ue					SA	SmB	1
M B O	SOIL DESCRIPTION	m m	DHPLH	Shear Str		0 6	0 8	kPa	Nat Attert	tural Mois berg Limi	ture Conte ts (% Dry V	ent % Veight)	war ogse	Walto-e Zo	
S FILL		99,25	0	50	10	00 1	50 2	00	1111	20	40 1	50	Š	_	-
	d, some gravel, some silt				##	Hiii							2	SS-01	1
W Wols					::::	1111				lii ii	-::::	14444	+		
					÷i.				4114	44	-	14444	4		
							4414		1		-		-		
		-			111		411	HH				1	4		
					144		-	-idii			1	1	4		
				11111		*!!			****			4	$\ \ $		
				4	iii.	0110	.;;;;;;		414	1111		4444	+		
				44.14.	ij.	÷idi.	444	-1-14-1-	444	-(44)	++144	14.14			1
Grev	to black, some organics	98.25	1	*****	#	1111	1111	1111	1111		11111	1111	1000		1
Mois				*****	iii.	444		444	4114	-1444		4414	0	SS-02	1
				501000	441	ėldė.	4	-ideb	40.10			0010	+		1
				30100	Ņį.	4144		-1-1-0-1-	÷ (-)-;-		44144	4416			
				30134	444	41.14	4444		41.14	.141.1	4.1.4	4414	$\ \ $		1
-		4	ľ			-	₩	***	###			1	1		
SAN	D	97.65		*****	441.	41.14		444	41.14		-4444		(0)		
Silty	sand, trace of gravel and clay n, very moist			4444	444	4144		41.14		-4144	4414	03	\$5-03	1
Biow	ini, very moist								4144	444	4444		$\ \ $		l
						+	4414		+++++			4444	$\ \ $		l
		-	2	11111		1111	1111		1111	1111	1111		\parallel		l
		100				+	1111		###	446	++++	H	1		
Sand	I, some gravel, some silt	97.05	ľ		+++		4444	HH		444		4444	cin.	SS-04	l
Brow						****	++++		4114	-1411	+++++		1	SS-04	
					144	HH	466	***	Hiii		Hiii		-		1
% +		-					1111			1111	11111		1		
					144	###	iii iii	4444	###	444	+	1111	1		
			10	*****	17:14	1111	deli.	dish	###		4	4414			
			V			***		4444	*		+++++	1111	1		
				Seidel	H	4114	4411	1	inii:		eliki.	2513	$\ \ $		
2000	Terminated at 3.0 m	96.25	9	!!!!!	H		****	444	HH	1111	Hill	1111	+	Щ	1
	,							HIII				1111			

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	2 4	none

Project No.	02205818.000 Nine Lot Development			IULE NO). <u>IP-</u>	DRAWING No.	E	Enç 11	glob
Project:						Sheet No.	1	of	1
Location:	25 Bakers Street, Windham (Centre							
Date Drilled	6/27/2022		_	Split Spoon Sample Auger Sample SPT (N) Value Dynamic Cone Test		Natural Moisture Content Atterberg Limits Undrained Triaxial at	<u> </u>	×	
Datum:	CL Intersection of Nixon Rd a	ind Rail	wa	Challes Titles	•s	Strain at Failure Shear Strength by Penetrometer Test		15 () 5 10	
SY M BOL	SOIL DESCRIPTION	ELEV. m 99.45	DEPT C	Slandard Penetration T 20 40 6 Shear Strength 50 100 15		Natural Moisture Content % Atterberg Limits (% Dry Weight) 20 40 60	SAZE-IES	ozen-e Zo	Natural Unit Weight kN/m
Sand	d, some silt, trace of gravel wn, moist d, some gravel, trace of clay brown, moist el and cobbles, with rootlets sh, very moist	98.75	1 2	50 100 1	30 200	20 40 60	8 (C)	\$ SS-02	
	Terminated at 3.0 m	96.45	3-				fundamental de la companya de la com		

CLASSIFICATION LOG 02205818 GPJ LOG A GWGL02 GDT 8/3/22

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none

Project:	Nine Lot Development										3h	. 7			_
Project:	Nine Lot Development	0 - 1								- 8	Sheet N	o1	_ (of _	1
ocation:	25 Bakers Street, Windham	Centre	_		_	-			_					_	_
			-		oon Samp	ole	\boxtimes								
ate Drilled:	6/27/2022			Auger S SPT (N)					Natural I Atterber	Moisture : a Limits	Content	-		X ⊕	
rill Type:				Dynamic	Cone Te	st	-		Undraine	ed Triaxia			1!	0 5 () 5	
atum:	CL Intersection of Nixon Rd	and Rail	wa	Shelby T	Tube trenath b	,				at Failur trength b				10	
				Vane Te	st		⊕ S		Penetro	meter Tes	st				
S		ELEV	P	Sta			Test N Va						S	Saco	Ī
SYMBO.	SOIL DESCRIPTION	m	DWPTH	Shear	20 Strength	40	60 (kPa	Nat Attert	ural Moisi erg Limit	lure Conte s (% Dry V	nt % Veight)	SCEO_HUN	ගැලිය—ම Za	
XXX FILL		99.59	0	1111	1::::	100 1	50 2	00 T : : : :	11111	0		0		_	1
Sand Mois	d, some silt, trace to some gravel		1	4114	Hill			Hiii.			-1141		02	88-01	l
WI WIOIS	OL CONTRACTOR OF THE CONTRACTO			1	1	1				144		1			1
\bowtie						1				11111			1		1
		-1	4	1111		1									
		4		1111	liiii	11111						IIII	11		1
		1				11111	1111		1111						
₩					ļļii.										
\bowtie				1111								1111			
XX										iiiii					J
XX _			1	liii		Lilli									
<u></u>	· 	98.49													
Sand Brov	d, some gravel, some silt, trace of clay												003	SS-02	1
XX									11111						1
XX															1
												1111			
						IIII									1
XX		97.89		3 441.3						Hill					١
Grey	rish, very moist								1111						
XX															
XX				1111								1111			
**		7	2		Hiii	liiii			iiii	1111		1111			
XX				1111	titti	Hiii	11111	YIII	THE						
XX				1111	Titi:	Hilli	iiiii:					1115			
XX				Hill					11111	1111		titi.			
XX				1111					****	1111	titi	****			
		-			iiiii					1111					
XX				****	ridei:				1111	1111		1111			
XX				1111					****			****			
With	organics	96.79		1011	-iiiii				÷+;÷.		4	****	sin	20.5-	
Grey	105 July 1			1111	Hiri	riiir		1046	÷1-1-			1414.	8	68-03	
XXX	Terminated at 3.0 m	96.59	-0-		HH	HH		-	1111	1111	1111			_	_
R 1 1				2111	3311	2111	1111	13.00	4:::	1111	4.434	1111			

Time	Water Level (m)	Depth to Cave (m)
Upon Completion	none	none



ABANUMBRE S-504 SAMPLE ID: Total FIRST 22 Sumpleed SAMPLE DEPTH: SLem		2: 22205840 000			LS-602, 7								
Part Direct Dir	PROJECT NUMBER:		PROJECT NAME:	Nine Lot Dev	elopments - 25 t	Bakers Stree	it, Windhan	n Centre	CLIENT	Land	dpro Planning So	lutions Inc.	_
PARTICLE SIZE DISTRIBUTION, NTO DS-702	LAB NUMBER:	S-504	SAMPLE ID:	_	Test Pit 01-	22, Sample#	H		SAMPLI	E DEPTH:	1.6	m	
	SAMPLED BY:		Client	DAT	E RECEIVED:		June 29, 20	022	DATE CO	MPLETED:	July 6,	2022	
				PAR	TICLE SIZE DI	STRIBUTIO	N MTO LS	2-702					
Part			U.S. BUREAU OF S	SOILS CLASSIFICATION	ON (AS USED IN	MINISTRY OF	F TRANSPO	RTATION OF	FONTARIO PAY	EMENT DESIGNS)			
TRYSHOP TRYS		CLAY		VERY FIR	INE THE OLDER	MEDIUM	COARSE	FINE			VEL		
190.0 190.			PIETE AUT A CLAY)	U					THE PART SAND	THE CHAVEL	COAPS	· · · · · · · · · · · · · · · · · · ·	7
99.9 90.0 90.0 90.0 90.0 90.0 90.0 90.0			totalous a service	-							-		1
98.0 98.0 98.0 98.0 98.0 98.0 98.0 98.0	100.0			6	Sty. O'S.	0.75° 0.	ab o	\$8°	2016	May Chan dear 25	49 49 4 42 A	de State	100
No. No.							-						
100 100						/							
Solid Soli						//	111		111				1
Deb Deb	9 70,0		1111			1	+++		111	11111			+
10.0 10.0	4SSI					1	111	-	111				-
Deb Deb	50.0				111 /	1	1111		1				
Deb Deb	8 GE CE												
Dec Day Day													
10.0													
Dec Dec	0 1 1 1						1111						1
0.001 0.1 10 10 10 10 10	10.0	+++	++			-	111		+++				+
Data			0.01							10			Щ
D80 0.235 D30 0.136 D10 0.009 Cc 8.900 Cu 2	Uzuvi		0.01			LE SIZE, mm		1		10			100
D60 D35 D30 D.136 D10 D.009 Cc 8.900 Cu 2													
SIEVE SIZE mm % PASSING mm % PASSING mm % PASSING mm % SAND (75 μm to 4.75 mm): 83.2	D60	0.235	D30	0.136	1			Cc	8.9	300	Cu	26.35	
SIEVE SIZE mm % PASSING mm % PASSING mm % PASSING mm % SAND (75 μm to 4.75 mm): 83.2	GRAIN SIZE A	ANALYSIS	HYDROMETE	ER ANALYSIS	7 [GRAIN SIZE P	PROPORTIONS, %	h		
Mmm	SIEVE SIZE		DIAMETER				% GRAVE						
37.5 100.0 0.020 11.0 26.5 100.0 0.017 10.8 22.4 100.0 0.010 10.2 19 100.0 0.005 9.3 13.2 100.0 0.002 7.8 9.5 100.0 0.001 5.4 6.7 99.6 4.75 99.2 2.00 98.9 0.850 98.3 0.425 93.8 0.425 93.8 0.106 20.7 Plastic Limit Plastic index		% PASSING		% PASSING							83 2		
37.5 100.0 0.020 11.0 26.5 100.0 0.017 10.8 22.4 100.0 0.010 10.2 19 100.0 0.007 9.7 16 100.0 0.005 9.3 13.2 100.0 0.002 7.8 9.5 100.0 0.001 5.4 6.7 99.6 ATTERBERG LIMITS 2.00 98.9 Liquid Limit 0.850 98.3 0.425 93.8 Plastic Limit 0.250 64.7 0.106 20.7 Plastic index Plastic Limit 7.8 SOIL DESCRIPTION: SAND, Irace Silt, trace Clar REMARKS 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	53	100 0	0 030	13.9			% SILT (2	! μm to 75 μr	m):		82		
22.4 100.0 0.010 10.2 19 100.0 0.007 9.7 16 100.0 0.005 9.3 13.2 100.0 0.001 5.4 9.5 100.0 0.001 5.4 6.7 99.6 ATTERBERG LIMITS 2.00 98.9 Liquid Limit 0.850 98.3 0.425 93.8 0.250 64.7 Plastic Limit Plastic Limit Plastic Index	1.00	100 0	0.020	11.0	1 [% CLA	¥Υ (<2 μm):		1	7.8		
22.4 100.0 0.010 10.2 19 100 0 0.007 9.7 16 100 0 0.005 9.3 13.2 100.0 0.002 7.8 9.5 100.0 0.001 5.4 6.7 99.6 4.75 99.2 2.00 98.9 Liquid Limit 0.850 98.3 0.425 93.8 0.250 64.7 0.106 20.7 Plastic Limit Plastic Index	26.5	100.0	0.017	10.8		SOIL	DESCRIP	TION!		SA	- In Irana Silt tra	- Olay	
16 100 0 0.005 9 3 13.2 100.0 0.002 7.8 9.5 100.0 0.001 5 4 6.7 99.6 4.75 99.2 2.00 98.9 0.850 98.3 0.425 93.8 0.250 64.7 0.106 20.7 Plastic Index	22.4	100.0	0.010	10 2] [00	DESOR	IIUN;		J,	ND, trace on, ac	ice Clay	
13.2 100.0 0.002 7.8 9.5 100.0 0.001 5.4 6.7 99.6 ATTERBERG LIMITS 4.75 99.2 Liquid Limit 0.850 98.3 Liquid Limit 0.425 93.8 Plastic Limit 0.250 64.7 Plastic Index	, 19	-	0 007	9 7	3 1								
9.5 100.0 0.001 5.4 6.7 99.6 ATTERBERG LIMITS 4.75 99.2 Liquid Limit 0.850 98.3 Liquid Limit 0.425 93.8 Plastic Limit 0.250 64.7 Plastic Index	16												
6.7 99.6 ATTERBERG LIMITS 4.75 99.2 2.00 98.9 Liquid Limit 0.850 98.3 0.425 93.8 Plastic Limit 0.250 64.7 Plastic Index	13.2	-			1 1								
4.75 99.2 2.00 98.9 0.850 98.3 0.425 93.8 0.250 64.7 0.106 20.7 Plastic Index	9,5	-	0.001	5 4	1 1				REA	MARKS			
4.75 99.2 2.00 98.9 Liquid Limit 0.850 98.3 0.425 93.8 0.250 64.7 0.106 20.7 Plastic Index	6.7		ATTERBE	RG LIMITS									
0.850 98.3 Liquid Limit 0.425 93.8 Plastic Limit 0.250 64.7 Plastic Index					4								
0.425 93 8 Plastic Limit 0.250 64.7 0.106 20.7 Plastic Index	7.0		Liquid Limit		1 1								
0.250 64.7 Plastic Limit 0.106 20.7 Plastic Index					4 1								
0.106 20.7 Plastic Index			Plastic Limit										
Plastic Index	- Idaa				-								
0.075			Plastic Index									_	
0.075	0.075	16.0										Fi	gure:



			RAIN SIZE AN	LS-602, 70			1313 KE	OKI		
PROJECT NUMBER:	04-02205818 000	PROJECT NAME:	Nine Lot Devel	elopments - 25 B	3akers Stree	it, Windha	m Centre	CLIENT:	Landpro Planning S	olutions Inc
LAB NUMBER:	S-505	SAMPLE ID:		Test Pit 02-2	22, Sample i	# 1		SAMPLE DEPTH:	0.	2m
SAMPLED BY:		Client	DATE	RECEIVED:		June 29, 20	9022	DATE COMPLETED	July 7	, 2022
			PART	TICLE SIZE DIS	TRIBUTIO	N, MTO L	S-702			
_								ONTARIO PAVEMENT DE	ESIGNS)	
	CLAY	SILT	VERY FINE SAND	FIITE SAITO	MEDIUM SAND	COARSE SAND	GRAVEL		GRAVEL	
		FINES (SILT & CLAY)		IFIED SOILS CL FINE SANI			M D 2487 IUM SANO	COARSE NAVO FINE C	GRAVEL COAR	SE GRAVEL
			S. S.	old older	Sull	S.S. S.	350E	3ª 3ª 3ª .	1 1 1 1 1 1 1	1 1 3
100.0			- S7	0,	0, 0	TH	101	<u>* </u>	2 3 3 3 3 3 3	1 1111
90,0										
80.0										
				1					1 2 2 2	
70,0 N				/						
60.0 EASS						111				11111
50.0					++	+H'	4			
0.00 SERCENT PASSING PROPERTY OF THE PASSING PROPERTY						111				
30.0										
		1								
20.0	-	++++								
10,0						+++			1 1	
0.0		1					lli -			
O'tof		0.01		0.1 PARTICL	E SIZE, mm		1		10	100
					FICIENTS					
D60	0.083	D30	0 039	D10	0.001		Cc	18 062	Cu	80.46
GRAIN SIZE A	NALYSIS	HYDROMETER	R ANALYSIS	1 F				GRAIN SIZE PROPORTI	ONS, %	
SIEVE SIZE	% PASSING	DIAMETER	% PASSING	1 [% GRAVE	EL (> 4.75 mi	m):	1.0	
mm	/0 F/1001110	mm	70 FAGGIITO		%	SAND (7	75 µm to 4.75	mm):	44.8	
53	100 0	0.030	23.7			% SILT (2	2 µm to 75 µn	m):	39 9	
37.5	100 0	0.020	22.9	1		% CL/	.AY (<2 μm):		14 3	
26.5	100.0	0.017	21.7	4	SOII	. DESCRIF	PTION:	S/	AND and SILT, some CI	lav trace Gravel
22.4	100 0	0.010	19 7						TIND and Oici, some 5.	ay, 11400 014101
19	100,0	0 007	18.1	1 1						
16	100 0	0 005	17.2	1 1						
13.2	100.0	0,002	14.3	4						
9,5	99.7	0 001	9.9	4 1				REMARKS		
6,7	99.5	ATTERBER	RG LIMITS							
4.75	99.0	-		4						
2.00	98,3	Liquid Limit		1 1						
0.850	97.2			1						
0.425	95.5	Plastic Limit								
0 250	93.5			1						
0.106	76.6	Plastic Index		1 1						
0.075	54.2									Figure:
TESTED BY:	_	Yuwei Gu Laboratory Technician			R	EVIEWED	ВУ		Jason Taylor, B.A.Sc. nior Laboratory Technici	an



						02 & 70								
PROJECT NUMBER:	: 04-02205818 000	PROJECT NAME:	Nine Lot	Developr	ments - 25 B	akers Stre	et, Wind	ham C	Centre	CLIE	:NT: _	Landp	oro Planning Se	olutions Inc
LAB NUMBER:	S-506	SAMPLE ID:		7	Test Pit 03-2	2, Sample	#3			SAM	PLE DEPT	тн:	1.5	5m
SAMPLED BY:		Client		DATE RE	ECEIVED:		June 29), 2022	2	DATE	COMPLET	TED:	July 6	3, 2022
				PARTICI	and a bit		- MTC	71						
		U.S. BUREAU OF	I SOILS CLASSIFIC		LE SIZE DIS AS USED IN M					FONTARIO	PAVEMEN	T DESIGNS)		
	CLAY	SILT	VEF	ERY FINE SAND	FINE SAND	MEDIUM SAND		RSE	FINE GRAVEL		-	GRAVEI	L	
_				UNIFI	ED SOILS CL	LASSIFICA	TION AS	STM D	2487	T- market	1			
_		FINES (SILT & CLAY)		-	FINE SANI			EDIUM S		COARSE SAN		FINE GRAVEL		SE GRAVEL
100.0		nley		off bell	Olde	9.250 tille	and the	0350		2011	23 C)	Mr 95 de 37 de	1 4 4 A	Sall Stall
								\prod				111	1	
90,0				1111			1	111			14			1111
80.0		1111	111	111		-	1	+++		1	1	111	-	++++
70.0	-			111	-	-		+	_	1	+++			1111
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0				1111	1	~	7	111			111			
Sed IV 20.0				1111	/									
CEN				1										
				1111				111		1	111			1111
30.0	111	HH		1111			+	+++	-	+++	+++			1111
20.0			-	++++	-	-		1	-					
10.0	-	1111	$\Box\Box$	444			4	111			111			
0.0				Ш										
9.001		0.01		0	0.1				1			10		
						E SIZE, mm								
D60	0.240	D30	0.028	1	D10	FICIENTS	-	_	Cc		1 700		-	128 50
La va	UZTO	Doc	UULU	7.1	Diu .	0.002			Ct		1 708	1.1	Cu	1/0.0.
						0.002							Cu	120 00
GRAIN SIZE	ANALYSIS		TER ANALYSIS		F	0.002				GRAIN SIZ		ORTIONS, %		120 00
GRAIN SIZE	ANALYSIS % PASSING	HYDROMET DIAMETER mm	TER ANALYSIS		E			_	(> 4.75 m	GRAIN SIZ			17 9	120 00
SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING		E		SAND ((75 µ	(> 4.75 m im to 4.75	GRAIN SIZI nm); 5 mm):			17 9 38 5	120 00
SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING		E		% SAND ((75 μι Τ (2 μπ	(> 4.75 m im to 4.75 m to 76 µ	GRAIN SIZI nm); 5 mm): im):			17 9 38 5 33 1	120.00
SIEVE SIZE mm 53 37.5	% PASSING 100,0 100.0	0.030 0.020	% PASSING 31.1 26.4		E		% SAND ((75 μι Τ (2 μπ	(> 4.75 m im to 4.75	GRAIN SIZI nm); 5 mm): im):			17 9 38 5	120 00
53 37.5 26.5	% PASSING	DIAMETER mm	% PASSING		E	%	% SAND ((75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI nm); 5 mm): im):		ORTIONS, %	17 9 38 5 33 1	
53 37.5 26.5 22.4	% PASSING 100,0 100.0 100.0	0.030 0.020 0.017	% PASSING 31.1 26.4 24.9		E	%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI nm); 5 mm): im):		ORTIONS, %	17.9 38.5 33.1 10.5	
53 37.5 26.5 22.4	% PASSING 100,0 100.0 100.0 100.0	0.030 0.020 0.017 0.010	% PASSING 31.1 26.4 24.9 21.2			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI nm); 5 mm): im):		ORTIONS, %	17.9 38.5 33.1 10.5	
53 37.5 26.5 22.4 19	% PASSING 100,0 100,0 100,0 100,0 100,0 96,3	0.030 0.020 0.017 0.010 0.007	% PASSING 31.1 26.4 24.9 21.2 18.5			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI nm); 5 mm): im):		ORTIONS, %	17.9 38.5 33.1 10.5	
53 37.5 26.5 22.4	% PASSING 100,0 100,0 100,0 100,0 100,0 96,3 93,5	0.030 0.020 0.017 0.010 0.007	% PASSING 31.1 26.4 24.9 21.2 18.5 15.6			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI		Silty SAN	17.9 38.5 33.1 10.5	
53 37.5 26.5 22.4 19 16 13.2 9.5	% PASSING 100,0 100,0 100,0 100,0 100,0 96,3 93,5 92,6	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	% PASSING 31.1 26.4 24.9 21.2 18.5 15.6 10.5 6.9			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI	E PROPO	Silty SAN	17.9 38.5 33.1 10.5	
53 37.5 26.5 22.4 19 16 13.2 9.5 6.7	% PASSING 100,0 100.0 100.0 100.0 100.0 96,3 93.5 92.6 88.2	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	% PASSING 31.1 26.4 24.9 21.2 18.5 15.6 10.5			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI	E PROPO	Silty SAN	17.9 38.5 33.1 10.5	
53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75	% PASSING 100,0 100,0 100,0 100,0 100,0 96,3 93,5 92,6 88,2 84,9	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	% PASSING 31.1 26.4 24.9 21.2 18.5 15.6 10.5 6.9			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI	E PROPO	Silty SAN	17.9 38.5 33.1 10.5	
53 37.5 26.5 22.4 19 16 13.2 9.5	% PASSING 100,0 100,0 100,0 100,0 100,0 96,3 93,5 92,6 88,2 84,9 82,1	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	% PASSING 31.1 26.4 24.9 21.2 18.5 15.6 10.5 6.9			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI	E PROPO	Silty SAN	17.9 38.5 33.1 10.5	
53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850	% PASSING 100,0 100,0 100,0 100,0 100,0 96,3 93,5 92,6 88,2 84,9 82,1 76,5	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	% PASSING 31.1 26.4 24.9 21.2 18.5 15.6 10.5 6.9			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI	E PROPO	Silty SAN	17.9 38.5 33.1 10.5	
53 37 5 26 5 22 4 19 16 13 2 9 5 6 7 4 75 2 00	% PASSING 100,0 100,0 100,0 100,0 100,0 96,3 93,5 92,6 88,2 84,9 82,1 76,5 70,4	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	% PASSING 31.1 26.4 24.9 21.2 18.5 15.6 10.5 6.9			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI	E PROPO	Silty SAN	17.9 38.5 33.1 10.5	
SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850 0.425 0.250	% PASSING 100,0 100.0 100.0 100.0 96,3 93.5 92.6 88.2 84.9 82.1 76.5 70.4 65.3	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE Liquid Limit Plastic Limit	% PASSING 31.1 26.4 24.9 21.2 18.5 15.6 10.5 6.9			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI	E PROPO	Silty SAN	17.9 38.5 33.1 10.5	
\$IEVE \$IZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850 0.425	% PASSING 100,0 100,0 100,0 100,0 100,0 100,0 96,3 93,5 92,6 88,2 84,9 82,1 76,5 70,4 65,3 60,8	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	% PASSING 31.1 26.4 24.9 21.2 18.5 15.6 10.5 6.9			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI	E PROPO	Silty SAN	17.9 38.5 33.1 10.5	
\$IEVE \$IZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850 0.425 0.250 0.106	% PASSING 100,0 100,0 100,0 100,0 100,0 96,3 93,5 92,6 88,2 84,9 82,1 76,5 70,4 65,3 60,8 48,6	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE Liquid Limit Plastic Limit	% PASSING 31.1 26.4 24.9 21.2 18.5 15.6 10.5 6.9			%	% SAND (% SILT % C	(75 μι Τ (2 μπ CLAY ((> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI	E PROPO	Silty SAN	17.9 38.5 33.1 10.5	rel, some Clay
\$IEVE \$IZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850 0.425 0.250 0.106	% PASSING 100,0 100,0 100,0 100,0 100,0 96,3 93,5 92,6 88,2 84,9 82,1 76,5 70,4 65,3 60,8 48,6	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE Liquid Limit Plastic Limit	% PASSING 31.1 26.4 24.9 21.2 18.5 15.6 10.5 6.9			% SOII	% SAND (% SILT % C	(75 µi	(> 4.75 m im to 4.75 m to 76 µ (<2 µm):	GRAIN SIZI	E PROPO	Silty SAN	17.9 38.5 33.1 10.5	rel, some Clay



		G	GRAIN SIZE AN	LS-602, 7				SIS REI	PORT						
PROJECT NUMBER:	04-02205818 000	PROJECT NAME:		elopments - 25 B				Centre	CLIE	NT:	Land	doro Plannir	na Solutic	ons Inc.	
AB NUMBER:	S-507	SAMPLE ID:		Test Pit 04-2						PLE DEP		pro-	0 8m	110	
SAMPLED BY:		Client	DATI	E RECEIVED:		June 29	29, 20;	22	_	COMPLE	-	Jı	uly 7, 202	22	
Control of the Contro								-	_						=
		tre maneral Ar		TICLE SIZE DIS					20100, 110 J	Total Control					
	CLAY	U.S. BUREAU OF S	SOILS CLASSIFICATION VERY PINE SAND	ON (AS USED IN N FINE SAND	MEDIUM	I COA	ARSE	FINE	ONTARIO P.	AVEMEN	NT DESIGNS) GRAV			_	
				NIFIED SOILS CI	SAND		ASTM I	D 2487			-	- EL			
	F	FINES (SILT & CLAY)		FINESAN			MEDIUM		COARSE NAME	n	FINE GRAVEL	C	OARSE GR	AVEL	
			3	State of the last	250	S. Salar	350	S. R. S.	2.0 felt	31	1 3 3	1 2 2 3 3 4 5 h	134	golf .	6
100,0		TITL			-	1	T		1	TT	1110	10000		FILE	ΠŤ
90.0				11 /	/	111	4	-	-	111	111		11	1	11
80.0				11/	-	111	4	ļ		111			11	Щ	111
70.0				/			1								
S (O.O.				1			T								1
60.0 60.0				1		111	1	+		111	1111		1	1	+
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0				1	++	111	4	-	+++	+++	+++-	_		+++	+
40.0			11/	411		111	41			111				111	1
30,0							4								
20.0							1								m
10.0	-+++	++++		1		11	1			+++	111		1	1	1
0.0		0.01		0.1			Ш	11		Ш	111				100
V		A'A1			LE SIZE, mm	n		1			10				100
					FFICIENTS		_			_					_
D60	0.094	D30	0.055	D10	0.006			Cc		5 172		Cu		15 31	1
GRAIN SIZE	ANALYSIS	HYDROMET	ER ANALYSIS	T [_		GRAIN SIZI	F PROP	ORTIONS, %	4			_
SIEVE SIZE		DIAMETER		1		% GR	RAVEL	L (> 4.75 m							_
mm	% PASSING	mm	% PASSING		,			µm to 4.75				56	.5		_
53	100 0	0 030	13 4	1 [_	μm to 76 μι				35			
37.5	100.0	0 020	12.5	1		_		Y (<2 μm):				8.0			
26.5	100 0	0.017	12.3	1 [
22.4	100.0	0.010	11.2	1	SO	OIL DESC	JRIPT.	ION:				Silty SAND,	trace Cla	ay	
19	100 0	0 007	10 3	1 [
16	100.0	0.005	9.7	1											
13.2	100 0	0.002	8.0	1 [
9.5	100.0	0.001	5.5	1 [F	REMARK	(S				
6.7	100 0	ATTERR		1											
4.75	100.0	ATTENDE	ERG LIMITS												
2.00	99 9	Liquid Limit		1											
0.850	99.2	Liquiu Linnic		A. C.											
0.425	97 7	Plastic Limit		1											
0 250	95,3	Plastic Linit													
0 106	70.0	Plastic Index		1											
0 075	43.5	Flastio mac.		1											Figure
TESTED BY:	-	Yuwei Gu Laboratory Technician	n d			REVIEW			is provided only		Senior Lab	Taylor, B.A.S poratory Tech			



PROJECT NUMBER:	: 04-02205818 000	PROJECT NAME:	Nine Lot D	evelopments - :	25 Bakers Street	, Windham Centre	CLIENT:	Landp	ro Planning So	olutions Inc.
LAB NUMBER:	S-508	SAMPLE ID:		Test Pit	05-22, Sample #1	1	SAMPLE D			7m
SAMPLED BY:		Client	D/	ATE RECEIVED) : Jı	une 29, 2022	DATE COMP	LETED:	July 7	, 2022
			P.	ARTICLE SIZE	DISTRIBUTION	MTO 1S-702				
-		U.S. BUREAU OF	SOUS CLASSIFICAT	TION (AS USED	IN MINISTRY OF	TRANSPORTATION	OF ONTARIO PAVEN	MENT DESIGNS)		
	CLAY	SILT	VERY SAI	FINE SAI	ND MEDIUM SAND	COARSE FINE SAND GRAVE		GRAVEL	L	
	- 1	FINES (NILT & CLAY)			S CLASSIFICATI	ION ASTM D 2487 MEDIUM SAND	COARSE SASD	FINE GRAVEL	T	
		INEX (MIA) W SHARE			L. C.	11000011400000		110-100-100-100-1		SE GRAVEL
100.0				agricultural agencia	otenen out	Salar Saker	Andre Andre	3 3 3 3 3	S S S S S	Sell State
90.0									1	
								10-10	-	
80.0										11111
70,0		1111	+++			1111				++++
60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0	-				1	11111			++	+++++
50,0	-		-		XII		+++	1111		11111
40.0 ERCE				1111/	4++					11111
30,0										
20.0										
10.0		4								
0.001		0,01		0.1		1	111	10		
				PART	TICLE SIZE, mm					
730	2.275		- 107		DEFFICIENTS	T 2-	2 225	1		104
D60	0.275	D30	0.107	D10	0.018	Cc	2 235		Си	14.94
				_						
GRAIN SIZE	ANALYSIS	HYDROMET	ER ANALYSIS				GRAIN SIZE PRO)PORTIONS, %		
SIEVE SIZE	ANALYSIS % PASSING	DIAMETER	ER ANALYSIS % PASSING		_	% GRAVEL (> 4.75	mm):	OPORTIONS, %	14.0	
SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING		% 5	SAND (75 µm to 4.	mm): 75 mm):	OPORTIONS, %	64 1	
SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING		% 5	SAND (75 μm to 4. % SILT (2 μm to 75	mm): 75 mm): µm):	DPORTIONS, %	64 1 18 1	
SIEVE SIZE mm 53 37.5	% PASSING 100.0 100.0	0,030 0,020	% PASSING 11.9 10.5		% 5	SAND (75 µm to 4.	mm): 75 mm): µm):	OPORTIONS, %	64 1	
\$IEVE \$IZE mm 53 37.5 26.5	% PASSING 100.0 100.0 100.0	0.030 0.020 0.017	% PASSING 11.9 10.5 9.5		% 5	SAND (75 μm to 4. % SILT (2 μm to 75	mm): 75 mm): µm):		64 1 18 1 3.8	iravel, Irace Cla
\$IEVE \$IZE mm 53 37.5 26.5 22.4	% PASSING 100.0 100.0	0,030 0,020	% PASSING 11.9 10.5		% 5	SAND (75 μm to 4. % SILT (2 μm to 75 % CLAY (<2 μm	mm): 75 mm): µm):		64 1 18 1 3.8	ravel, trace Cla
53 37.5 26.5 22.4	% PASSING 100.0 100.0 100.0 91.7	0.030 0.020 0.017 0.010	% PASSING 11.9 10.5 9.5 7.0		% 5	SAND (75 μm to 4. % SILT (2 μm to 75 % CLAY (<2 μm	mm): 75 mm): µm):		64 1 18 1 3.8	ravel, Irace Cla
\$3 37.5 26.5 22.4 19	% PASSING 100.0 100.0 100.0 91.7 89.8	0.030 0.020 0.017 0.010 0.007	% PASSING 11.9 10.5 9.5 7.0 6.9		% 5	SAND (75 μm to 4. % SILT (2 μm to 75 % CLAY (<2 μm	mm): 75 mm): µm):		64 1 18 1 3.8	ravel, trace Cla
53 37.5 26.5 22.4	% PASSING 100.0 100.0 100.0 91.7 89.8 89.8	0.030 0.020 0.017 0.010 0.007 0.005	% PASSING 11.9 10.5 9.5 7.0 6.9 5.8		% 5	SAND (75 μm to 4. % SILT (2 μm to 75 % CLAY (<2 μm	mm): 75 mm): µm):	SAND, some	64 1 18 1 3.8	ravel, Irace Cla
\$1EVE \$1ZE mm 53 37.5 26.5 22.4 19 16 13.2	% PASSING 100.0 100.0 100.0 91.7 89.8 89.8 89.8	0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	% PASSING 11.9 10.5 9.5 7.0 6.9 5.8 3.8 2.5		% 5	SAND (75 μm to 4. % SILT (2 μm to 75 % CLAY (<2 μm	mm): 75 mm): μm):	SAND, some	64 1 18 1 3.8	ravel, Irace Cla
\$IEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5	% PASSING 100.0 100.0 100.0 91.7 89.8 89.8 89.8 89.8 88.1	0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	% PASSING 11.9 10.5 9.5 7.0 6.9 5.8 3.8		% 5	SAND (75 μm to 4. % SILT (2 μm to 75 % CLAY (<2 μm	mm): 75 mm): μm):	SAND, some	64 1 18 1 3.8	ravel, Irace Cla
\$IEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7	% PASSING 100.0 100.0 100.0 91.7 89.8 89.8 89.8 89.8 88.1 86.8	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	% PASSING 11.9 10.5 9.5 7.0 6.9 5.8 3.8 2.5		% 5	SAND (75 μm to 4. % SILT (2 μm to 75 % CLAY (<2 μm	mm): 75 mm): μm):	SAND, some	64 1 18 1 3.8	ravel, Irace Cla
\$iEVE \$iZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75	% PASSING 100.0 100.0 100.0 91.7 89.8 89.8 89.8 89.8 88.1 86.8 86.0 83.5 80.8	0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	% PASSING 11.9 10.5 9.5 7.0 6.9 5.8 3.8 2.5		% 5	SAND (75 μm to 4. % SILT (2 μm to 75 % CLAY (<2 μm	mm): 75 mm): μm):	SAND, some	64 1 18 1 3.8	ravel, Irace Cla
\$IEVE \$IZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00	% PASSING 100.0 100.0 100.0 91.7 89.8 89.8 89.8 88.1 86.8 86.0 83.5 80.8 73.8	DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	% PASSING 11.9 10.5 9.5 7.0 6.9 5.8 3.8 2.5		% 5	SAND (75 μm to 4. % SILT (2 μm to 75 % CLAY (<2 μm	mm): 75 mm): μm):	SAND, some	64 1 18 1 3.8	ravel, Irace Cla
\$IEVE \$IZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850	% PASSING 100.0 100.0 100.0 91.7 89.8 89.8 89.8 88.1 86.8 86.0 83.5 80.8 73.8 57.7	DIAMETER mm 0,030 0 020 0 017 0,010 0,007 0 005 0 002 0 001 ATTERBE	% PASSING 11.9 10.5 9.5 7.0 6.9 5.8 3.8 2.5		% 5	SAND (75 μm to 4. % SILT (2 μm to 75 % CLAY (<2 μm	mm): 75 mm): μm):	SAND, some	64 1 18 1 3.8	ravel, Irace Cla
\$IEVE \$IZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850 0.425	% PASSING 100.0 100.0 100.0 91.7 89.8 89.8 89.8 88.1 86.8 86.0 83.5 80.8 73.8	DIAMETER mm 0,030 0 020 0 017 0,010 0,007 0 005 0 002 0 001 ATTERBE	% PASSING 11.9 10.5 9.5 7.0 6.9 5.8 3.8 2.5		% 5	SAND (75 μm to 4. % SILT (2 μm to 75 % CLAY (<2 μm	mm): 75 mm): μm):	SAND, some	64 1 18 1 3.8	iravel, Irace Cla

ENGLOBE



PROJECT NUMBER	04-02205818 000	PROJECT NAME:	Nine Lot U	Developments - 25		Windham Centre	CLIENT	T: Lands	oro Planning Solu	itions Inc.
LAB NUMBER:	S-509	SAMPLE ID:		Test Pit 06-	22, Sample #3		SAMPL	E DEPTH:	1.6m	
SAMPLED BY:	J	Client	DA	ATE RECEIVED:	Jur	ne 29, 2022	DATE CO	MPLETED:	July 6, 2	022
			P	ARTICLE SIZE DI	STRIBUTION,	MTO LS-702				
_		U.S. BUREAU OF	SOILS CLASSIFICAT	TION (AS USED IN	MINISTRY OF T	RANSPORTATIO		VEMENT DESIGNS)		
	CLAY	SILT		Y FINE FINE SAND	MEDIUM SAND	COARSE FIN	E	GRAVE	BL	
	,	TNES (SILT & CLAY)		UNIFIED SOILS O		ON ASTM D 2487 MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE	Servey.
1		Distalant security				The Lead Service of				
100,0		7.1711		Satural Baseline	925th 925th	0,890	. John	3 3 3	1244	Part I
90.0										
					3.1			-		
80.0							-			
70.0					1					+
60.0				1111/	1					
¥4 LV 50.0										
0.00 PERCENT PASSING				1						
30.0										1111
20.0	-1-1-1		111		1000		-11	1111		++++
			- V	L E I I I I						The second second second second
10.0			+					4444		1111
0.0										
10.0		0.01		0.1				10		
0.0		0.01		PARTIC	LE SIZE, mm			10		
0.0	0.192	0.01 D30	0.061	PARTIC	LE SIZE, mm FFICIENTS 0.014	T Cc		10	Cu	
0.0 0.001		D30		PARTIC	FFICIENTS			368	Cu	13.67
0.0 0.001 D60 GRAIN SIZE		D30 HYDROMET	0.061 TER ANALYSIS	PARTIC	0.014	Cc	GRAIN SIZE I			
0.0 0.001		D30		COE D10	0.014 %	GC GRAVEL (> 4.	GRAIN SIZE I 75 mm):	368	17.9	
D60 GRAIN SIZE SIEVE SIZE mm	ANALYSIS	D30 HYDROMET DIAMETER	FER ANALYSIS	COE D10	0.014 % % S	Cc GRAVEL (>4. AND (75 µm to	GRAIN SIZE (75 mm): 4.75 mm):	368	17.9 45.3	
D60 GRAIN SIZE SIEVE SIZE mm 53	ANALYSIS % PASSING	D30 HYDROMET DIAMETER mm	FER ANALYSIS % PASSING	COE D10	0.014 % % S	GC GRAVEL (> 4.	GRAIN SIZE (75 mm): 4.75 mm): 75 μm):	368	17.9 45.3 33.2	
D60 GRAIN SIZE SIEVE SIZE mm 53 37.5	ANALYSIS % PASSING 100.0	D30 HYDROMET DIAMETER mm 0 030	FER ANALYSIS % PASSING	COE D10	0.014 % % S	GRAVEL (> 4. AND (75 µm to	GRAIN SIZE (75 mm): 4.75 mm): 75 μm):	368	17.9 45.3	
D60 GRAIN SIZE SIEVE SIZE mm 53 37.5 26.5	% PASSING 100.0 100.0	D30 HYDROMET DIAMETER mm 0.030 0.020	% PASSING 15.2 12.1	COE D10	% % S.	GRAVEL (> 4. AND (75 µm to	GRAIN SIZE (75 mm): 4.75 mm): 75 μm):	368 PROPORTIONS, %	17.9 45.3 33.2	13.67
10.0 0.001 D60 GRAIN SIZE SIEVE SIZE mm 53 37.5 26.5	### ANALYSIS % PASSING	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017	## PASSING 15.2 12.1 11.0	COE D10	% % S.	Cc GRAVEL (> 4. AND (75 µm to 6 SILT (2 µm to % CLAY (< 2	GRAIN SIZE (75 mm): 4.75 mm): 75 μm):	368 PROPORTIONS, %	17.9 45.3 33.2 3.6	13.67
D60 GRAIN SIZE SIEVE SIZE mm 53 37.5 26.5 22.4 19	### ANALYSIS ### ANALYSIS ### ANA	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010	### ##################################	COE D10	% % S.	Cc GRAVEL (> 4. AND (75 µm to 6 SILT (2 µm to % CLAY (< 2	GRAIN SIZE (75 mm): 4.75 mm): 75 μm):	368 PROPORTIONS, %	17.9 45.3 33.2 3.6	13.67
D60 GRAIN SIZE SIEVE SIZE mm 53 37.5 26.5 22.4 19 16	## ANALYSIS ## PASSING	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007	### ANALYSIS ### PASSING 15.2 12.1 11.0 8.6 7.3	COE D10	% % S.	Cc GRAVEL (> 4. AND (75 µm to 6 SILT (2 µm to % CLAY (< 2	GRAIN SIZE (75 mm): 4.75 mm): 75 μm):	368 PROPORTIONS, %	17.9 45.3 33.2 3.6	13.67
D60 GRAIN SIZE SIEVE SIZE mm 53 37.5 26.5 22.4 19	### ANALYSIS ### ANALYSIS ### ANA	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005	### ##################################	COE D10	% % S.	Cc GRAVEL (> 4. AND (75 µm to 6 SILT (2 µm to % CLAY (< 2	GRAIN SIZE I 75 mm): 4.75 mm): 75 μm): μm):	368 PROPORTIONS, %	17.9 45.3 33.2 3.6	13.67
D60 GRAIN SIZE SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2	### ANALYSIS ### ANALYSIS 100.0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	### ANALYSIS ### PASSING 15.2 12.1 11.0 8.6 7.3 5.9 3.6 2.4	COE D10	% % S.	Cc GRAVEL (> 4. AND (75 µm to 6 SILT (2 µm to % CLAY (< 2	GRAIN SIZE I 75 mm): 4.75 mm): 75 μm): μm):	368 PROPORTIONS, % Silty SAI	17.9 45.3 33.2 3.6	13.67
53 37.5 26.5 22.4 19 16 13.2 9.5	### ANALYSIS ### ANALYSIS 100.0 100.0 92.7 92.7 92.7 91.6 89.0 86.7	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	### ANALYSIS ### ANALYSIS ### ANALYSIS ### ANALYSIS ### 15.2 12.1 11.0 8.6 7.3 5.9 3.6	COE D10	% % S.	Cc GRAVEL (> 4. AND (75 µm to 6 SILT (2 µm to % CLAY (< 2	GRAIN SIZE I 75 mm): 4.75 mm): 75 μm): μm):	368 PROPORTIONS, % Silty SAI	17.9 45.3 33.2 3.6	13.67
53 37.5 26.5 22.4 19 16 13.2 9.5	### ANALYSIS ### ANALYSIS ### ANA	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	### ANALYSIS ### PASSING 15.2 12.1 11.0 8.6 7.3 5.9 3.6 2.4	COE D10	% % S.	Cc GRAVEL (> 4. AND (75 µm to 6 SILT (2 µm to % CLAY (< 2	GRAIN SIZE I 75 mm): 4.75 mm): 75 μm): μm):	368 PROPORTIONS, % Silty SAI	17.9 45.3 33.2 3.6	13.67
53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75	### ANALYSIS ### PASSING	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	### ANALYSIS ### PASSING 15.2 12.1 11.0 8.6 7.3 5.9 3.6 2.4	COE D10	% % S.	Cc GRAVEL (> 4. AND (75 µm to 6 SILT (2 µm to % CLAY (< 2	GRAIN SIZE I 75 mm): 4.75 mm): 75 μm): μm):	368 PROPORTIONS, % Silty SAI	17.9 45.3 33.2 3.6	13.67
D60 GRAIN SIZE SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00	### ANALYSIS ### PASSING	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	### ANALYSIS ### PASSING 15.2 12.1 11.0 8.6 7.3 5.9 3.6 2.4	COE D10	% % S.	Cc GRAVEL (> 4. AND (75 µm to 6 SILT (2 µm to % CLAY (< 2	GRAIN SIZE I 75 mm): 4.75 mm): 75 μm): μm):	368 PROPORTIONS, % Silty SAI	17.9 45.3 33.2 3.6	13.67
D60 GRAIN SIZE SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850	### ANALYSIS ### ANALYSIS ### ANA	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	### ANALYSIS ### PASSING 15.2 12.1 11.0 8.6 7.3 5.9 3.6 2.4	COE D10	% % S.	Cc GRAVEL (> 4. AND (75 µm to 6 SILT (2 µm to % CLAY (< 2	GRAIN SIZE I 75 mm): 4.75 mm): 75 μm): μm):	368 PROPORTIONS, % Silty SAI	17.9 45.3 33.2 3.6	13.67
D60 GRAIN SIZE SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850 0.425	### ANALYSIS ### PASSING	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	### ANALYSIS ### PASSING 15.2 12.1 11.0 8.6 7.3 5.9 3.6 2.4	COE D10	% % S.	Cc GRAVEL (> 4. AND (75 µm to 6 SILT (2 µm to % CLAY (< 2	GRAIN SIZE I 75 mm): 4.75 mm): 75 μm): μm):	368 PROPORTIONS, % Silty SAI	17.9 45.3 33.2 3.6	13.67



S-510	SAMPLE ID: Client U.S. BUREAU OF S SILT	DATE R PARTIC SOILS CLASSIFICATION (VERY PINE SAND UNIF	FINE SAND ME SA FIED SOILS CLASSII FINE SAND	June 2 SUTION, MTG FRY OF TRAN EDIUM CO SAND S. FICATION A	29, 2022 FO LS-702 NSFORTATION O DARSE FINE GRAVEL ASTM D 2487	CLIENT: SAMPLE D DATE COMP	DEPTH:	ro Planning Solutions Inc. 1.5m July 7, 2022
CLAY	Client U.S. BUREAU OF S	PARTIC SOILS CLASSIFICATION (VERY PINE SAND UNIF	CLE SIZE DISTRIBUTE AS USED IN MINISTRIBUTE SAND SITE OF SOILS CLASSIFIED SOILS CLASSIFIED SAND	June 2 SUTION, MT	NSPORTATION O DARSE FINE GRAVEL ASTM D 2487	DATE COMP	PLETED:	July 7, 2022
	U.S. BUREAU OF S	PARTIC SOILS CLASSIFICATION (YERY PINE SAND UNIF	CLE SIZE DISTRIBUTE AS USED IN MINISTRIBUTE SAND MENTED SOILS CLASSIFIED SOILS CLASSIFIED SAND	SUTION, MTG	NSPORTATION O DARSE FINE GRAVEL ASTM D 2487		MENT DESIGNS)	
	SILT	SOILS CLASSIFICATION (VERY FINE SAND UNIF	(AS USED IN MINIST FINE SAND MEI S/ FIED SOILS CLASSII FINE SAND	EDIUM CO. SAND SA	NSPORTATION O DARSE FINE GRAVEL ASTM D 2487	F ONTARIO PAVEM		s
	SILT	VERY FINE SAND	FINE SAND ME SA FIED SOILS CLASSII FINE SAND	EDIUM CO. SAND SA	DARSE FINE GRAVEL ASTM D 2487	F ONTARIO PAVE!		l
		UNIF	FIED SOILS CLASSII	FICATION A	ASTM D 2487		GRAVE	t
	FINES (SILT & CLAY)		FINE SAND					
		antie			MEDIUM SAND	COARSE SAND	FINE GRAVEL	COARSE GRAVEL
		00	do sign	a state		Andre Sant	12	
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0.093	D30	0.042		-	Co	15 32		- 75.7
			יוט	001				Cu 75 72
ALYSIS		ER ANALYSIS		~ ~ ~	478		OPORTIONS, %	
% PASSING	DIAMETER mm	% PASSING						
100.0		22.2						50.9
								36.1
	-		114	70	, CLAY (<2 μm):	-		13 0
				SOIL DES	CRIPTION:		Sil	ity SAND, some Clay
	-							
100,0	0.007							
100.0		15.6						
100.0	0.002	13.0	_			PEMA		
100.0	0.001	(1.1				REMA	RKS	
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	0.093 ALYSIS % PASSING 100.0 100.0 100.0 100.0	0 093 D30 ALYSIS HYDROMETE % PASSING DIAMETER mm 100 0 0.030 100 0 0.020 100 0 0.017 100 0 0.010	0 093 D30 0.042 ALYSIS HYDROMETER ANALYSIS % PASSING DIAMETER mm % PASSING 100 0 0.030 23.3 100 0 0.020 22.1 100 0 0.017 21.0 100 0 0.010 18.0	COEFFICIEN COEFFICIEN	PARTICLE SIZE, mm	PARTICLE SIZE, mm	PARTICLE SIZE, mm	PARTICLE SIZE, mm



PROJECT NUMBER:	04-02205818 000	PROJECT NAME:	Nine Lot D	evelopments - 25	Bakers Street	Windham C	Centre	CLIE	NT:	La	indpro Pl	anning S	Solution	ns Inc	
LAB NUMBER:	S-511	SAMPLE ID:		Test Pit 08-	22, Sample #2	2		SAMP	LE DEP				.9m		
SAMPLED BY:		Client	D#	ATE RECEIVED:	Jı	June 29, 2022			DATE COMPLETED:				6, 2022	2	
	PARTICLE SIZE DISTRIBUTION, MTO LS-702														
		U.S. BUREAU OF S	PA SOILS CLASSIFICAT					E ONTARIO P	AVEMEN	THESIGN	471				
	CLAY	SILT	VARV SAN	PINE FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	T OHELE	A V En.		RAVEL				
	-			UNIFIED SOILS C	LASSIFICATI	ON ASTM D	2487		-						
L	*	INES (SILT & CLAY)		FINE SAI	1	MEDIUM	SAND Ø	COARSE SAN	-	FINE GRAVE			RSE GRA	-	
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		3,01			LE SIZE, mm		1			10					
				PARTIC	LE SIZE, mm		1			10					
D60	0.072	D30	0.026	PARTIC			Cc		3.063	10	Cu			22.8	0
		D30	0.026 ER ANALYSIS	PARTIC	FICIENTS			GRAIN SIZE						22 8	0
D60 GRAIN SIZE A SIEVE SIZE	ANALYSIS	D30 HYDROMET DIAMETER	ER ANALYSIS	PARTIC	0.003	% GRAVEL	Cc	GRAIN SIZE				20		22.8	0
D60 GRAIN SIZE /		D30 HYDROMET		PARTIC	0.003		Cc > 4.75 n	GRAIN SIZE				2 0 36 1		22 8	0
D60 GRAIN SIZE A SIEVE SIZE	ANALYSIS % PASSING 100.0	D30 HYDROMET DIAMETER mm 0.030	ER ANALYSIS	PARTIC	0.003 0.003	% GRAVEL (Cc (> 4.75 m m to 4.78	GRAIN SIZE nm): 5 mm):				-		22.8	0
D60 GRAIN SIZE A SIEVE SIZE mm	% PASSING 100.0	D30 HYDROMET DIAMETER mm 0.030 0.020	% PASSING 32.0 26.4	PARTIC	0.003 0.003	% GRAVEL (Cc (> 4.75 n m to 4.75 m to 75 µ	GRAIN SIZE nm): 5 mm): ım):				36 1		22.8	0
D60 GRAIN SIZE A SIEVE SIZE mm 53	% PASSING 100.0 100.0 100.0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017	**PASSING** 32.0 26.4 24.6	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im):		DRTIONS,		36 1 53 9 8.0	avel, tra		
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4	% PASSING 100.0 100.0 100.0 100.0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010	**PASSING** 32.0 26.4 24.6 18.4	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ % CLAY	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im):		DRTIONS,	%	36 1 53 9 8.0	avel, tra		
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19	% PASSING 100.0 100.0 100.0 100.0 100.0 100.0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007	**PASSING** 32.0 26.4 24.6 18.4 14.3	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ % CLAY	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im):		DRTIONS,	%	36 1 53 9 8.0	avel, tra		
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16	% PASSING 100.0 100.0 100.0 100.0 100.0 100.0 100.0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005	**PASSING** 32.0 26.4 24.6 18.4 14.3 12.0	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ % CLAY	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im):		DRTIONS,	%	36 1 53 9 8.0	avel, tra		
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2	% PASSING 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002	**PASSING** 32.0 26.4 24.6 18.4 14.3 12.0 8.0	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ % CLAY	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im): :	PROPO	ORTIONS,	%	36 1 53 9 8.0	avel, tra		
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5	% PASSING 100.0 100.0 100.0 100.0 100.0 100.0 100.0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	**PASSING** 32.0 26.4 24.6 18.4 14.3 12.0 8.0 5.1	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ % CLAY	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im): :		ORTIONS,	%	36 1 53 9 8.0	avel, tra		
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7	**PASSING*** 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 98.5	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	**PASSING** 32.0 26.4 24.6 18.4 14.3 12.0 8.0	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ % CLAY	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im): :	PROPO	ORTIONS,	%	36 1 53 9 8.0	avel, tra		
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75	**PASSING*** **PASSING** 100.0 100.0 100.0 100.0 100.0 100.0 100.0 98.5 98.2	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	**PASSING** 32.0 26.4 24.6 18.4 14.3 12.0 8.0 5.1	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ % CLAY	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im): :	PROPO	ORTIONS,	%	36 1 53 9 8.0	avel, tra		
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7	**PASSING*** **PASSING** 100.0 100.0 100.0 100.0 100.0 100.0 100.0 98.5 98.2 98.0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	**PASSING** 32.0 26.4 24.6 18.4 14.3 12.0 8.0 5.1	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ % CLAY	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im): :	PROPO	ORTIONS,	%	36 1 53 9 8.0	avel, tra		
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00	## ANALYSIS % PASSING	D30 HYDROMET DIAMETER mm 0.030 0 020 0 017 0.010 0.007 0.005 0 002 0 001 ATTERBE	**PASSING** 32.0 26.4 24.6 18.4 14.3 12.0 8.0 5.1	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ % CLAY	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im): :	PROPO	ORTIONS,	%	36 1 53 9 8.0	avel, tra		
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850	### ANALYSIS ### PASSING	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	**PASSING** 32.0 26.4 24.6 18.4 14.3 12.0 8.0 5.1	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ % CLAY	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im): :	PROPO	ORTIONS,	%	36 1 53 9 8.0	avel, tra		
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850 0.425	**PASSING*** 100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0 98.5 98.2 98.0 96.6 95.3 93.6	D30 HYDROMET DIAMETER mm 0.030 0 020 0 017 0.010 0.007 0.005 0 002 0 001 ATTERBE	**PASSING** 32.0 26.4 24.6 18.4 14.3 12.0 8.0 5.1	PARTIC	0.003 0.003	% GRAVEL (SAND (75 µ % SILT (2 µ % CLAY	Cc (> 4.75 π m to 4.75 m to 75 μ (< 2 μm)	GRAIN SIZE nm): 5 mm): im): :	PROPO	ORTIONS,	%	36 1 53 9 8.0	avel, tra		



		GI	rain size an	ID HYDRO LS-602, 70				EPORT				
PROJECT NUMBER:	04-02205818.000	PROJECT NAME:	Nine Lot Develo	lopments - 25 Ba	Jakers Stre	et, Winc	Jham Centre	CLIENT;	Lan	ndpro Planning Solutions Inc.		
LAB NUMBER:	S-512	SAMPLE ID:		Test Pit 09-22, Sample #2					EPTH:	1,3m		
SAMPLED BY:		Client	DATE	RECEIVED:		June 29	9, 2022	DATE COMP	LETED:	July 6, 2022		
			PART	- CAR ENGE DIS	- Part of Phil	BATY						
		U.S. BUREAU OF SC	PARTI DILS CLASSIFICATION	ICLE SIZE DIST				OF ONTARIO PAVEN	UNT DESIGNS)			
	CLAY	SILT	VERY FINE SAND		MEDIUM SAND		ARSE FINE		GRAV			
						ATION AS	STM D 2487		- Paragraphy	1		
	1.81	FINES (SILT & CLAY)		FINE SAND	71	M	MEDIUM SAND	COARSESAND	FINE GRAVEL		ESE GRAVEL	
100.0			Butte	A DIROL	o Hole	ONE	0.500	20 the 35 th	JA 954 33	1 2 3 3 1 A	Stell gode	
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90,0						14		1			11111	
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0.0					All s.							
0,001		0.01		0.1 PARTICLE	E SIZE, mm		1		10		1	
					FICIENTS							
D60	0 118	D30	0.041	D10	0.007		Cc	2 094		Cu	17.53	
GRAIN SIZE AN	NALYSIS	HYDROMETER	R ANALYSIS	1 [GRAIN SIZE PRO	PORTIONS, %			
SIEVE SIZE	27 DARRING	DIAMETER				% GR/	AVEL (> 4.75			7.8		
mm	% PASSING	mm	% PASSING		9	% SAND) (75 μm to 4.7	75 mm):		44_1		
53	100.0	0.030	24 3		% SILT (2 μm to 75 μm):					42 2		
37.5	100 0	0 020	20 9			% (CLAY (<2 µm	1):		5.9		
26.5	100.0	0.017	18 6		SO	DESC	CRIPTION:		CAND an	· Oll T. Irana G	i i-e-e Cle	
22.4	100.0	0.010	13.5		301	L DESC.	RIPTION.		SAND and	id SILT, trace Gr	avel, trace Cray	
19	100 0	0.007	10 2									
16	97 9	0 005	8.8									
13.2	95.1	0.002	5.9									
9.5	94.1	0.001	3.6					REMAR	₹KS			
6.7	93.0	ATTERBERG	G LIMITS									
4.75	92.2			1								
2.00	89.1	Liquid Limit		6 1								
0.850	85.9			(]								
0.425	82.7	Plastic Limit		U = V								
0 250	78.9			(]								
0.106	58 3	Plastic Index										
0.075	48 1										Figu	
TESTED BY:		Yuwei Gu aboratory Technician		-10-6		REVIEWE		is is provided only on write	Senior Labo	Taylor, B.A.Sc. oratory Technicia	an	

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OJECT NUMBER:	UMBER: 04-02205818 000 PROJECT NAME: Nine Lot Developments - 25				25 Bakers Street, Windham Centre CLIENT:			Land	pro Planning Solu	itions Inc.
8 NUMBER:	S-513	SAMPLE ID:		Test Pit 10-2	2, Sample #3		SAMPLE	E DEPTH:	1.6п	1
MPLED BY:		Client	DA	TE RECEIVED:	June 29, 2	2022	DATE CO	MPLETED:	July 7, 2	022
			PA	RTICLE SIZE DIS	TRIBUTION, MTO L	S-702				
		U.S. BUREAU OF S			INISTRY OF TRANSP		OF ONTARIO PAV	EMENT DESIGNS)		
	CLAY	SILT	VERY F SANI	FINE SAND	MEDIUM COARSI SAND SAND	E FINE GRAVEL		GRAV	EL	
		marine and the same and			ASSIFICATION AST		Face and		T status	
		INES (SILT & CLAY)		FINE SAN		H/M SAND	COARSE SAND	FINE GRAVEL	COARSE	
100.0				St. Jah	STATE SECOND	92g	70th	5 3 3 3	2273 3	29/
90,0							+++	•		
80.0		1111				H				111
70.0						H				+-
60.0						- 11	+ + +			
50.0	-1	1111		11/		111				$\perp \downarrow \downarrow$
50.0 50.0 40.0										
30.0										
20.0		1111	XIII	fil -				111111		
10.0				Hi		-				
0.0	111					111			_ _	-1.110
						111				
0.001		0,01		0.1 PARTICL	E SIZE, mm	1		10		
		0,01		PARTICL	E SIZE, mm	1		10		
	0.126	0,01 D30	0.049	PARTICL	E SIZE, mm FICIENTS 0.014	Cc	1,3	10	Cu	8.97
0.001		D30	0.049 ER ANALYSIS	PARTICL COEF	ICIENTS					8.97
0.001 D60	ANALYSIS	D30	ER ANALYSIS	PARTICL COEF	0 014		GRAIN SIZE F	386		8,97
0.001 D60 GRAIN SIZE A		D30 HYDROMET		PARTICL COEF	O 014 GRAV	Cc	GRAIN SIZE F mm):	386		8.97
0,001 D60 GRAIN SIZE A	ANALYSIS	D30 HYDROMET DIAMETER	ER ANALYSIS	PARTICL COEF	0 014 % GRAV % SAND (7	Cc EL (> 4.75	GRAIN SIZE F mm): 75 mm):	386	2,7	8,97
0,001 D60 GRAIN SIZE A SIEVE SIZE mm	ANALYSIS % PASSING	D30 HYDROMET DIAMETER mm	ER ANALYSIS % PASSING	PARTICL COEF	% GRAV % SAND (7 % SILT (Cc EL (> 4.75 75 µm to 4.7	GRAIN SIZE F mm): 75 mm): µm):	386	2 ₇ 7	8.97
D60 GRAIN SIZE A SIEVE SIZE mm 53	% PASSING	D30 HYDROMET DIAMETER mm 0 030	ER ANALYSIS % PASSING 19.3	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):	PROPORTIONS, %	2.7 53.3 40.4 3.6	
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5	% PASSING 100 0 100 0 100 0 100 0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010	### PASSING 19.3 13.2 11.7 7.7	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):	PROPORTIONS, %	2,7 53,3 40,4	
D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5	% PASSING 100 0 100 0 100 0 100 0 100 0 100 0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007	### ##################################	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):	PROPORTIONS, %	2.7 53.3 40.4 3.6	
0,001 D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4	% PASSING 100 0 100 0 100 0 100 0 100 0 100 0 100 0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005	### ANALYSIS ### PASSING 19.3 13.2 11.7 7.7 5.5 4.8	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):	PROPORTIONS, %	2.7 53.3 40.4 3.6	
0,001 D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2	% PASSING 100 0 100 0 100 0 100 0 100 0 100 0 100 0 99 3	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002	### ANALYSIS ### ANALYSIS ### ANALYSIS ### ANALYSIS ### 19 3 13 2 11 7 7 7 5 5 4 8 3.6	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):)):	Silty SA	2.7 53.3 40.4 3.6	
0,001 D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5	% PASSING 100 0 100 0 100 0 100 0 100 0 100 0 100 0 99 3 98 9	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005	### ANALYSIS ### PASSING 19.3 13.2 11.7 7.7 5.5 4.8	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):)):	PROPORTIONS, %	2.7 53.3 40.4 3.6	
0,001 D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7	% PASSING 100 0 100 0 100 0 100 0 100 0 100 0 99 3 98 9 98 1	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	### ANALYSIS ### ANALYSIS ### ANALYSIS ### ANALYSIS ### 19 3 13 2 11 7 7 7 5 5 4 8 3.6	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):)):	Silty SA	2.7 53.3 40.4 3.6	
0,001 D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75	% PASSING 100 0 100 0 100 0 100 0 100 0 100 0 100 0 99 3 98 9 98 1 97 3	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	### REPART 193 132 117 77 55 48 3.6 24	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):)):	Silty SA	2.7 53.3 40.4 3.6	
0.001 D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00	## PASSING 100 0 100 0 100 0 100 0 100 0 100 0 100 0 99 3 98 9 98 1 97 3 93 7	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001	### REPART 193 132 117 77 55 48 3.6 24	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):)):	Silty SA	2.7 53.3 40.4 3.6	
0,001 D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850	## PASSING 100 0 100 0 100 0 100 0 100 0 100 0 100 0 99 3 98 9 98 1 97 3 93 7 90 0	D30 HYDROMET DIAMETER mm 0 030 0 020 0 017 0 010 0 007 0 0005 0 002 0 001 ATTERBE	### REPART 193 132 117 77 55 48 3.6 24	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):)):	Silty SA	2.7 53.3 40.4 3.6	
0,001 D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850 0.425	% PASSING 100 0 100 0 100 0 100 0 100 0 100 0 99 3 98 9 98 1 97 3 93 7 90 0 86 7	D30 HYDROMET DIAMETER mm 0 030 0 020 0 017 0 010 0 007 0 0005 0 002 0 001 ATTERBE	### REPART 193 132 117 77 55 48 3.6 24	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):)):	Silty SA	2.7 53.3 40.4 3.6	
0,001 D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850 0.425 0.250	% PASSING 100 0 100 0 100 0 100 0 100 0 100 0 100 0 99 3 98 9 98 1 97 3 93 7 90 0 86 7 82 0	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	### REPART 193 132 117 77 55 48 3.6 24	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):)):	Silty SA	2.7 53.3 40.4 3.6	
0.001 D60 GRAIN SIZE A SIEVE SIZE mm 53 37.5 26.5 22.4 19 16 13.2 9.5 6.7 4.75 2.00 0.850 0.425	% PASSING 100 0 100 0 100 0 100 0 100 0 100 0 99 3 98 9 98 1 97 3 93 7 90 0 86 7	D30 HYDROMET DIAMETER mm 0.030 0.020 0.017 0.010 0.007 0.005 0.002 0.001 ATTERBE	### REPART 193 132 117 77 55 48 3.6 24	PARTICL COEF	% GRAV % SAND (7 % SILT (Сс EL (> 4.75 75 µm to 4.7 (2 µm to 75 .AY (<2 µm	GRAIN SIZE F mm): 75 mm): µm):)):	Silty SA	2.7 53.3 40.4 3.6	

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		G	GRAIN SIZE AN	ID HYDRO LS-602, 7			YSIS RE	PORT				
PROJECT NUMB	ER: 04-02205818.000	.000 PROJECT NAME: Nine Lot Developments - 25 Bakers Street, Windham Centre						CLIENT:	Landpro	Planning So	olutions Ir	10
LAB NUMBER:	S-514	SAMPLE ID:		Test Pit 11-	22, Sample #	# 2		SAMPLE DEP		1.0m July 7, 2022		
SAMPLED BY:	- 1/2	Client	DATE	RECEIVED:		June 29,	2022	DATE COMPLE	TED:			
			PART	ICLE SIZE DI	STRIBUTIO	N, MTO	LS-702					
r			SOILS CLASSIFICATIO		MINISTRY O	COARS		F ONTARIO PAVEME				
CLAY		SILT	VERY FINE SAND	FINE SAND	SAND	SAND	GRAVEL	GRAVEL				
		TNES (SILT & CLAY)		FINE SAM	ND	ME	DIUM SAND	COARSE SAND	VINE GRAVEL	COARS	e Gravel	
			est	A GIRA	0750 M	54	o stall	29 35 M	AM SHE STATE	333	A DOM	more.
100.0		TIII		Π	ŤП	П	TIT -	THE	TIII	300		ПŤ
90,0										1		+++
80,0							-		111		+++	
70.0												Ш
PA.												
50.0		1111						1111	111			111
40.0 -		++++		1		+				-	1	1
30.0		444								-		Ш
20.0												
1 1						1111				1=1-	1200	Ш
10.0				1		111			111			Ш
0.001		0.03		0.1 PARTICI	LE SIZE, mm		1		10	1 -1-		100
D60	0.229	D30	0.044	-	FICIENTS			4.550	1 0			
				D10	0.005		Cc	1.553	Cı		41.	83
	IZE ANALYSIS	HYDROMET	ER ANALYSIS			0/ OBA	/E1 / - 4 E2	GRAIN SIZE PROP	ORTIONS, %	440		
SIEVE SIZE mm	% PASSING	DIAMETER mm	% PASSING	-		_	/EL (> 4.75 π					
	100.0	0.030	25 0	+ +	76		75 μm to 4.75			44.8		
53	100.0			+ +		_	(2 μm to 75 μ			34 1		
37.5	100.0	0.020	21.3	+ +		% C	LAY (<2 μm):	1		6.8	_	
26.5	95,8	0.017	14.6	1	SOIL	DESCR	IPTION:		Silty SAND	, some Grav	el, trace (Clay
22.4	92.3	0.007	11.6	+				4 4				
19	91.0	0.005	9.5	1								
16	89 9	0.002	6.8	1								
13.2	87.4	0.001	4.7	1 1				REMARK	e			
9.5	86.8	0.001	77	1				KEWAKK	.3			
6.7	85.7	ATTERBE	RG LIMITS									
4.75	83.3			1								
2.00	80.5	Liquid Limit										
0.850	73.7											
0.425	62.6	Plastic Limit										
0.250	44.7			- 1								
0.106	40.9	Plastic Index										Flaure d
0.075	10.0			ı L		-					_	Figure: 1
TESTED BY		Yuwei Gu aboratory Technician			R	EVIEWE	D BY	-	Jason Taylo Senior Laborato		an	
	8	eporling of these test result	s constitutes e testing servic	se only. Engineeri	na interpretation	or evaluati	on of test results	is provided only on written	request			

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OJECT NUMBER:	04-02205818 000	PROJECT NAME:	Nine Lot D	Developments - 25	:5 Bakers Stree	t, Wind	ham Centre	CLIENT	:	Landpro Planning Solutions Inc.			
AB NUMBER:	S-515	SAMPLE ID:		Test Pit 1	12-22, Sample #	#2		SAMPLE	E DEPTH		1.0r		
AMPLED BY:		Client	D/	ATE RECEIVED:		June 29,	3, 2022	DATE CO	MPLETE	ED:	July 7, 2022		
			P/	ARTICLE SIZE D	DISTRIBUTIO	N. MTC	1.S-702						
_			OILS CLASSIFICAT	TION (AS USED IN	IN MINISTRY OF	FTRANS	SPORTATION	OF ONTARIO PAV	/EMENT	DESIGNS)			
-	CLAY	SILT	VERY SAM	Y FINE FINE SANI	ND MEDIUM SAND	COAR	RSE FINE ND GRAVE	3		GRAVEL			
	1	FINES (SILT & CLAY)		UNIFIED SOILS			STM D 2487 REDIUM SAND	COARSE SAND	FID	NE GRAVEL	COARSE	E GILAVEL	
_		Nany		.4 .4	S.P.	A	of	11	8 6			-23	
100.0	1 1 1 1	11111		agis ofa	27 0	7	35	100	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	22 27 Feb.	30 3 3	250	
90.0				4111		1			11		1	Ш	
80.0												$\Pi \Pi'$	
						1		-				H	
70.0					1	1	111		111	1	111	1	
60.0		+		411	1	++	+++-	-	+++	++-	+++	1	
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0				411	1	++			+++	-	+	1	
40.0	3 []			411	1	1	444		111			44	
30.0													
			- [24]										
20.0				11					111				
10.0				111		1	111		111	-		1	
D60	0.385	0.01 D30	0.152		DEFFICIENTS 0 012		Cc	4.9	968	10 Cı	u	31.76	
GRAIN SIZE	ANALYSIS	HYDROMETE	R ANALYSIS					GRAIN SIZE P	POPOR				
SIEVE SIZE		DIAMETER				% GR/	AVEL (> 4.75		1	Tione,	19.2		
mm	% PASSING	MM	% PASSING			_	(75 µm to 4.				61,8		
53	100.0	0.030	12.1				T (2 µm to 75				14,4		
37.5	100 0	0 020	11 6		10.00	% (CLAY (<2 µm	m):			4.6		
26.5	90.0	0.017	11,1		SOIL	DESC	RIPTION:		-1-	CAND come	2 mal same	Cill trace	
22.4	90.0	0.010	9,5		3012	DESC.	RIPTION.			SAND, some (Gravel, some	Silt, trace c	
19	86.8	0.007	7.6										
16	85.3	0,005	6,6										
12.0	84.9	0,002	4,6	_ /									
13.2	82.7	0.001	2.9					REM	MARKS				
9,5					1								
9,5 6,7	81.9	ATTERBER	RG LIMITS		1								
9,5 6,7 4,75	81 9 80 8	ATTERBE	RG LIMITS										
9,5 6,7 4,75 2,00	81.9 80.8 78.1	ATTERBEF	RG LIMITS										
9,5 6,7 4,75 2,00 0,850	81.9 80.8 78.1 76.2		RG LIMITS										
9,5 6,7 4,75 2,00 0,850 0,425	81.9 80.8 78.1 76.2 64.5		RG LIMITS										
9.5 6.7 4.75 2.00 0.850 0.425 0.260	81.9 80.8 78.1 76.2 64.5 44.5	Liquid Limit	RG LIMITS										
9,5 6,7 4,75 2,00 0,850 0,425	81.9 80.8 78.1 76.2 64.5	Liquid Limit	RG LIMITS									Fig	

Feb 2023

Appendix 'E' Norfolk County Accreditation of Fire Protection Shuttle Service



Fire Underwriters Survey™

June 21^m, 2018

Terry Dicks
Fire Chief, CEMC
Norfolk County Fire Department
95 Culver Street
Simcoe, ON
N3Y 2V5

Re: Superior Tanker Shuttle Accreditation Effective June 15th, 2018

I am pleased to advise you that the Fire Underwriters Survey has evaluated your test results and application for accreditation to deliver Superior Tanker Shuttle Service and has determined that your fire protection district qualifies for accreditation.

Your fire protection district name has been added to the list of accredited agencies for the delivery of Superior Tanker Shuttle Services and the appropriate changes have been made to the Canadian Fire Insurance Grading Index.

Please find the enclosed certificate of accreditation and a brief letter of recognition.

As an accredited agency, constituents within your fire protection district who own detached dwellings and are within a qualifying road distance of the responding fire station (8 kilometres – DPG), are eligible to receive a significant cost reduction in their fire insurance rates from the majority of insurers in Canada. Insurers utilize the information provided by Fire Underwriters Survey in setting property insurance rates throughout Canada. Insurers are advised that Superior Tanker Shuttle Service (STSS) Accredited fire protection districts qualify for hydrant protected equivalency status, and may be rated as protected.

It should also be noted that insurers are under no obligation to accept this equivalency; however, the Fire Underwriters Survey recommends that they do so.

As the Surveyor for the province of Ontario, I must advise you that the Superior Tanker Shuttle Service (STSS) Accreditation and benefits associated with the accreditation are contingent upon the fire protection district being capable of continuously meeting the requirements of the Superior Tanker Shuttle Service delivery and being continuously able to provide evidence of such capacity upon request. Should the capacity of the fire protection district to deliver this level of service change at any time, notification should be made immediately to the offices of Fire Underwriters Survey. Fire Underwriters Survey retains the right to revoke Superior Tanker Shuttle Service (STSS) Accreditation at any time.



Fire Underwriters Survey™

The accreditation period is 5 years from the date of this letter. To maintain accreditation, the fire department must document practice of Tanker Shuttle Service; this documentation must be available for review.

Should you have any questions or concerns related to the Fire Underwriters Survey, the Superior Tanker Shuttle Service (STSS) Accreditation process or any other related area, please feel free to contact Fire Underwriters Survey for further information.

David Wilson Public Fire Protection Specialist Fire Underwriters Survey



June 21st, 2018

RECOGNITION FOR FIRE INSURANCE GRADING RECEIVED

Norfolk County Norfolk County Fire Department

Superior Tanker Shuttle Service - Accredited

I am pleased to advise you that the above mentioned fire protection district within the province of Ontario was recently registered in the fire insurance grading index as being accredited for the delivery of Superior Tanker Shuttle Service.

The requirements for this accreditation are stringent and verify that the fire protection district is capable of delivering the minimum accepted fire flows to detached dwellings throughout the fire protection district and within 8 kilometres by road of the below accredited Fire Stations. This accreditation is an equivalency to the minimum requirements for hydrant protection, as set out by the insurance industry and the Fire Underwriters Survey.

Fire Underwriters Survey has provided information on fire protection and risk levels to the insurance industry in Canada since 1883. Fire Underwriters Survey was previously operated under the auspices of the Insurers Advisory Organization and CGI; however, is now operated by SCM Opta Information Intelligence.

Should you have any questions or concerns related to the Fire Underwriters Survey, the Superior Tanker Shuttle Service Accreditation process or any other related area, please contact the offices of Fire Underwriters Survey for further information.

Please note that this accreditation expires on June 16th, 2023 and is valid for the following fire stations:

- Waterford F.S. #3 294 Main Street South, Waterford, ON NOE 1 YO
- Teeterville F.S. #4 186 Teeter Street, Teeterville, ON NOE 1S0
- Delhi F.S. #5 104 Argyle Avenue, Delhi, ON N4B 1J3
- Courtland F.S. #6 272 Main Street, Courtland, ON NOJ 1E0
- Langton F.S. #7 18 Queen Street, Langton, ON NOE 1G0
- Fairground F.S. #8 722 Regional Road 28, Clear Creek, ON NOE 1C0
- Port Rowan F.S. #9 1035 Erie Avenue, Port Rowan, ON NOE 1M0
- St. Williams F.S. #10 180 Townline Street, St. Williams, ON NOE 1P0
- Vittoria -F.S. #11 1375 Vittoria Road, Vittoria, ON NOE 1P0



Personal Lines Fire Insurance Classification - DPG 3B(S) - Flow Rate of 207 IGPM

David Wilson Public Fire Protection Specialist Fire Underwriters Survey

POWERED BY opto

AN SCM COMPANY

Western region 1-877-255-5240
Central region 1-800-268-8080

Eastern region 1-800-263-5361

fus a optaintel ca fireunderwriters ca optaintel ca

Feb 2023

Appendix 'F' Pre-Development Runoff Results

```
7.5
                MIDUSS Output ----->"
                MIDUSS version
                                                        Version 2.25 rev. 473"
**
                MIDUSS created
                                                                February-07-10"
           10
                Units used:
                                                                     ie METRIC"
**
                Job folder:
                                                           C:\swm\MIDUSS\15640"
                Output filename:
                                                                      pre5.out"
7.5
                                                                           Bob"
                Licensee name:
FF
                Company
11
                Date & Time last used:
                                                     30/06/2022 at 10:36:09 AM"
              TIME PARAMETERS"
11
                Time Step"
        10.000
**
       180.000
                Max. Storm length"
**
      1500.000
                Max. Hydrograph"
77
  32
             STORM Chicago storm"
FF
             1 Chicago storm"
**
       771.901 Coefficient A"
**
        6.241 Constant B"
**
        0.786 Exponent C"
**
         0.400 Fraction R"
**
       180.000
                Duration"
         1.000
                Time step multiplier"
7 7
             Maximum intensity
                                          82.668
                                                  mm/hr"
77
                                          38.054
              Total depth
                                                    mm''
11
                005hyd
                        Hydrograph extension used in this file"
  33
             CATCHMENT 101"
**
             2
                Rectangular"
**
            1
                Equal length"
**
            2
                Horton equation"
**
          101 No description"
77
         0.000 % Impervious"
**
        3.652 Total Area"
77
        61.610 Flow length"
ŦŦ
        1.000 Overland Slope"
FF
        3.652 Pervious Area"
7.5
        61.610 Pervious length"
7.5
         1.000 Pervious slope"
11
        0.000 Impervious Area"
ŢŢ
        61.610 Impervious length"
TF
        1.000 Impervious slope"
        0.250 Pervious Manning 'n'"
**
        30.000 Pervious Max.infiltration"
ŦŦ
        20.000 Pervious Min.infiltration"
77
         0.500 Pervious Lag constant (hours)"
FF
         7.500 Pervious Depression storage"
17
         0.015
                Impervious Manning 'n'"
"
         0.000
                Impervious Max.infiltration"
FT
         0.000
                 Impervious Min.infiltration"
77
         0.500
                Impervious Lag constant (hours)"
77
         2.000
                 Impervious Depression storage"
ŦF
                               0.000 0.000
                      0.048
                                                   0.000 c.m/sec"
              Catchment 101
                                   Pervious Impervious Total Area "
Ŧ 7
              Surface Area
                                   3.652
                                              0.000 3.652 hectare"
77
              Time of concentration 43.116
                                               4.539
                                                         43.116
                                                                    minutes"
11
                                    98.028
38.054
                                                         98.028
              Time to Centroid 98.028
                                                                    minutes"
                                               0.000
11
              Rainfall depth
                                                                    mm"
                                               38.054
                                                          38.054
FF
                                   1389.74 0.00
              Rainfall volume
                                                          1389.74
                                                                    c.m"
ŦŦ
              Rainfall losses
                                   34.651
                                               38.054
                                                          34.651
                                                                    mm"
**
                                                                     mm"
              Runoff depth
                                               0.000
                                                          3.404
                                    3.404
             Runoff volume 124.30 0.000
Runoff coefficient 0.089 0.000
ŦF
                                                          124.30
                                                                     c.m"
                                               0.000
                                                         0.089
```

o	Maximum flow	0.048	0.000	0.048	c.m/sec"
" 38	START/RE-START TOTA	LS "			
**	3 Runoff Totals on	EXIT"			
**	Total Catchment area	a		0.000	hectare"
n	Total Impervious are	ea		0.000	hectare"
**	Total % impervious			0.000"	
" 19	EXIT"				

```
MIDUSS Output ----->"
                                                         Version 2.25 rev. 473"
                 MIDUSS version
                 MIDUSS created
                                                                  February-07-10"
**
            10
                Units used:
                                                                       ie METRIC"
                 Job folder:
                                                             C:\swm\MIDUSS\15640"
11
                 Output filename:
                                                                       pre100.out"
                 Licensee name:
                                                                              Bob"
**
                 Company
                 Date & Time last used:
                                                       30/06/2022 at 10:42:50 AM"
**
              TIME PARAMETERS"
       10.000 Time Step"
**
       180.000 Max. Storm length"
      1500.000 Max. Hydrograph"
  32
             STORM Chicago storm"
11
             1 Chicago storm"
11
      1274.631 Coefficient A"
**
       7.540 Constant B"
tt
         0.796 Exponent C"
**
        0.400 Fraction R"
       180.000 Duration"
        1.000
                 Time step multiplier"
**
             Maximum intensity
                                          124.853 mm/hr"
              Total depth
                                           59.309 mm"
                 005hyd Hydrograph extension used in this file"
  33
             CATCHMENT 101"
             2 Rectangular"
**
             1 Equal length"
             2 Horton equation"
**
           101 No description"
        0.000 % Impervious"
**
        3.652 Total Area"
        61.610 Flow length"
**
        1.000 Overland Slope"
        3.652 Pervious Area"
        61.610 Pervious length"
        1.000 Pervious slope"
11
        0.000 Impervious Area"
**
        61.610 Impervious length"
        1.000 Impervious slope"
        0.250 Pervious Manning 'n'"
11
        30.000 Pervious Max.infiltration"
**
        20.000 Pervious Min.infiltration"
        0.500 Pervious Lag constant (hours)"
11
         7.500 Pervious Depression storage"
         0.015 Impervious Manning 'n'"
"
         0.000
                 Impervious Max.infiltration"
         0.000 Impervious Min.infiltration"
         0.500
                 Impervious Lag constant (hours)"
         2.000
                 Impervious Depression storage"
                      0.380 0.000 0.000
                                                     0.000 c.m/sec"
              Catchment 101
Surface Area
                                    Pervious Impervious Total Area "
**
                                     3.652 0.000 3.652 hectare"
**
              Time of concentration 24.404
                                                3.849
                                                           24.404
                                                                      minutes"
              Time to Centroid 91.008 87.856
Rainfall depth 59.309
Rainfall volume 2165.97 0.00
Rainfall losses 42.814 2.000
Runoff depth 16.496 57.309
Runoff volume 602.42 0.00
Runoff coefficient 0.278 0.000
                                                 87.856 91.008
59.309 59.309
                                                                      minutes"
                                                                       mm"
                                                           2165.98
                                                                      c.m"
                                                           42.814
                                                                       mm"
                                                            16.496
                                                                        mm"
11
                                                            602.42
                                                                        c.m"
                                                           0.278
```

		Maximum flow	0.380	0.000	0.380	c.m/sec"
**	38	START/RE-START TOTALS	, 11			
**		3 Runoff Totals on E	XIT"			
**		Total Catchment area			0.000	hectare"
**		Total Impervious area	l		0.000	hectare"
**		Total % impervious			0.000"	
**	19	EXIT"				

Feb 2023

Appendix 'G' Post-Development Runoff Results

```
FF
                 MIDUSS Output ----->"
77
                MIDUSS version
                                                        Version 2.25 rev. 473"
"
                MIDUSS created
                                                                 February-07-10"
..
           10
                Units used:
                                                                      ie METRIC"
                                                            C:\swm\MIDUSS\15640"
                 Job folder:
**
                Output filename:
                                                                       pst5.out"
,,
                                                                            Bob"
                 Licensee name:
..
                 Company
11
                                                      30/06/2022 at 11:10:33 AM"
                 Date & Time last used:
**
             TIME PARAMETERS"
  31
77
       10.000
               Time Step"
**
                Max. Storm length"
      180.000
**
      1500.000
                Max. Hydrograph"
              STORM Chicago storm"
  32
11
               Chicago storm"
            1
.
      771.901
                Coefficient A"
7.5
        6.241 Constant B"
,,
        0.786 Exponent C"
..
        0.400 Fraction R"
**
       180.000
                Duration"
**
        1.000
                Time step multiplier"
* *
             Maximum intensity
                                           82.668
* *
              Total depth
                                           38.054
                                                     mm"
* *
                005hyd Hydrograph extension used in this file"
* *
  33
             CATCHMENT 101"
ŦŦ
                Rectangular"
**
            1
                Equal length"
77
             2
                Horton equation"
11
           101 No description"
77
       10.000 % Impervious"
11
        0.091 Total Area"
11
        45.000 Flow length"
77
        1.000 Overland Slope"
77
        0.082 Pervious Area"
        45.000 Pervious length"
11
        1.000 Pervious slope"
77
        0.009 Impervious Area"
11
     45.000 Impervious length"
11
                Impervious slope"
        1.000
**
        0.250 Pervious Manning 'n'"
* *
        30.000 Pervious Max.infiltration"
FF
        20.000 Pervious Min.infiltration"
**
         0.500 Pervious Lag constant (hours)"
77
        7.500 Pervious Depression storage"
77
                Impervious Manning 'n'"
         0.015
77
                 Impervious Max.infiltration"
         0.000
**
         0.000
                Impervious Min.infiltration"
**
         0.500
                 Impervious Lag constant (hours)"
**
                 Impervious Depression storage"
         2.000
**
                      0.003 0.000
                                                    0.000 c.m/sec"
                                          0.000
11
              Catchment 101
                                    Pervious Impervious Total Area "
              Surface Area
                                    0.082
                                                0.009 0.091 hectare"
77
              Time of concentration 35.709
                                                3.759
                                                          18.435
                                                                    minutes"
             Time to Centroid 94.224
Rainfall depth 38.054
Rainfall volume 31.17
                                                88.939
                                                          91.367
                                                                      minutes"
77
                                                38.054
                                                          38.054
                                                                      mm"
"
                                                                      c.m"
                                               3.46
                                                          34.63
                                             2.000
36.054
**
              Rainfall losses
                                   34.651
                                                          31.386
                                                                     mm"
                                                        6.669
**
              Runoff depth
                                     3.404
                                                                      mm"
             Runoff volume
                                    2.79
**
                                                         6.07
                                               3.28
                                                                      c.m"
             Runoff coefficient
                                                          0.175
                                   0.089
                                              0.947
```

```
**
              Maximum flow
                                     0.001
                                               0.002
                                                          0.003
                                                                      c.m/sec"
**
              HYDROGRAPH Add Runoff "
  40
**
                 Add Runoff "
                                0.003
                                         0.000
                      0.003
                                                     0.000"
**
  56
              DIVERSION"
**
           101
                 Node number"
**
         0.000
                 Overflow threshold"
**
         1.000
                 Required diverted fraction"
**
                 Conduit type; 1=Pipe; 2=Channel"
              Peak of diverted flow
                                             0.003
                                                      c.m/sec"
**
              Volume of diverted flow
                                           6.069
              DIV00101.005hyd"
**
              Divert to Infiltrartion 0.015 cms (Drywell)"
                      0.003 0.003 0.000 0.000 c.m/sec"
* *
                           Combine 9999"
  40
              HYDROGRAPH
                 Combine "
* *
,,
          9999
                 Node #"
,,
**
              Maximum flow
                                             0.000
                                                     c.m/sec"
**
              Hydrograph volume
                                             0.000
                                                     c.m"
**
                                          0.000
                      0.003
                             0.003
                                                     0.000"
  40
              HYDROGRAPH Start - New Tributary"
                 Start - New Tributary"
**
                                                 0.000"
                      0.003
                                0.000
                                         0.000
              CATCHMENT 102"
  33
**
             2
                 Rectangular"
"
             1
                 Equal length"
77
             2
                 Horton equation"
           102
                 No description"
77
        10.000 % Impervious"
,,
        0.128 Total Area"
77
        23.647 Flow length"
77
         1.000
                 Overland Slope"
77
        0.115 Pervious Area"
77
        23.647 Pervious length"
77
         1.000 Pervious slope"
7.5
         0.013 Impervious Area"
7.5
        23.647 Impervious length"
7.7
        1.000
                 Impervious slope"
77
         0.250 Pervious Manning 'n'"
7.7
        30.000 Pervious Max.infiltration"
77
        20.000 Pervious Min.infiltration"
**
         0.500 Pervious Lag constant (hours)"
         7.500 Pervious Depression storage"
77
         0.015 Impervious Manning 'n'"
77
         0.000
                 Impervious Max.infiltration"
7.5
         0.000
                 Impervious Min.infiltration"
         0.500
                 Impervious Lag constant (hours)"
**
         2.000
                 Impervious Depression storage"
77
                      0.006
                                0.000
                                           0.000
                                                     0.000 c.m/sec"
7 F
              Catchment 102
                                     Pervious Impervious Total Area "
,,
              Surface Area
                                     0.115
                                                 0.013
                                                            0.128
                                                                    hectare"
7.5
              Time of concentration 24.272
                                                 2.555
                                                            12.531
                                                                       minutes"
7.5
              Time to Centroid
                                     88.367
                                                 88.694
                                                            88.544
                                                                       minutes"
                                     38.054
              Rainfall depth
                                                 38.054
                                                            38.054
                                                                       mm"
**
              Rainfall volume
                                     43.84
                                                 4.87
                                                            48.71
                                                                       c.m"
77
              Rainfall losses
                                      34.651
                                                 2.000
                                                            31.386
.,
              Runoff depth
                                     3.404
                                                 36.054
                                                           6.669
                                                                       mm"
              Runoff volume
                                      3.92
                                                 4.61
                                                            8.54
                                                                       c.m"
7 5
              Runoff coefficient
                                     0.089
                                                 0.947
                                                            0.175
```

```
Maximum flow
                                     0.003
                                               0.003 0.006
                                                                      c.m/sec"
11
  40
              HYDROGRAPH Add Runoff "
7 7
                 Add Runoff "
77
                      0.006
                                0.006
                                         0.000
                                                     0.000"
  56
              DIVERSION"
**
           102
                 Node number"
**
         0.000
                 Overflow threshold"
**
         1.000
                 Required diverted fraction"
                 Conduit type; 1=Pipe;2=Channel"
FF
              Peak of diverted flow
                                                      c.m/sec"
                                             0.006
              Volume of diverted flow
                                             8.536
                                                      c.m"
**
              DIV00102.005hyd"
**
              Divert to Infiltraation 0.015 cms (drywell)"
,,
                      0.006 0.000 0.000 c.m/sec"
11
  40
              HYDROGRAPH Combine 9999"
* *
                 Combine "
11
          9999
                 Node #"
**
11
              Maximum flow
                                             0.000
                                                     c.m/sec"
77
                                             0.000
                                                     c.m"
              Hydrograph volume
**
                      0.006
                             0.006
                                          0.000
                                                     0.000"
  40
              HYDROGRAPH Start - New Tributary"
* *
                 Start - New Tributary"
**
                      0.006
                                0.000
                                        0.000
                                                   0.000"
              CATCHMENT 103"
  33
ŦŦ
             2
                 Rectangular"
* *
             1
                 Equal length"
77
             2
                 Horton equation"
* *
           103
                 No description"
**
        10.000 % Impervious"
**
        0.102 Total Area"
**
        18.844 Flow length"
**
        1.000 Overland Slope"
**
        0.092 Pervious Area"
**
        18.844 Pervious length"
**
         1.000 Pervious slope"
**
         0.010 Impervious Area"
**
        18.844 Impervious length"
**
         1.000 Impervious slope"
**
         0.250 Pervious Manning 'n'"
        30.000
                 Pervious Max.infiltration"
**
        20.000 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"
**
         0.500
                 Impervious Lag constant (hours)"
**
         2.000
                 Impervious Depression storage"
* *
                      0.005
                                0.000
                                           0.000
                                                     0.000 c.m/sec"
**
              Catchment 103
                                     Pervious Impervious Total Area "
FF
              Surface Area
                                      0.092
                                                 0.010
                                                            0.102
                                                                       hectare"
* *
              Time of concentration 21.181
                                                 2.230
                                                            10.935
                                                                       minutes"
77
              Time to Centroid
                                     86.486
                                                 88.694
                                                            87.680
                                                                       minutes"
* *
              Rainfall depth
                                     38.054
                                                 38.054
                                                            38.054
                                                                       mm"
              Rainfall volume
                                     34.93
                                                 3.88
                                                            38.82
                                                                       c.m"
**
                                                                       mm"
              Rainfall losses
                                     34.651
                                                 2.000
                                                            31.386
Ŧ 7
              Runoff depth
                                     3.404
                                                 36.054
                                                           6.669
**
              Runoff volume
                                      3.12
                                                 3.68
                                                            6.80
                                                                       c.m"
              Runoff coefficient
                                     0.089
                                                 0.947
                                                            0.175
```

```
0.002
             Maximum flow
                                              0.002
                                                         0.005
             HYDROGRAPH Add Runoff "
 40
                Add Runoff "
"
                                        0.000
                      0.005
                               0.005
                                                   0.000"
             DIVERSION"
  56
11
                Node number"
          103
        0.006
                Overflow threshold"
**
        1.000
                Required diverted fraction"
**
                Conduit type; 1=Pipe;2=Channel"
"
             Peak of diverted flow
                                           0.000
                                                    c.m/sec"
             Volume of diverted flow
                                           0.000
                                                     c.m"
**
             DIV00103.005hyd"
**
             Divert to Infiltration 0.006 cms (Drywell)"
11
                     0.005 0.005 0.005
                                                 0.000 c.m/sec"
  40
             HYDROGRAPH Combine 9999"
**
                Combine "
             6
"
          9999
                Node #"
**
**
             Maximum flow
                                            0.005
                                                    c.m/sec"
**
                                            6.802
                                                    c.m"
             Hydrograph volume
"
                      0.005
                               0.005
                                         0.005
                                                    0.005"
  40
             HYDROGRAPH Start - New Tributary"
**
                Start - New Tributary"
"
                     0.005
                                0.000
                                          0.005
                                                   0.005"
  33
             CATCHMENT 106"
                Rectangular"
11
            1
                Equal length"
11
             2
                Horton equation"
**
          106
                No description"
       10.000
                % Impervious"
11
        0.071
                Total Area"
**
       38.172 Flow length"
"
        1.000 Overland Slope"
"
        0.064 Pervious Area"
11
       38.172 Pervious length"
11
        1.000 Pervious slope"
"
        0.007 Impervious Area"
"
       38.172
                Impervious length"
**
        1.000
                Impervious slope"
11
        0.250 Pervious Manning 'n'"
       30.000
                Pervious Max.infiltration"
**
        20.000 Pervious Min.infiltration"
"
        0.500 Pervious Lag constant (hours)"
**
                Pervious Depression storage"
        7.500
                Impervious Manning 'n'"
        0.015
11
        0.000
                Impervious Max.infiltration"
**
        0.000
                Impervious Min.infiltration"
**
        0.500
                 Impervious Lag constant (hours)"
**
                 Impervious Depression storage"
        2.000
**
                                       0.005
                                0.000
                      0.003
                                                    0.005 c.m/sec"
"
                                                Impervious Total Area "
             Catchment 106
                                     Pervious
"
             Surface Area
                                     0.064
                                                           0.071
                                                0.007
                                                                      hectare"
It
             Time of concentration 32.351
                                                3.405
                                                           16.702
                                                                     minutes"
**
             Time to Centroid 92.394
                                                88.818
                                                          90.461
                                                                     minutes"
**
             Rainfall depth
                                     38.054
                                                38.054
                                                           38.054
                                                                     mm"
             Rainfall volume
                                     24.32
                                                2.70
                                                           27.02
                                                                      c.m"
"
             Rainfall losses
                                     34.651
                                                2.000
                                                           31.386
                                                                      mm"
**
             Runoff depth
                                     3.404
                                                36.054
                                                          6.669
                                                                     mm"
11
             Runoff volume
                                                          4.73
                                     2.17
                                                2.56
                                                                      c.m"
**
             Runoff coefficient
                                     0.089
                                                0.947
                                                           0.175
```

```
0.001 0.002 0.003
              Maximum flow
                                                                     c.m/sec"
              HYDROGRAPH Add Runoff "
  40
77
                 Add Runoff "
11
                      0.003
                                0.003
                                          0.005
                                                    0.005"
**
  51
              PIPE DESIGN"
11
         0.003
               Current peak flow c.m/sec"
**
                Manning 'n'"
         0.013
**
         1.000
                 Diameter metre"
11
         1.000
                 Gradient
**
              Depth of flow
                                            0.026
                                                     metre"
FF
              Velocity
                                            0.506
                                                     m/sec"
,,
                                           2.398
              Pipe capacity
                                                     c.m/sec"
,,
              Critical depth
                                            0.028
                                                     metre"
**
  53
              ROUTE Zero Route"
* *
                 Zero Route Reach length ( metre)"
**
                      0.003 0.003 0.005 c.m/sec"
  40
              HYDROGRAPH Combine 9999"
**
                 Combine "
             6
FF
          9999
                 Node #"
**
              Maximum flow
                                            0.008
                                                    c.m/sec"
11
              Hydrograph volume
                                           11.537
                                                     c.m"
**
                      0.003
                            0.003
                                                    0.008"
                                          0.003
  40
             HYDROGRAPH Start - New Tributary"
77
                 Start - New Tributary"
77
                                0.000
                                          0.003
                                                  0.008"
                      0.003
FF
             CATCHMENT 107"
  33
ŦŦ
                 Rectangular"
             2
**
             1
                 Equal length"
**
             2 Horton equation"
**
           107 No description"
        10.000 % Impervious"
77
        0.200
                Total Area"
77
        38.241
                Flow length"
77
        1.000
                Overland Slope"
**
        0.180 Pervious Area"
77
        38.241 Pervious length"
77
        1.000 Pervious slope"
77
        0.020 Impervious Area"
7.5
        38.241 Impervious length"
7 F
        1.000 Impervious slope"
77
        0.250 Pervious Manning 'n'"
11
        30.000 Pervious Max.infiltration"
11
       20.000 Pervious Min.infiltration"
7.7
         0.500 Pervious Lag constant (hours)"
77
         7.500
                Pervious Depression storage"
,,
         0.015
                 Impervious Manning 'n'"
11
         0.000
                 Impervious Max.infiltration"
77
         0.000
                 Impervious Min.infiltration"
**
         0.500
                 Impervious Lag constant (hours)"
77
         2.000
                 Impervious Depression storage"
11
                      0.008 0.000 0.003
                                                    0.008 c.m/sec"
**
                                                Impervious Total Area
              Catchment 107
                                     Pervious
* *
              Surface Area
                                     0.180
                                                0.020
                                                        0.200 hectare"
**
              Time of concentration 32.386
                                                3.409
                                                           16.720
                                                                     minutes"
**
              Time to Centroid 92.415
                                                88.819
                                                          90.471
**
              Rainfall depth
                                    38.054
                                                38.054
                                                           38.054
                                                                      mm"
ft
              Rainfall volume
                                    68.50
                                                7.61
                                                           76.11
                                                                      c.m"
                                     34.651
**
              Rainfall losses
                                                2.000
                                                           31.386
                                                                      mm"
ŦŦ
              Runoff depth
                                                36.054
                                     3.404
                                                           6.669
                                                                      mm"
```

```
11
              Runoff volume
                                     6.13
                                                7.21
                                                            13.34
                                                                       c.m"
**
              Runoff coefficient
                                     0.089
                                               0.947
                                                            0.175
,,
              Maximum flow
                                                                      c.m/sec"
                                     0.003
                                                0.005
                                                            0.008
  40
              HYDROGRAPH Add Runoff "
* *
             4 Add Runoff "
                      0.008
                                          0.003
                               0.008
                                                     0.008"
              DIVERSION"
  56
**
           107 Node number"
11
         0.000 Overflow threshold"
7 7
         1.000 Required diverted fraction"
**
             0 Conduit type; 1=Pipe;2=Channel"
11
              Peak of diverted flow 0.008
                                                      c.m/sec"
77
              Volume of diverted flow 13.338
                                                     c.m"
              DIV00107.005hyd"
77
              Divert to Infiltration 0.015 cms (Drywell)"
11
                      0.008 0.008 0.000 0.008 c.m/sec"
**
              HYDROGRAPH Combine 9999"
  40
• •
             6 Combine "
11
          9999
                 Node #"
ŦŦ
77
              Maximum flow
                                            0.008
                                                   c.m/sec"
**
              Hydrograph volume
                                                     c.m"
                                            11.537
**
                      0.008 0.008
                                           0.000
                                                     0.008"
              HYDROGRAPH Start - New Tributary"
  40
             2 Start - New Tributary"
**
                      0.008
                              0.000
                                          0.000
                                                   0.008"
11
              CATCHMENT 110"
  33
**
             2
                 Rectangular"
             1
                 Equal length"
ŦŦ
             2 Horton equation"
79
           110 No description"
**
        10.000 % Impervious"
        0.448 Total Area"
**
        35.848 Flow length"
* *
        1.000 Overland Slope"
* *
        0.403 Pervious Area"
**
        35.848 Pervious length"
.
        1.000 Pervious slope"
**
         0.045 Impervious Area"
ŦŦ
        35.848 Impervious length"
**
         1.000 Impervious slope"
* *
         0.250 Pervious Manning 'n'"
**
        30.000 Pervious Max.infiltration"
        20.000 Pervious Min.infiltration"
**
         0.500 Pervious Lag constant (hours)"
**
         7.500 Pervious Depression storage"
**
                 Impervious Manning 'n'"
         0.015
# #
         0.000 Impervious Max.infiltration"
ŦŦ
         0.000 Impervious Min.infiltration"
77
         0.500
                 Impervious Lag constant (hours)"
77
         2.000
                 Impervious Depression storage"
77
                      0.018 0.000 0.000
                                                     0.008 c.m/sec"
**
              Catchment 110
                                     Pervious Impervious Total Area "
77
              Surface Area
                                    0.403
                                                 0.045
                                                          0.448 hectare"
11
                                                            16.084
              Time of concentration 31.155
                                                 3.280
                                                                      minutes"
                                                            90.098 minutes"
              Time to Centroid 91.651
Rainfall depth 38.054
Rainfall volume 153.43
Rainfall losses 34.651
7.7
                                                 88.779
ŦŦ
                                                                       mm"
                                                 38.054
                                                           38.054
7.5
                                                17.05
                                                            170.48
                                                                       c.m"
                                                 2.000
                                                            31.386
                                                                       mm"
11
              Runoff depth
                                     3.404
                                                 36.054
                                                            6.669
                                                                       mm"
```

```
77
             Runoff volume
                                    13.72
                                               16.15
                                                          29.88
                                                                     c.m"
11
             Runoff coefficient
                                               0.947
                                                          0.175
                                                                     77
                                    0.089
11
             Maximum flow
                                    0.007
                                               0.010
                                                          0.018
                                                                     c.m/sec"
             HYDROGRAPH Add Runoff "
  40
**
                Add Runoff "
"
                                         0.000
                     0.018
                               0.018
                                                  0.008"
11
             PIPE DESIGN"
  51
77
         0.018 Current peak flow c.m/sec"
**
                Manning 'n'"
         0.013
71
         1.000
                Diameter metre"
                Gradient
77
         1.000
             Depth of flow
                                           0.061
                                                    metre"
**
             Velocity
                                           0.892
                                                    m/sec"
**
             Pipe capacity
                                           2.398
                                                    c.m/sec"
**
             Critical depth
                                           0.072
                                                    metre"
FF
             ROUTE Zero Route"
  53
11
         0.00
                Zero Route Reach length ( metre)"
77
                     HYDROGRAPH Combine 999"
  40
**
             6
                Combine "
**
           999
                Node #"
**
**
             Maximum flow
                                           0.018
                                                   c.m/sec"
**
             Hydrograph volume
                                          29.876
                                                    c.m"
                     0.018 0.018
                                                   0.018"
                                         0.018
  40
             HYDROGRAPH Start - New Tributary"
* *
                Start - New Tributary"
11
                     0.018
                                0.000
                                         0.018
                                                   0.018"
             CATCHMENT 199"
  33
77
             2
                Rectangular"
71
                Equal length"
**
            2 Horton equation"
**
          199 No description"
**
        10.000 % Impervious"
**
        2.612 Total Area"
**
        44.064 Flow length"
**
        1.000 Overland Slope"
**
        2.351 Pervious Area"
17
        44.064 Pervious length"
**
        1.000 Pervious slope"
0.261 Impervious Area"
**
77
        44.064 Impervious length"
77
        1.000 Impervious slope"
**
         0.250 Pervious Manning 'n'"
**
        30.000 Pervious Max.infiltration"
**
        20.000 Pervious Min.infiltration"
..
         0.500 Pervious Lag constant (hours)"
,,
         7.500 Pervious Depression storage"
77
         0.015 Impervious Manning 'n'"
**
         0.000
                Impervious Max.infiltration"
77
         0.000
                Impervious Min.infiltration"
**
         0.500
                Impervious Lag constant (hours)"
FF
                Impervious Depression storage"
         2.000
**
                      0.097
                             0.000 0.018
                                                   0.018 c.m/sec"
**
              Catchment 199
                                    Pervious Impervious Total Area "
**
              Surface Area
                                     2.351 0.261
                                                       2.612
                                                                     hectare"
**
              Time of concentration 35.261
                                               3.712
                                                          18.204
                                                                     minutes"
**
              Time to Centroid 93.999
                                                88.921
                                                          91.254
                                                                     minutes"
              Rainfall depth
                                     38.054
                                                38.054
                                                          38.054
                                                                     mm"
             Rainfall volume
                                     894.58
                                                99.40
                                                          993.98
                                                                     c.m"
```

```
      Rainfall losses
      34.651
      2.000
      31.386

      Runoff depth
      3.404
      36.054
      6.669

      Runoff volume
      80.01
      94.17
      174.19

      Runoff coefficient
      0.089
      0.947
      0.175

                                                                                               mm"
                  Runoff depth 3.404 36.054 6.669
Runoff volume 80.01 94.17 174.19
Runoff coefficient 0.089 0.947 0.175
Maximum flow 0.038 0.060 0.097
                                                                                             mm"
77
                                                                                             c.m"
**
                                                                                             c.m/sec"
                 HYDROGRAPH Add Runoff "
  40
FF
               4 Add Runoff "
                            0.097 0.097 0.018 0.018"
**
            PIPE DESIGN"
  51
**
            0.097 Current peak flow c.m/sec"
**
            0.013 Manning 'n'"
            1.000 Diameter metre"
            1.000 Gradient %"
                Depth of flow
                                                          0.138 metre"
**
                  Velocity
                                                          1.496 m/sec"
                  Pipe capacity
Critical depth
                                                          2.398 c.m/sec"
0.172 metre"
**
                 ROUTE Zero Route"
  53
FF
             0.00 Zero Route Reach length ( metre)"
                       0.097 0.097 0.097 0.018 c.m/sec"
**
                 HYDROGRAPH Combine 999"
  40
**
                 6 Combine "
**
              999 Node #"
                      **
                Hydrograph volume 204.064 c.m"

0.097 0.097 0.097 0.115"

HYDROGRAPH Confluence 999"

7 Confluence "
FF
                                                         0.115 c.m/sec"
FF
FT
               7 Confluence "
**
**
              999 Node #"

      Maximum flow
      0.115
      c.m/sec"

      Hydrograph volume
      204.064
      c.m"

      0.097
      0.115
      0.097
      0.000"

FF
**
            PIPE DESIGN"
  51
**
            0.115 Current peak flow c.m/sec"
FF
            0.013 Manning 'n'"
**
            1.000 Diameter metre"
            1.000 Gradient %"
**
                                                         0.149 metre"
                 Depth of flow
**
                  Velocity
                                                          1.571 m/sec"
                  Pipe capacity
**
                                                          2.398 c.m/sec"
0.187 metre"
                  Critical depth
**
                 ROUTE Zero Route"
   53
**
             0.00 Zero Route Reach length (metre)"
**
                      0.097 0.115 0.115 0.000 c.m/sec"
                  HYDROGRAPH Combine 9999"
   40
**
                6 Combine "
**
             9999 Node #"

      Maximum flow
      0.123
      c.m/s

      Hydrograph volume
      215.601
      c.m"

      0.097
      0.115
      0.115
      0.123"

      HYDROGRAPH Confluence
      9999"

11
                 Maximum flow
                                                         0.123 c.m/sec"
77
**
  40
              7 Confluence "
**
**
            9999 Node #"
7.7
                   Maximum flow
                                                          0.123 c.m/sec"
                  Hydrograph volume
**
                                                       215.601 c.m"
                             0.097 0.123 0.115 0.000"
```

```
" 52
          CHANNEL DESIGN"
        0.123 Current peak flow c.m/sec"
        0.040 Manning 'n'"
        0. Cross-section type: 0=trapezoidal; 1=general"
        0.600 Basewidth metre"
        3.000 Left bank slope"
        3.000 Right bank slope"
        0.450 Channel depth metre"
        0.300 Gradient %"
            Depth of flow
                                       0.241 metre"
0.386 m/sec"
            Velocity
            Channel capacity
                                       0.483 c.m/sec"
0.130 metre"
            Critical depth
**
 53
            ROUTE Channel Route 450"
       450.00 Channel Route 450 Reach length (metre)"
**
       0.415 X-factor <= 0.5"
      436.628 K-lag ( seconds)"
er.
       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"
**
      600.000 Routing time step ( seconds)"
**
           2 No. of sub-reaches"
**
            Peak outflow
                                       0.109 c.m/sec"
                    0.097 0.123 0.109 0.000 c.m/sec"
  40
            HYDROGRAPH Next link "
**
            5 Next link "
m
                  0.097 0.109 0.109 0.000"
            DIVERSION"
         9999 Node number"
**
        0.052 Overflow threshold"
        1.000 Required diverted fraction"
           O Conduit type; 1=Pipe; 2=Channel"
            Peak of diverted flow 0.057 c.m/sec"
            Volume of diverted flow 44.935 c.m"
            DIV09999.005hyd"
11
            Divert to Infiltrration Gallery 44.935 cu.m. (45)"
                  0.097 0.109 0.052 0.000 c.m/sec"
  40
            HYDROGRAPH Next link "
"
            5 Next link "
                    0.097
                            0.052 0.052 0.000"
 38
           START/RE-START TOTALS 999"
          3 Runoff Totals on EXIT"
**
           Total Catchment area
                                                    3.652
                                                           hectare"
           Total Impervious area
                                                    0.365
                                                            hectare"
            Total % impervious
                                                   10.000"
" 19
           EXIT"
```

```
**
                  MIDUSS Output ---->"
11
                                                             Version 2.25 rev. 473"
                  MIDUSS version
"
                  MIDUSS created
                                                                      February-07-10"
**
             10 Units used:
                                                                           ie METRIC"
**
                                                                C:\swm\MIDUSS\15640"
                  Job folder:
**
                  Output filename:
                                                                          pst100.out"
11
                  Licensee name:
                                                                                  Bob"
**
                  Company
**
                  Date & Time last used:
                                                          30/06/2022 at 10:52:24 AM"
11
               TIME PARAMETERS"
**
       10.000 Time Step"
**
       180.000 Max. Storm length"
      1500.000 Max. Hydrograph"
**
  32
              STORM Chicago storm"
11
              1 Chicago storm"
"
      1274.631 Coefficient A"
**
        7.540 Constant B"
11
         0.796 Exponent C"
**
         0.400 Fraction R"
**
       180.000 Duration"
"
         1.000
                  Time step multiplier"
ff
              Maximum intensity
                                            124.853 mm/hr"
11
               Total depth
                                             59.309 mm"
11
                  005hyd Hydrograph extension used in this file"
11
  33
              CATCHMENT 101"
11
              2 Rectangular"
**
             1 Equal length"
11
              2
                Horton equation"
**
           101 No description"
11
        10.000 % Impervious"
11
        0.091 Total Area"
        45.000 Flow length"
11
         1.000 Overland Slope"
"
         0.082 Pervious Area"
**
        45.000 Pervious length"
11
         1.000 Pervious slope"
11
         0.009 Impervious Area"
**
        45.000 Impervious length"
**
         1.000 Impervious slope"
**
         0.250 Pervious Manning 'n'"
**
        30.000 Pervious Max.infiltration"
11
        20.000 Pervious Min.infiltration"
11
         0.500 Pervious Lag constant (hours)"
**
         7.500 Pervious Depression storage"
**
         0.015 Impervious Manning 'n'"
**
                  Impervious Max.infiltration"
         0.000
         0.000
                  Impervious Min.infiltration"
"
         0.500
                  Impervious Lag constant (hours)"
         2.000
                  Impervious Depression storage"
**
                       0.013 0.000 0.000
                                                      0.000 c.m/sec"
                                       Pervious Impervious Total Area "
               Catchment 101
**
               Surface Area
                                      0.082
                                                   0.009 0.091 hectare"
               Time of concentration 20.212
                                                  3.187
                                                              15.470
                                                                          minutes"
              Time to Centroid 88.195 87.637 88.039
Rainfall depth 59.309 59.309
Rainfall volume 48.57 5.40 53.97
Rainfall losses 42.814 2.000 38.732
Runoff depth 16.496 57.309 20.577
Runoff volume 13.51 5.22 18.73
Runoff coefficient 0.278 0.966 0.347
                                                                         minutes"
**
"
                                                                          c.m"
11
                                                                          mm"
11
                                                                          mm''
Ħ
                                                                           c.m"
**
```

```
0.010
                                                 0.003 0.013
              Maximum flow
                                                                      c.m/sec"
              HYDROGRAPH Add Runoff "
 40
*
                 Add Runoff "
**
                                           0.000
                      0.013
                                0.013
                                                     0.000"
  56
              DIVERSION"
11
           101
                 Node number"
"
                 Overflow threshold"
         0.000
**
         1.000
                 Required diverted fraction"
**
                 Conduit type; 1=Pipe;2=Channel"
              Peak of diverted flow
                                            0.013
                                                      c.m/sec"
**
              Volume of diverted flow
                                            18.725
**
              DIV00101.005hyd"
**
              Divert to Infiltrartion 0.015 cms (Drywell)"
                      0.013 0.000 0.000 c.m/sec"
"
                                    9999"
  40
              HYDROGRAPH
                           Combine
**
                 Combine "
FF
                 Node #"
          9999
"
77
              Maximum flow
                                             0.000
                                                      c.m/sec"
**
                                                      c.m"
              Hydrograph volume
                                             0.000
                      0.013
                             0.013
                                           0.000
                                                     0.000"
**
  40
              HYDROGRAPH Start - New Tributary"
11
                 Start - New Tributary"
11
                      0.013
                                                     0.000"
                                 0.000
                                           0.000
  33
             CATCHMENT 102"
77
                 Rectangular"
             2
"
             1
                 Equal length"
**
             2
                 Horton equation"
"
           102 No description"
**
        10.000 % Impervious"
**
        0.128
                 Total Area"
        23.647
                 Flow length"
**
         1.000
               Overland Slope"
**
        0.115
                 Pervious Area"
**
        23.647 Pervious length"
         1.000 Pervious slope"
FF
         0.013 Impervious Area"
**
        23.647 Impervious length"
**
         1.000
                 Impervious slope"
**
         0.250
                 Pervious Manning 'n'"
**
        30.000 Pervious Max.infiltration"
**
        20.000 Pervious Min.infiltration"
ŦŦ
         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"
**
         0.500
                 Impervious Lag constant (hours)"
**
         2.000
                 Impervious Depression storage"
77
                                 0.000
                                           0.000
                      0.024
                                                     0.000 c.m/sec"
              Catchment 102
                                      Pervious
                                                 Impervious Total Area "
**
              Surface Area
                                      0.115
                                                 0.013
                                                           0.128
                                                                     hectare"
77
              Time of concentration 13.739
                                                 2.167
                                                             10.516
                                                                        minutes"
11
              Time to Centroid
                                      85.202
                                                                        minutes"
                                                 87.566
                                                            85.861
              Rainfall depth
                                      59.309
                                                             59.309
                                                 59.309
                                                                        mm"
**
              Rainfall volume
                                      68.32
                                                 7.59
                                                             75.92
                                                                        c.m"
ŦŦ
              Rainfall losses
                                      42.814
                                                 2.000
                                                             38.732
**
                                                 57.309
                                                             20.577
                                                                        mm"
              Runoff depth
                                      16.496
77
              Runoff volume
                                                 7.34
                                                             26.34
                                      19.00
                                                                        c.m"
**
              Runoff coefficient
                                      0.278
                                                 0.966
                                                             0.347
```

```
**
                                      0.020
              Maximum flow
                                                 0.004
                                                           0.024
                                                                      c.m/sec"
**
  40
              HYDROGRAPH Add Runoff "
11
                 Add Runoff "
"
                                           0.000
                      0.024
                                0.024
                                                     0.000"
**
  56
              DIVERSION"
**
           102
                 Node number"
**
         0.009
                 Overflow threshold"
11
         1.000
                 Required diverted fraction"
**
                 Conduit type; 1=Pipe;2=Channel"
**
                                                      c.m/sec"
              Peak of diverted flow
                                             0.015
"
              Volume of diverted flow
                                             9.827
**
              DIV00102.005hyd"
**
              Divert to Infiltraation 0.015 cms (drywell)"
11
                      0.024 0.009 0.000 c.m/sec"
11
                                      9999"
  40
              HYDROGRAPH Combine
**
                 Combine "
11
          9999
                 Node #"
**
              Maximum flow
                                             0.009
                                                     c.m/sec"
**
              Hydrograph volume
                                            16.511
                                                      c.m"
**
                      0.024
                             0.024
                                           0.009
                                                     0.009"
"
  40
              HYDROGRAPH Start - New Tributary"
11
                 Start - New Tributary"
**
                      0.024
                                 0.000
                                         0.009
                                                     0.009"
              CATCHMENT 103"
  33
**
             2
                 Rectangular"
"
             1
                 Equal length"
**
             2
                 Horton equation"
**
           103
                 No description"
**
        10.000
                 % Impervious"
"
                 Total Area"
        0.102
11
        18.844 Flow length"
11
         1.000
                 Overland Slope"
"
         0.092 Pervious Area"
"
        18.844 Pervious length"
**
         1.000 Pervious slope"
         0.010 Impervious Area"
**
        18.844 Impervious length"
**
         1.000
                 Impervious slope"
11
         0.250 Pervious Manning 'n'"
**
        30.000
                 Pervious Max.infiltration"
**
        20.000 Pervious Min.infiltration"
**
         0.500 Pervious Lag constant (hours)"
"
         7.500 Pervious Depression storage"
"
         0.015
               Impervious Manning 'n'"
**
         0.000
                 Impervious Max.infiltration"
11
         0.000
                 Impervious Min.infiltration"
"
         0.500
                 Impervious Lag constant (hours)"
11
         2.000
                 Impervious Depression storage"
"
                                 0.000
                                           0.009
                                                     0.009 c.m/sec"
                      0.021
**
              Catchment 103
                                      Pervious Impervious Total Area "
              Surface Area
                                      0.092
                                                 0.010
                                                             0.102
                                                                        hectare"
**
              Time of concentration 11.989
                                                 1.891
                                                             9.176
                                                                        minutes"
**
              Time to Centroid
                                      84.057
                                                 87.566
                                                             85.035
                                                                        minutes"
**
                                      59.309
                                                 59.309
                                                             59.309
                                                                        mm"
              Rainfall depth
              Rainfall volume
                                      54.45
                                                 6.05
                                                             60.50
                                                                        c.m"
"
              Rainfall losses
                                      42.814
                                                 2.000
                                                             38.732
                                                                        mm"
11
              Runoff depth
                                      16.496
                                                 57.309
                                                             20.577
                                                                        mm"
11
                                                             20.99
              Runoff volume
                                      15.14
                                                 5.85
                                                                        c.m"
              Runoff coefficient
                                      0.278
                                                 0.966
                                                             0.347
```

```
11
             Maximum flow
                                    0.018
                                             0.004 0.021
                                                                   c.m/sec"
             HYDROGRAPH Add Runoff "
 40
11
                Add Runoff "
"
                               0.021 0.009
                     0.021
                                                   0.009"
             DIVERSION"
 56
          103 Node number"
11
        0.006
               Overflow threshold"
"
        1.000
                Required diverted fraction"
11
            O Conduit type; 1=Pipe; 2=Channel"
             Peak of diverted flow
                                     0.015
                                                   c.m/sec"
"
             Volume of diverted flow
                                          9.360
**
             DIV00103.005hyd"
**
             Divert to Infiltration 0.006 cms (Drywell)"
**
                     0.021 0.006 0.009 c.m/sec"
**
             HYDROGRAPH Combine 9999"
  40
**
                Combine "
"
         9999
                Node #"
11
11
             Maximum flow
                                           0.015
                                                   c.m/sec"
"
                                          28.140
             Hydrograph volume
11
                     0.021 0.021
                                         0.006
                                                   0.015"
**
  40
             HYDROGRAPH Start - New Tributary"
"
            2 Start - New Tributary"
11
                                      0.006 0.015"
                     0.021
                               0.000
             CATCHMENT 106"
 33
**
            2
                Rectangular"
"
                Equal length"
11
            2
                Horton equation"
          106 No description"
11
       10.000 % Impervious"
**
        0.071 Total Area"
       38.172 Flow length"
"
        1.000 Overland Slope"
**
        0.064 Pervious Area"
**
       38.172 Pervious length"
        1.000 Pervious slope"
0.007 Impervious Area"
**
11
"
       38.172 Impervious length"
**
        1.000 Impervious slope"
        0.250 Pervious Manning 'n'"
**
       30.000 Pervious Max.infiltration"
**
       20.000 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"
        0.500
                Impervious Lag constant (hours)"
11
        2.000
                Impervious Depression storage"
**
                     0.011
                               0.000
                                         0.006
                                                   0.015 c.m/sec"
**
             Catchment 106
                                    Pervious Impervious Total Area "
**
             Surface Area
                                    0.064
                                               0.007
                                                       0.071 hectare"
"
             Time of concentration 18.311
                                               2.888
                                                         14.016
                                                                    minutes"
"
             Time to Centroid
                                    87.428
                                               87.577
                                                        87.470
                                                                    minutes"
             Rainfall depth
                                    59.309
                                               59.309
                                                        59.309
                                                                    mm"
**
             Rainfall volume
                                    37.90
                                               4.21
                                                         42.11
                                                                    c.m"
**
             Rainfall losses
                                    42.814
                                               2.000
                                                         38.732
**
             Runoff depth
                                    16.496
                                               57.309
                                                         20.577
                                                                    mm"
**
             Runoff volume
                                    10.54
                                               4.07
                                                         14.61
                                                                     c.m"
**
             Runoff coefficient
                                    0.278
                                               0.966
                                                          0.347
```

```
Maximum flow
                                   0.008
                                            0.002 0.011
                                                                 c.m/sec"
 40
             HYDROGRAPH Add Runoff "
**
                Add Runoff "
**
                     0.011
                             0.011
                                      0.006
                                                 0.015"
  51
             PIPE DESIGN"
        0.011 Current peak flow c.m/sec"
        0.013
                Manning 'n'"
11
        1.000
                Diameter
                          metre"
"
        1.000
                Gradient
             Depth of flow
                                          0.048
                                                  metre"
             Velocity
                                          0.765
                                                  m/sec"
"
             Pipe capacity
                                          2.398 c.m/sec"
**
             Critical depth
                                         0.056
                                                  metre"
  53
             ROUTE Zero Route"
#
         0.00 Zero Route Reach length (metre)"
                   0.011 0.011 0.011 0.015 c.m/sec"
                        Combine 9999"
  40
             HYDROGRAPH
                Combine "
"
         9999
                Node #"
"
**
             Maximum flow
                                          0.026
                                                   c.m/sec"
11
             Hydrograph volume
                                         42.749
                                                  c.m"
**
                     0.011 0.011
                                                  0.026"
                                        0.011
  40
             HYDROGRAPH Start - New Tributary"
                Start - New Tributary"
                     0.011
                              0.000
                                      0.011 0.026"
             CATCHMENT 107"
  33
"
            2
               Rectangular"
                Equal length"
            1
            2 Horton equation"
"
          107 No description"
**
       10.000 % Impervious"
        0.200 Total Area"
**
       38.241 Flow length"
       1.000 Overland Slope"
        0.180 Pervious Area"
       38.241 Pervious length"
        1.000 Pervious slope"
        0.020 Impervious Area"
       38.241 Impervious length"
1.000 Impervious slope"
**
        0.250 Pervious Manning 'n'"
11
       30.000 Pervious Max.infiltration"
       20.000 Pervious Min.infiltration"
        0.500 Pervious Lag constant (hours)"
        7.500 Pervious Depression storage"
        0.015
                Impervious Manning 'n'"
        0.000
                Impervious Max.infiltration"
11
        0.000
                Impervious Min.infiltration"
        0.500
                Impervious Lag constant (hours)"
**
        2.000
                Impervious Depression storage"
                     0.030 0.000 0.011
                                                  0.026 c.m/sec"
             Catchment 107
                                  Pervious Impervious Total Area "
             Surface Area
                                   0.180
                                              0.020 0.200 hectare"
             Time of concentration 18.331
                                              2.891
                                                        14.031
                                                                   minutes"
             Time to Centroid
                                   87.436
                                             87.577
                                                        87.475
                                                                   minutes"
**
             Rainfall depth
                                   59.309
                                              59.309
                                                       59.309
                                                                   mm"
11
             Rainfall volume
                                  106.76
                                             11.86
                                                        118.62
                                                                   c.m"
..
             Rainfall losses
                                   42.814
                                              2.000
                                                        38.732
                                                                   mm"
             Runoff depth
                                   16.496
                                              57.309
                                                        20.577
                                                                   mm"
```

```
**
              Runoff volume
                                     29.69
                                                 11.46
                                                            41.15
                                                                       c.m"
11
              Runoff coefficient
                                     0.278
                                                 0.966
                                                            0.347
71
              Maximum flow
                                     0.023
                                                 0.007
                                                            0.030
                                                                       c.m/sec"
              HYDROGRAPH Add Runoff "
  40
"
                 Add Runoff "
**
                      0.030
                                0.030
                                          0.011
                                                     0.026"
ŦŦ
  56
              DIVERSION"
           107 Node number"
FF
         0.015
               Overflow threshold"
* *
         1.000
                 Required diverted fraction"
**
                 Conduit type; 1=Pipe;2=Channel"
                                      0.015
              Peak of diverted flow
                                                      c.m/sec"
* *
              Volume of diverted flow
                                           13.815
79
              DIV00107.005hyd"
,,
              Divert to Infiltration 0.015 cms (Drywell)"
77
                      0.030 0.030 0.015 0.026 c.m/sec"
                                      9999"
  40
              HYDROGRAPH
                           Combine
77
                 Combine "
             6
77
                 Node #"
          9999
11
                 9.9
**
              Maximum flow
                                             0.041
                                                     c.m/sec"
**
                                                     c.m"
                                            70.088
              Hydrograph volume
                      0.030 0.030
                                           0.015
                                                     0.041"
  40
              HYDROGRAPH Start - New Tributary"
* *
                 Start - New Tributary"
**
                      0.030
                                0.000
                                          0.015
                                                     0.041"
              CATCHMENT 110"
  33
"
                 Rectangular"
             2
7 6
             1
                 Equal length"
77
             2
                 Horton equation"
11
           110 No description"
77
        10.000 % Impervious"
,,
         0.448 Total Area"
77
        35.848 Flow length"
77
         1.000 Overland Slope"
**
         0.403 Pervious Area"
**
        35.848 Pervious length"
         1.000 Pervious slope"
**
         0.045 Impervious Area"
FF
        35.848 Impervious length"
**
         1.000 Impervious slope"
         0.250 Pervious Manning 'n'"
,,
**
        30.000 Pervious Max.infiltration"
**
        20.000 Pervious Min.infiltration"
**
         0.500 Pervious Lag constant (hours)"
* *
         7.500 Pervious Depression storage"
FF
                 Impervious Manning 'n'"
         0.015
.,
                 Impervious Max.infiltration"
         0.000
11
                 Impervious Min.infiltration"
         0.000
**
         0.500
                 Impervious Lag constant (hours)"
11
         2.000
                 Impervious Depression storage"
77
                      0.069
                                0.000 0.015
                                                    0.041 c.m/sec"
              Catchment 110
                                     Pervious Impervious Total Area "
11
              Surface Area
                                     0.403
                                                 0.045 0.448
                                                                       hectare"
**
              Time of concentration 17.634
                                                 2.781
                                                            13.497
                                                                       minutes"
77
              Time to Centroid
                                     87.154
                                                 87.569
                                                            87.270
                                                                       minutes"
77
              Rainfall depth
                                     59.309
                                                 59.309
                                                            59.309
                                                                       mm"
77
              Rainfall volume
                                     239.14
                                                 26.57
                                                            265.71
                                                                       c.m"
ŦŦ
              Rainfall losses
                                     42.814
                                                 2.000
                                                            38.732
                                                                       mm"
**
              Runoff depth
                                                 57.309
                                     16.496
                                                            20.577
                                                                       mm"
```

```
66.51
0.278
                                                           92.18
              Runoff volume
                                                25.67
                                                                      c.m"
77
              Runoff coefficient
                                                0.966
                                                           0.347
**
             Maximum flow
                                     0.053
                                                0.016
                                                           0.069
                                                                      c.m/sec"
**
             HYDROGRAPH Add Runoff "
  40
**
             4 Add Runoff "
"
                      0.069
                              0.069
                                          0.015 0.041"
              PIPE DESIGN"
  51
ŦŦ
         0.069 Current peak flow c.m/sec"
Ŧ Ŧ
         0.013 Manning 'n'"
**
         1.000 Diameter metre"
**
         1.000
                Gradient
**
              Depth of flow
                                            0.116
                                                     metre"
              Velocity
                                            1.348 m/sec"
* *
              Pipe capacity
                                           2.398 c.m/sec"
"
              Critical depth
                                           0.144
,,
              ROUTE Zero Route"
  53
,,
          0.00 Zero Route Reach length (metre)"
11
                  0.069 0.069 0.069 0.041 c.m/sec"
             HYDROGRAPH Combine 999"
11
                Combine "
             6
77
           999
                 Node #"
ŦŦ
**
             Maximum flow
                                           0.069
                                                    c.m/sec"
ŦŦ
              Hydrograph volume
                                          92.185
                                                     c.m"
**
                      0.069 0.069
                                       0.069
                                                    0.069"
             HYDROGRAPH Start - New Tributary"
**
             2 Start - New Tributary"
**
                      0.069
                               0.000
                                      0.069
                                                    0.069"
             CATCHMENT 199"
  33
**
             2 Rectangular"
11
             1 Equal length"
. .
             2 Horton equation"
11
          199 No description"
**
        10.000 % Impervious"
"
        2.612 Total Area"
"
        44.064 Flow length"
**
        1.000 Overland Slope"
**
        2.351 Pervious Area"
        44.064 Pervious length"
1.000 Pervious slope"
"
**
**
        0.261 Impervious Area"
FF
        44.064 Impervious length"
        1.000 Impervious slope"
0.250 Pervious Manning 'n'"
FF
**
fT
        30.000 Pervious Max.infiltration"
**
        20.000 Pervious Min.infiltration"
**
        0.500 Pervious Lag constant (hours)"
**
        7.500 Pervious Depression storage"
11
        0.015
                Impervious Manning 'n'"
FT
         0.000
                 Impervious Max.infiltration"
**
         0.000
                 Impervious Min.infiltration"
**
         0.500
                 Impervious Lag constant (hours)"
11
         2.000
                 Impervious Depression storage"
                      0.365 0.000 0.069 0.069 c.m/sec"
              Catchment 199 Pervious Impervious Total Area "Surface Area 2.351 0.261 2.612 he
11
11
                                    2.351 0.261 2.612 hectare"
11
                                                         15.276 minutes"
87.909 minutes"
              Time of concentration 19.958
                                                3.147
                                    88.017
59.309
              Time to Centroid 88.017
                                                87.627
71
                                                                    mm"
              Rainfall depth
                                                59.309
                                                         59.309
"
              Rainfall volume
                                   1394.24
                                                154.92
                                                          1549.16
                                                                     c.m"
```

```
Rainfall losses 42.814 2.000 38.732 mm"
Runoff depth 16.496 57.309 20.577 mm"
Runoff volume 387.78 149.69 537.47 c.m"
Runoff coefficient 0.278 0.966 0.347 "
Maximum flow 0.298 0.091 0.365 c.m/sec"
HYDROGRAPH Add Runoff "

4 Add Runoff "
n
11
**
"
                         0.365 0.365 0.069 0.069"
**
" 0.365 0.365 0.069
" 51 PIPE DESIGN"
" 0.365 Current peak flow c.m/sec"
II
            0.013 Manning 'n'"
            1.000 Diameter metre"
              1.000 Gradient %"
            Depth of flow 0.264 metre"

Velocity 2.205 m/sec"

Pipe capacity 2.398 c.m/sec"

Critical depth 0.339 metre"

ROUTE Zero Route"
**
**
**
" 53
11
             0.00 Zero Route Reach length ( metre)"
                  0.365 0.365 0.069 c.m/sec"
" 40 HYDROGRAPH Combine 999"
" 6 Combine "
" 999 Node #"
"
Maximum flow 0.434 c.m/sec"
Hydrograph volume 629.656 c.m"

0.365 0.365 0.365 0.434"

40 HYDROGRAPH Confluence 999"

7 Confluence "
999 Node #"
**
              Maximum flow 0.434 c.m/sec"
Hydrograph volume 629.656 c.m"
0.365 0.434 0.365 0.000"
**
**
" 51 PIPE DESIGN"

0.434 Current peak flow c.m/sec"
**
            0.013 Manning 'n'"
11
            1.000 Diameter metre"
         1.000 Dlameter metre"

1.000 Gradient %"

Depth of flow 0.288 metre"

Velocity 2.317 m/sec"

Pipe capacity 2.398 c.m/sec"

Critical depth 0.371 metre"

ROUTE Zero Route"

0.00 Zero Route Reach length (metre)"
**
**
**
" 53
**
**
               HYDROGRAPH
6 Combine "
9999 Node #"
                    HYDROGRAPH Combine 9999"
**
**
11
            Maximum flow 0.475 c.m/sec"

Hydrograph volume 699.745 c.m"
0.365 0.434 0.434 0.475"

HYDROGRAPH Confluence 9999"
7 Confluence "
11
11
11
**
             9999 Node #"
11

      Maximum flow
      0.475
      c.m/sec"

      Hydrograph volume
      699.745
      c.m"

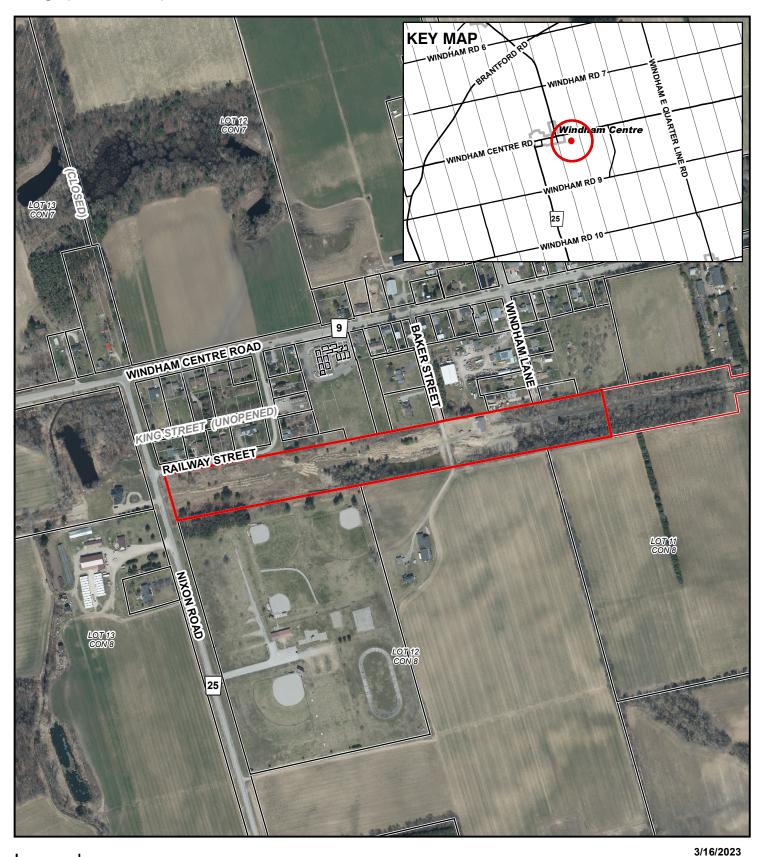
      0.365
      0.475
      0.434
      0.000"

**
11
```

```
" 52
          CHANNEL DESIGN"
**
       0.475 Current peak flow c.m/sec"
        0.040 Manning 'n'"
**
**
           0. Cross-section type: 0=trapezoidal; 1=general"
11
        0.600 Basewidth metre"
**
        3.000 Left bank slope"
        3.000 Right bank slope"
**
        0.450 Channel depth metre"
**
        0.300 Gradient %"
                                       0.447 metre"
0.548 m/sec"
0.483 c.m/sec"
0.265 metre"
            Depth of flow
77
77
             Velocity
             Channel capacity
Critical depth
7.7
7.7
             Critical depth
             ROUTE Channel Route 450"
  53
**
       450.00 Channel Route 450 Reach length (metre)"
**
       0.427 X-factor <= 0.5"
**
       616.195 K-lag (seconds)"
       0.000 Default(0) or user spec.(1) values used"
FF
        0.500 X-factor <= 0.5"
**
       30.000 K-lag (seconds)"
**
       0.500 Beta weighting factor"
600.000 Routing time step (seconds)"
77
**
           1 No. of sub-reaches"
**
            Peak outflow
                                         0.438 c.m/sec"
                     77
            HYDROGRAPH Next link "
  40
**
            5 Next link "
11
                 0.365 0.438 0.438 0.000"
           DIVERSION"
**
         9999 Node number"
        0.380 Overflow threshold"
**
        1.000 Required diverted fraction"
            O Conduit type; 1=Pipe; 2=Channel"
**
             Peak of diverted flow 0.058 c.m/sec" Volume of diverted flow 44.292 c.m"
11
**
             DIV09999.005hyd"
,,
             Divert to Infiltrration Gallery 44.292 cu.m. (45)"
77
                    77
            HYDROGRAPH Next link "
77
            5 Next link "
**
                     0.365 0.380 0.380 0.000"
          START/RE-START TOTALS 999"
 38
**
           3 Runoff Totals on EXIT"
           Total Catchment area
Total Impervious area
Total % impervious
**
                                                       3.652 hectare"
**
                                                       0.365
                                                              hectare"
                                                      10.000"
" 19
           EXIT"
```

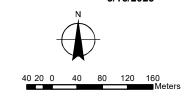
CONTEXT MAP

Geographic Township of WINDHAM



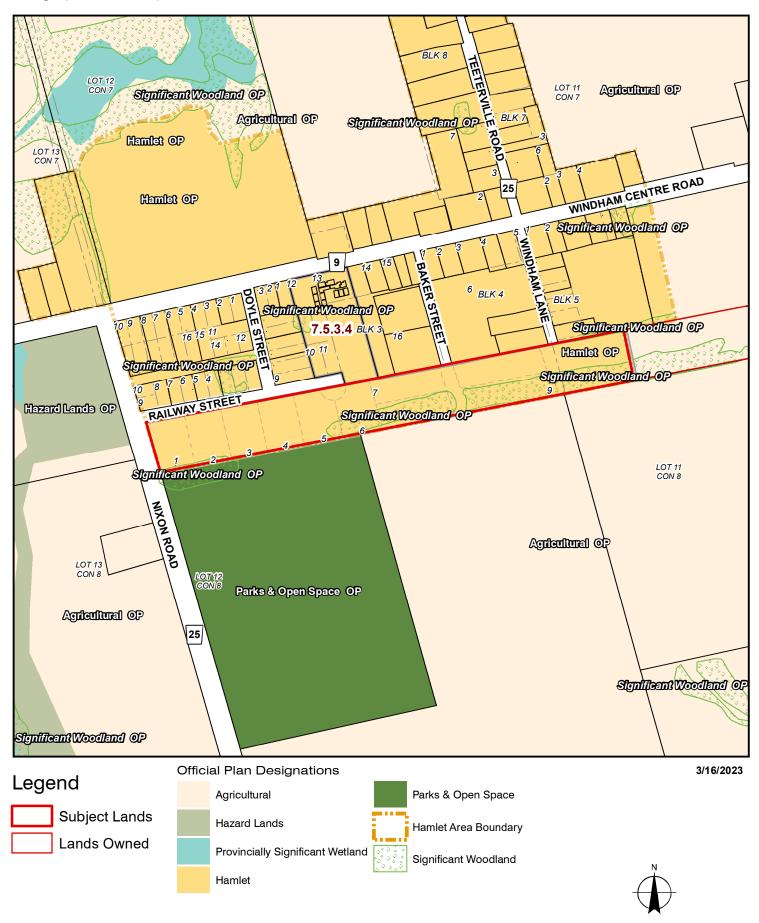
Legend





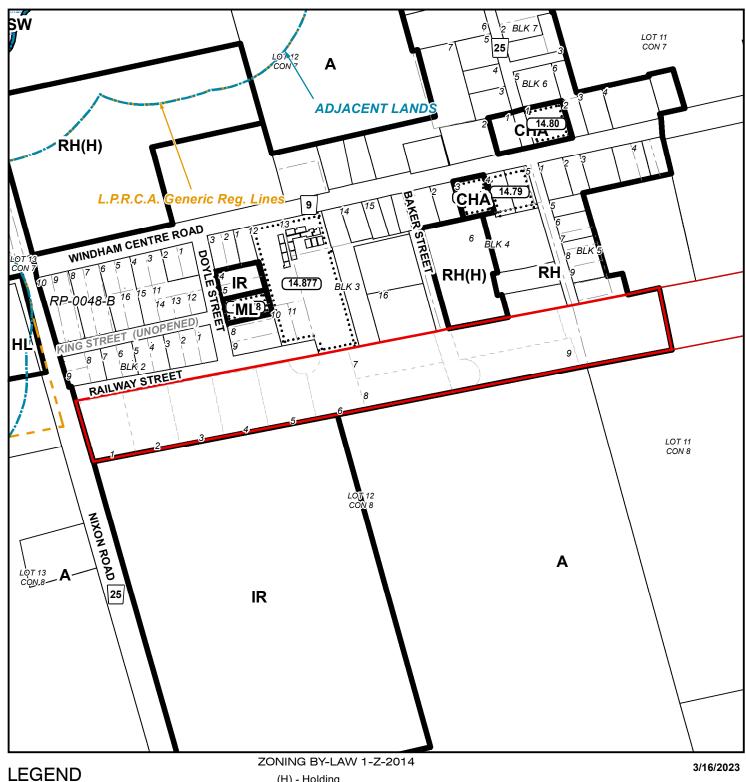
MAP B OFFICIAL PLAN MAP

Geographic Township of WINDHAM



MAP C **ZONING BY-LAW MAP**

Geographic Township of WINDHAM



Subject Lands Lands Owned Adjacent Lands Wetland LPRCA Generic RegLines

(H) - Holding

A - Agricultural Zone

CHA - Hamlet Commercial Zone

RH - Hamlet Residential Zone

HL - Hazard Land Zone

ML - Light Industrial Zone

PSW - Provincially Significant Wetland Zone

IR - Rural Institutional Zone



MAP D 28TPL2023088

CONCEPTUAL PLAN

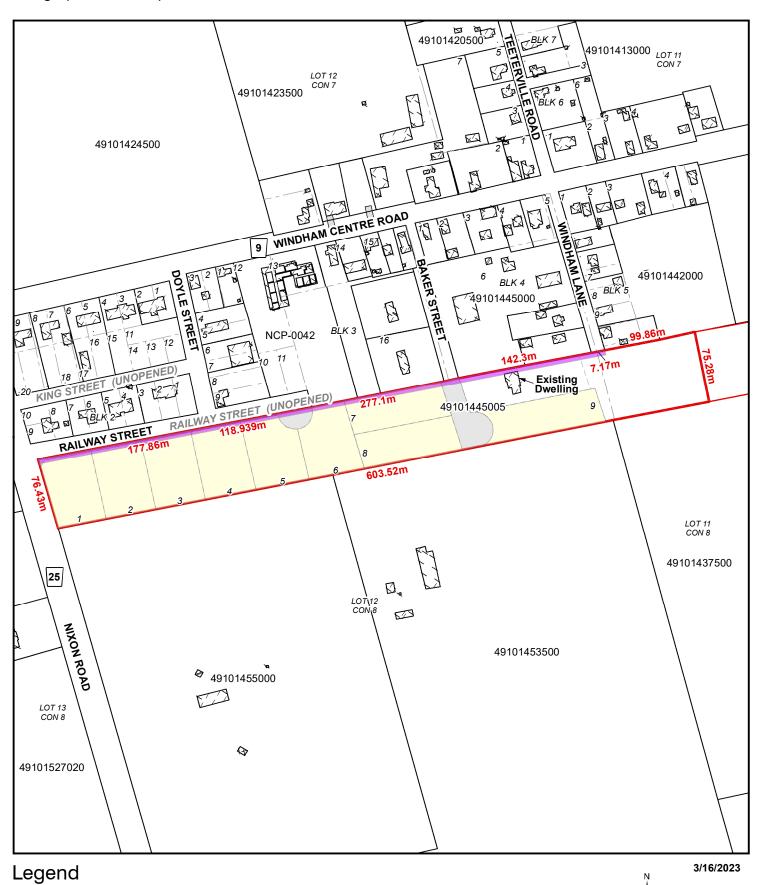
Subject Lands

Lands Owned

Single Detached Dwelling

Road Dedication

Geographic Township of WINDHAM



Existing Hydro Easement

30 15 0

120 Meters