Planning Department Development Application Form

Complete Application

A complete development application consists of the following:

1. A completed, signed, and notarized application form
2. Supporting information adequate to illustrate your proposal as indicated in **Section H** of this application form
3. Written authorization from the registered owner of the subject lands where the applicant is not the owner as per Section N
4. Cash, debit, credit or cheque payable to Norfolk County in the amount set out in the user fees By-Law that will be accepted and deposited once the application has been deemed complete.

Pre-Submission Consultation:

Norfolk County requires a Pre-Consultation Meeting for all applications; however, minor applications may be exempted depending on the nature of the proposal. 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 Norfolk County and Agency staff to identify the application requirements. Application requirements, as detailed in the Pre-Consultation Meeting Comments, are valid for one year after the meeting date.

Development Application Process

Once an application has been deemed complete by a Planner, Norfolk County staff will circulate the application to adjacent landowners, public agencies, and internal departments for comment. The time involved in application processing varies depending on its complexity, acceptability to the other agencies, and statutory Planning Act decision time-frames.

Payment is required once your application is deemed complete. Pre-payments will not be accepted.

Norfolk County collects personal information submitted through this form under the Municipal Freedom of Information and Protection Act's authority. Norfolk County will use this information for the purposes indicated or implied by this form. You can direct questions about collecting personal information to Norfolk GIS Services at NorfolkGIS@norfolkcounty.ca.

Additional studies required for the complete application shall be at the applicant's sole expense. Sometimes, peer reviews may be necessary to review particular studies at the applicant's expense. In these caseds, Norfolk County staff will select the company to complete the peer review.

Norfolk County will refund the original fee if applicants withdraw their applications before circulation. If Norfolk County must recirculate your drawings, there will be an additional fee. If Norfolk County must do more than three reviews of engineering drawings due to revisions by the owner or failure to revise engineering drawings as requested, Norfolk County will charge an additional fee. Full refunds are only available before Norfolk County has circulated the application.

Notification Sign Requirements

For public notification, Norfolk County will provide you with 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 and not on a tree.
3. Notify the Planner when the sign is in place.
4. Maintain the sign until the development application is finalized and, after that, remove it.

Contact Us

For additional information or assistance 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	ZNPL2024148	Public Notice Sign	
Related File Number	N/A	Application Fee	$12,178.00
Pre-consultation Meeting	June 8, 2022	Conservation Authority Fee	TBD
Application Submitted	May 28, 2024	Well & Septic Info Provided	N/A
Complete Application		Planner	Hanne Yager

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

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

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

The proposal is to:
- Re-zone the property from R1-A to R2 to allow a severance and development of 4 semi-detached homes.
- Change entrance of properties from Mechanic Street to Shadow Lake Lane to reduce congestion on Mechanic Street West.
- Minor variance is also requested for relief from side yard (exterior) setback from 6 metres to 4.5 metres.

Property Assessment Roll Number: _____

A. Applicant Information

Name of Owner _____

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 _____

Unless otherwise directed, Norfolk County will forward all correspondence and notices regarding this application 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 will 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 the 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.

   _____

   _____

   _____

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

   _____

   _____

   _____

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

   If yes, identify and provide details of the building:

   _____

   _____

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

   _____

9. Existing use of abutting properties:

   _____

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

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

    _____

C. Purpose of Development Application

Note: Please complete all that apply.

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

   _____

   _____

   _____

   _____

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? ☐ Yes ☐ No If yes, describe its effect:

   _____

   _____

   _____

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

   _____

   _____

   _____

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

   _____

   _____

   _____

6. Description of land intended to be severed in metric units:
   Frontage: _____
   Depth: _____
   Width: _____
   Lot Area: _____
   Present Use: _____
   Proposed Use: _____
   Proposed final lot size (if boundary adjustment): _____
   If a boundary adjustment, identify the assessment roll number and property owner of the lands to which the parcel will be added: _____

   _____

   Description of land intended to be retained in metric units:
   Frontage: _____
   Depth: _____
   Width: _____
   Lot Area: _____
   Present Use: _____
   Proposed Use: _____
   Buildings on retained land: _____
7. Description of proposed right-of-way/easement:
   Frontage: _____
   Depth: _____
   Width: _____
   Area: _____
   Proposed use: _____
8. Name of person(s), if known, to whom lands or interest in lands to be transferred, leased or charged (if known):

   _____

9. **Site Information**	**Zoning**	**Proposed**
Please indicate unit of measurement, for example: m, m^2 or %		
Lot frontage	_____	_____
Lot depth	_____	_____
Lot width	_____	_____
Lot area	_____	_____
Lot coverage	_____	_____
Front yard	_____	_____
Rear yard	_____	_____
Left Interior side yard	_____	_____
Right Interior side yard	_____	_____
Exterior side yard (corner lot)	_____	_____
Landscaped open space	_____	_____
Entrance access width	_____	_____
Exit access width	_____	_____
Size of fencing or screening	_____	_____
Type of fencing	_____	_____

10. Building Size

Number of storeys	_____	_____
Building height	_____	_____
Total ground floor area	_____	_____
Total gross floor area	_____	_____
Total useable floor area	_____	_____

11. Off Street Parking and Loading Facilities

Number of off street parking spaces	_____	_____
Number of visitor parking spaces	_____	_____
Number of accessible parking spaces	_____	_____
Number of off street loading facilities	_____	_____

12. Residential (if applicable)

Number of buildings existing: _____

Number of buildings proposed: _____

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

If yes, describe: _____

Type	**Number of Units**	**Floor Area per Unit in m2**
Single Detached	_____	_____
Semi-Detached	_____	_____
Duplex	_____	_____
Triplex	_____	_____
Four-plex	_____	_____
Street Townhouse	_____	_____
Stacked Townhouse	_____	_____
Apartment - Bachelor	_____	_____
Apartment - One bedroom	_____	_____
Apartment - Two bedroom	_____	_____
Apartment - Three bedroom	_____	_____

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

13. Commercial/Industrial Uses (if applicable)

Number of buildings existing: _____

Number of buildings proposed: _____

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

If yes, describe:

_____

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

_____

_____

_____

Seating Capacity (for assembly halls or similar): _____

Total number of fixed seats: _____

Describe the type of business(es) proposed: _____

Total number of staff proposed initially: _____

Total number of staff proposed in five years: _____

Maximum number of staff on the largest shift: _____

Is open storage required: ☐ Yes ☐ No

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

☐ Yes ☐ No If yes please describe:

_____

_____

14. Institutional (if applicable)

Describe the type of use proposed: _____

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? ☐ Yes ☐ No ☐ Unknown
   If yes, specify the uses (for example: gas station or petroleum storage):

   _____

   _____
2. Is there reason to believe the subject lands may have been contaminated by former uses on the site or adjacent sites?☐ Yes ☐ No ☐ Unknown
3. Provide the information you used to determine the answers to the above questions:

   _____

   _____

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

E. Provincial Policy

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

   If no, please explain:

   _____

   _____

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

   If no, please explain:

   _____

   _____

   _____

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

   If no, please explain:

   _____

   _____

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

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

   Livestock facility or stockyard (submit MDS Calculation with application)

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Wooded area

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Municipal Landfill

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Sewage treatment plant or waste stabilization plant

   ☐ On the subject lands or ☐ within 500 meters – distance _____

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

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Floodplain

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Rehabilitated mine site

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Non-operating mine site within one kilometre

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Active mine site within one kilometre

   ☐ On the subject lands or ☐ within 500 meters – distance _____

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

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Active railway line

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Seasonal wetness of lands

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Erosion

   ☐ On the subject lands or ☐ within 500 meters – distance _____

   Abandoned gas wells

   ☐ On the subject lands or ☐ within 500 meters – distance _____

F. Servicing and Access

1. Indicate what services are available or proposed:
   Water Supply
   - ☐ Municipal piped water
   - ☐ 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? ☐ Yes ☐ 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

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

☐ Zoning Deficiency Form

☐ On-Site Sewage Disposal System Evaluation Form (to verify location and condition)

☐ Architectural Plan

☐ Buildings Elevation Plan

☐ Cut and Fill Plan

☐ Erosion and Sediment Control Plan

☐ Grading and Drainage Control Plan (around perimeter and within site) (existing and proposed)

☐ Landscape Plan

☐ Photometric (Lighting) Plan

☐ Plan and Profile Drawings

☐ Site Servicing Plan

☐ Storm water Management Plan

☐ Street Sign and Traffic Plan

☐ Street Tree Planting Plan

☐ Tree Preservation Plan

☐ Archaeological Assessment

☐ Environmental Impact Study

☐ Functional Servicing Report

☐ Geotechnical Study / Hydrogeological Review

☐ Minimum Distance Separation Schedule

☐ Noise or Vibration Study

☐ Record of Site Condition

☐ Storm water Management Report

☐ Traffic Impact Study – please contact the Planner to verify the scope required

Site Plan applications will require the following supporting materials:

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

Standard condominium exemptions will require the following supporting materials:

☐ Plan of standard condominium (2 paper copies and 1 electronic copy)

☐ Draft condominium declaration

☐ Property Identification Number (PIN) printout

Your development approval might also be dependent on 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 site plan approval, 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, to disclose the registration of all transfer(s) of land and/or easement in favour of the County and/or utilities. Also, the owner further acknowledges and agrees that it is their solicitor's responsibility on behalf of the owner for the registration of postponements of any charges in favour of the County.

K. Permission to Enter Subject Lands

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

L. Freedom of Information

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

Owner/Applicant Signature	Date

M. Owner's Authorization

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

I/We _____ am/are the registered owner(s) of the lands that is the subject of this application.

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

Owner	Date
Owner	Date

N. Declaration

I, Peter Ligori of Paris, Ont.

solemnly declare that:

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

Declared before me at:

Burford, Ont

In County of Brant

This 28 day of May

A.D., 2024

Owner/Applicant Signature

Christine Staley

A Commissioner, etc.

Christine Staley,
A Commissioner, etc., County of Brant,
While Deputy Treasurer of the County of Brant.

Pre-Submission Consultation Meeting Minutes

Date: June 8, 2022

Description of Proposal: Zoning Amendment to Permit Semi-Detached Dwellings

Property Location: 42 Mechanic Street West, Waterford

Roll Number: 3310335010096000000

As a result of the information shared at the pre-consultation meeting dated June 8, 2022, the following applications and qualified professional documents / reports are required as part of the development review process.

Please note that various fees are associated with each application and there are also costs for qualified professionals retained to complete various documents / reports. All requirements identified are minimum and determined as of the date of the pre-consultation meeting with the information available at that time. As the proposal proceeds and more information is made available, additional applications, studies, reports, etc. may be required.

This summary including checklists, comments and requests are applicable for a period of one (1) year from the date of meeting. If an application is not received within that time frame, a subsequent pre-consultation meeting may be required due to changes in policies and technical requirements.

Before you submit your application, please contact the assigned Planner to confirm submission requirements and the applicable fee

Attendance List

Proponent	Peter Ligori, Agent
Community Development – Planning and Agreement	Hannelore Yager, Jr. Planner (Chair) Annette Helmig, Agreement and Development Coordinator
Community Development – Building and Zoning	Jonathan Weir, Building Inspector Roxanne Lambrecht, Zoning Administrator Kacie Vandenbulck, Zoning Administrator
Environment & Infrastructure Services – Development Engineering	Stephen Gradish, Development Technologist
Community Services – Fire	Katie Ballantyne, Community Safety Officer
Corporate Support Services – Realty Services	Kelly Darbishire, Specialist, Realty Services
Long Point Regional Conservation Authority	Isabel Johnson, Resource Planner
Corporate Support Services - Accessibility and Special Projects	Sam McFarlane, Manager

Table of Contents

Proposal Summary

The proposal is to:

- Re-zone the property from R1-A to R2 to allow a severance and development of 4 semi-detached homes.
- Change entrance of properties from Mechanic Street to Shadow Lake Lane to reduce congestion on Mechanic Street West.
- Minor variance is also requested for relief from side yard (exterior) setback from 6 metres to 4.5 metres.

List of Application Requirements

Planning Department

Planning application(s) required to proceed		**Required**
Official Plan Amendment Application Choose an item.		
Zoning By-law Amendment Application (Minor)		X
Site Plan Application (Regular)		
Draft Plan of Subdivision Application		
Draft Plan of Condominium Application		
Part Lot Control Application		
Consent / Severance Application		X
Minor Variance Application		X*
Removal of Holding Application		
Temporary Use By-Law Application		
Other - Click here to enter text.		
Planning requirements for a complete application The items below are to be submitted as part of the identified Planning Application(s). ** electronic/PDF copies of all plans, studies and reports are required**	**Required at OPA/ Zoning Stage**	**Required at Site Plan Stage**
Proposed Site Plan / Drawing	X	
Planning Impact Analysis Report / Justification Report		
Environmental Impact Study Choose an item.		
Neighbourhood Plan (TOR must be approved by the County)		
Agricultural Impact Assessment Report		
Archaeological Assessment		
Heritage Impact Assessment		
Market Impact Analysis		
Dust, Noise and/or Vibration Study		
MOE D-Series Guidelines Analysis		
Landscaping Plan		
Elevation Plan	X	
Photometrics (Lighting) Plan		
Shadow Analysis Report		
Record of Site Condition		
Contaminated Site Study		

Minimum Distance Separation Schedule		
Parking Assessment		
Hydrogeological Study		
Restricted Land Use Screening Form		
Topographical Survey Drawing		
Additional Planning requirements		**Required**
Development Agreement		
Parkland Dedication/Cash-in-lieu of Parkland		

* A minor variance to address a deficiency in exterior side yard setback has been requested. Staff have no objection to this, or a site-specific provision incorporated into the application for a Zoning By-Law Amendment.

*the list of requirements is based on the information submitted and as presented for this specific pre-consultation meeting. Any changes to a proposal may necessitate changes to Planning Department submission requirements.

*Community Development fees, applications, and helpful resources can be found can be found by visiting https://www.norfolkcounty.ca/government/planning/

Planning Comments

Please be advised that 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.

The subject lands are designated Urban Residential and Hazard Land, and zoned R1-A and Hazard Land. They are located on the corner of Mechanic Street West and Shadow Lake Lane in the urban area of Waterford, having an area of 1,494 sq. m. (0.3692) acres. Directly west of the subject lands is a causeway which provides access across Mill Pond. The subject lands are currently occupied by a single detached dwelling with access from Mechanic Street West.

Planning has no objection with the proposal to re-zone from R1-A to R2 for the purpose of intensifying an existing lot, or the proposal to re-orientate access to Shadow Lake Lane.

In being situated in front of Mill Pond, intensifying the subject lands do have the potential to impact the views of nearby lots (located north of 42 Mechanic Street). The following policies from Section 5.4. (Community Design) of the Official Plan have been identified as ensuring the subject application meets physical design criteria for infill development in Norfolk County:

- ensure that new development is designed in keeping with the traditional character of Urban Areas (which include Waterford)

- ensure that design is sympathetic to the heritage character of an area, including the area's cultural heritage resources;
- Adequate buffering shall be provided between any uses where land use conflicts might be expected, such as grass strips, trees and shrubs, berms or fence screening, and other means as appropriate.
- Any relevant streetscaping that reflects the intended character of settlement areas is encouraged

Staff recommend that the applicant provide upgraded elevation at the exterior side yard, with pedestrian access to the side yard to match the streetscape along Mechanic St.

[see Appendix A for additional comments]

Assigned Planner:

Hannelore Yager
Junior Planner
Extension 8095
Hannelore.yager@norfolkcounty.ca

Development Engineering

Development Engineering – 42 Mechanic Street, Waterford

Development Engineering requirements to proceed The below requirements are to be submitted as part of the Formal Development Planning application.	**Required at OPA/ Zoning Stage**	**Required at Site Plan Stage or Severance Stage**	**Potentially Required (See Notes Section)**
General Requirements			
Concept Plan	X	X	
Lot Grading Plan		X[11]	
Siltation and Erosion Control Plan		X[11]	
General Plan of Services	X[7]	X[11]	
Geotechnical Report			X[17]
Functional Servicing Report	X[7]	X	
Water Servicing Requirements– Section 10.0 Norfolk County Design Criteria and ISMP Section 4.0			
Disconnection of Water Service(s) to Property Line		X[12]	
Disconnection of Water Service(s) to Main		X[12]	
Water Modelling (County Consultant)	X[7]	X	
Water Allocation	X	X	
Sanitary Servicing Requirements – Section 9.0 Norfolk County Design Criteria and ISMP Section 4.0			
Disconnection of Sanitary Service(s) to Property Line		X[12]	
Disconnection of Sanitary Service(s) to Main		X[12, 13]	
Sanitary Modelling (County Consultant)	X[7]	X	
Storm Water Servicing Requirements – Section 7.0 and Section 8 Norfolk County Design Criteria and ISMP Section 4.0			

Storm Water Management Design Report (including calculations)	X[8]	X[14]	
Storm Water Drainage Plan			X
Establish/Confirm Legal and Adequate Outlet		X[15]	
Anticipated Flow/Analysis to Receiving Collection System	X[8]	X	
Transportation Requirements – Section 6.0 Norfolk County Design Criteria, ISMP Section 5.0, Section 6.0 and Appendix J			
Traffic Impact Brief	X[9]	X	
Improvements to Existing Roads & Sidewalk (urbanization, pavement structure, widening sidewalk replacement, upgrades, extension and accessibility)		X[16]	

General Notes:

1. Securities will be required in the form of a schedule. Any works completed within the Municipal Right-of-Way (R.O.W.) are to be shown as 100% security. Any works completed within private property are to be shown as 10% security. This can be submitted at time of Site Plan.
2. All reports and drawings are to be signed and stamped by a Professional Engineer (P. Eng) and adhere to Norfolk County's Design Criteria. A copy of this criteria is available upon request.
3. All Recommendations from all reports (FSR, SWM, TIS) are to be implemented into the design, at the developer's expense
4. All applicable permits and inspections are to be issued by Public Works.
5. Water allocation will not be issued as part of the Zoning By-law amendment. Applicant is to confirm capacities at the time of Site Plan application, at the time registration of agreement\approval allocation will be provided for the development, if available.

Required at Zoning By-law Amendment Stage:

6. The following reports/studies will be required at time of Zoning By-law Amendment Submission:
    a. Concept Plan;
    b. Functional Servicing Report (per Norfolk County Design Criteria Section 3);
    c. Water modelling.
    d. Storm Water Management Report (as per Norfolk County Design Criteria Section 7 and Section 8.);
    e. Traffic Impact Brief (as per ISMP Appendix J – TIS Guidelines);

7. Water modelling will be required. This is to be completed by Norfolk County's third-party consultant. The cost to complete the modelling and any recommendations from reports are to be implemented into the design at the applicant's expense. The following information will be required to receive a quote and complete the modelling.
    a. General Plan of Services
    b. Functional Servicing Report;
        i. Total Domestic Water as per Norfolk County Design Criteria and Fire Flows as per Fire Underwriter's Survey (FUS).

Once the quote has been received, approval from the applicant will be required before proceeding

8. Stormwater Management Report is to be completed as per Norfolk County Design Criteria Section 7. In review of the submitted concept there is a proposal to connect a new storm sewer to the existing Storm system in Mechanic St. The Storm Water Management report must also include information that identifies if the existing sewer has the capacity for this new proposal.
9. As per Norfolk County's Integrated Sustainable Master Plan (ISMP) – Appendix J: Traffic Impact Study (TIS) Guidelines, a Traffic Impact Study should be required with every planning application. However, as this development is small in nature, with creation of 4 Lots, we ask that you complete a Traffic Impact Brief. Hence, as per Norfolk County's ISMP Appendix J - TIS Guidelines, a Traffic Impact Brief can be prepared based on the following sections of the Appendix J - TIS Guidelines:
    a. Section A1.3 – Existing Conditions;
    b. Section A1.4 – Study Area;
    c. Section A1.5 – Development Land Use Type & Site Plan;
    d. Analysis:
        i. Sightlines;
    e. Conclusions and Recommendations

Required at Site Plan or Severance Stage Notes:

10. Concept Plan
11. Lot Grading Plan, Siltation and Erosion Control Plan, and the General Plan of Services drawing can be shown on one engineering plan as long as it's legible for review.
12. Disconnection of existing water and Sanitary service will be required prior to installation of new services. Permits are required prior to any work being completed. Services are to be removed from existing house to the main.
13. According to Norfolk County records there are multiple sanitary services to the subject property. If this proposal moves forward, then all unused services must be removed prior to the connection of any new services.
14. Stormwater Management Report is to be completed as per Norfolk County Design Criteria Section 7 and Section 8.

15. As mentioned above Norfolk County staff have recognized in the concept plans that a new Storm Sewer connection is proposed to the Mechanic St Storm sewer. Confirmation of Legal and adequate outlet shall be identified in the SWM report.
16. If this proposal proceeds through a future Severance application then the applicant should be aware that Development Engineering will have a Condition of Severance that the Owner is to enter into an Agreement with he County prior to clearance. This will be an “External Works Agreement” and will be in place to cover all installation of new services and all a required restoration.

Potentially Required Notes:

17. A Geotechnical Report will be required if infiltration galleries are proposed for the Stormwater Management design.

Stephen Gradish
Development Technologist
Extension 1702
Stephen.Gradish@norfolkcounty.ca

Conservation Authority

Long Point Regional Conservation Authority

Conservation Authority requirements to proceed	May be Required	Required
Conservation Authority Permit		
Slope Stability Analysis / Erosion Analysis		
Coastal Engineers Report		
Environmental Impact Study		
Subwatershed Plan/Study		
Master Drainage Study		
Stormwater Management Report/Brief		
Other		

I have reviewed the development application in regards to 42 Mechanic Street. Technical staff have determined the property at 42 Mechanic Street in Waterford is not regulated based on new floodplain mapping. Thus, a permit from this office will not be required.

From LPRCA's hazard perspective, staff could support amending the Hazard Land zoning on the property. As such, LPRCA staff will not be submitting formal comments for the pre-consultation. If you have further questions or would like to discuss, please contact me!

*LPRCA fees, applications, and helpful resources can be found can be found by visiting https://lprca.on.ca/planning-permits/planning-fees/

Isabel Johnson
Resource Planner
519-842-4242 ext.229
ijohnson@lprca.on.ca

County Departmental Comments & Requirements

Corporate Support Services - Accessibility for Ontarians with Disabilities Act

No comments at this time

Sam McFarlane
Manager, Accessibility and Special Projects
Corporate Support Services
519-426-5870 x. 8099
Sam.McFarlane@norfolkcounty.ca

Building

Zoning Administrator:

To be zoned R2

- Exterior side yard relief of 4.5m from the required 6m as indicated
- Parking on a lot must measure 3.0m x 5.0m, parking in a garage must measure 3.3x 5.8m
- Landscaping of 50% of the front yard must be maintained for each unit
- Height of buildings cannot exceed 11m from grade to highest peak of truss
- If rear decks or unenlcosed porches being proposed in the rear yard, they must be 3m from the rear lot line and 1.2m from the interior lot line of each unit, this includes steps
- If rear “enclosed” porches are proposed, they must meet the same rear yard setback as the dwelling which is 7.5m

Roxanne Lambrecht
Zoning Administrator
Extension 1839
Roxanne.Lambrecht@norfolkcounty.ca

Building Inspector:

The proposed construction is considered a residential Group C occupancy as defined by the Ontario Building Code (OBC). You will need to retain the services of a qualified individual with BCIN House, HVAC House an Architect and/or a Professional Engineer to complete the design documentation for this application.
Building permit brochures have been included in the minutes for your review.

Jonathan Weir
Building Official III
Extension 1832
Jonathan.weir@norfolkcounty.ca

Fire Department

Katie Ballantyne
Community Safety Officer
Extension 2423
Katie.ballantyne@norfolkcounty.ca

Housing Services:

Click here to enter text.

Stephanie Rice
Acting Director Social Services & Housing / Program Manager, Housing Services
519-426-6170
stephanie.rice@hnhss.ca

Appendix A: Summary of Applicable Planning Legislation, Policy and Zoning

Following is a summary of key items related to the proposal as presented; noting these documents are meant to be read in their entirety with relevant policies to be applied in each situation. This is not an exhaustive list and only in response to the information submitted for the pre-consultation. This feedback is subject to change pending full submission of a development application and any changes or additional information provided therein.

Provincial Policy Statement, 2020

https://www.ontario.ca/page/provincial-policy-statement-2020

Section 1.1.3. of the PPS (2020) outlines considerations for development within settlement areas. 1.1.3.2. highlights how land use patterns within settlement areas shall be based on densities and a mix of land uses which:

a) efficiently use land and resources;
b) are appropriate for, and efficiently use, the infrastructure and public service facilities which are planned or available, and avoid the need for their unjustified and/or uneconomical expansion

Further, section 1.1.3.4. states, “Appropriate development standards should be promoted which facilitate intensification, redevelopment and compact form, while avoiding or mitigating risks to public health and safety”.

Norfolk County Official Plan
https://www.norfolkcounty.ca/government/planning/official-plan/

Section 9.6.1 outlines requirements in relation to requests to amend the Official Plan.

Section 9.6.2 outlines requirements in relation to requests to amend the Zoning By-law.

Section 5.4. outlines criteria for community design regarding new development applications, including infill development.

Section 6.5.4. outlines policies pertaining to the urban area of Waterford.

Section 7.7. outlines permitted uses and land use policies for the Urban Residential designation.

It is the responsibility of the proponent to review and ensure relevant Official Plan policies are addressed in any future development application.

Norfolk County Zoning By-Law 1-Z-2014
https://www.norfolkcounty.ca/government/planning/new-zoning-by-law/

Section 5.2. outlines permitted uses and provisions for the R2 zone. Section 5.2.2. provides provisions for semi-detached dwellings.

Section 4.0 provides guidance on off-street parking provisions. These include relevant sections such as:

- Access to a Street (4.1.1.)
- Parking space dimensions (4.1.3.)
- Location of parking on a lot (4.2.2., 4.2.3.)
- Parking and landscaped area (4.2.5.)
- Number of parking spaces (4.9.)

The provisions of the Norfolk County Zoning By-Law shall apply to all lands within the boundaries of Norfolk County. No land, building or structure shall be used, erected or altered in whole or in part except in conformity with the provisions of this By-Law. No land, building or structure shall be used or occupied except for uses that are specifically identified in the By-Law as permitted uses by the relevant zoning category.

It is the responsibility of the proponent to review and ensure relevant Zoning By-law provisions are addressed in any future development application

I review and take responsibility for
the design work on behalf of a firm
registered under sub- section 3.2.4.
of Divsion C, of the Building Code.
I am qualified, and the firm is registered,
in the appropriate classes/categories.
Individual BCIN: 26172
Firm BCIN: 31260

FRONT ELEVATION

FILE NO. LUBB-1905-20

DATE MAY 19/20

REVISED

DRAWING # 1 OF 8

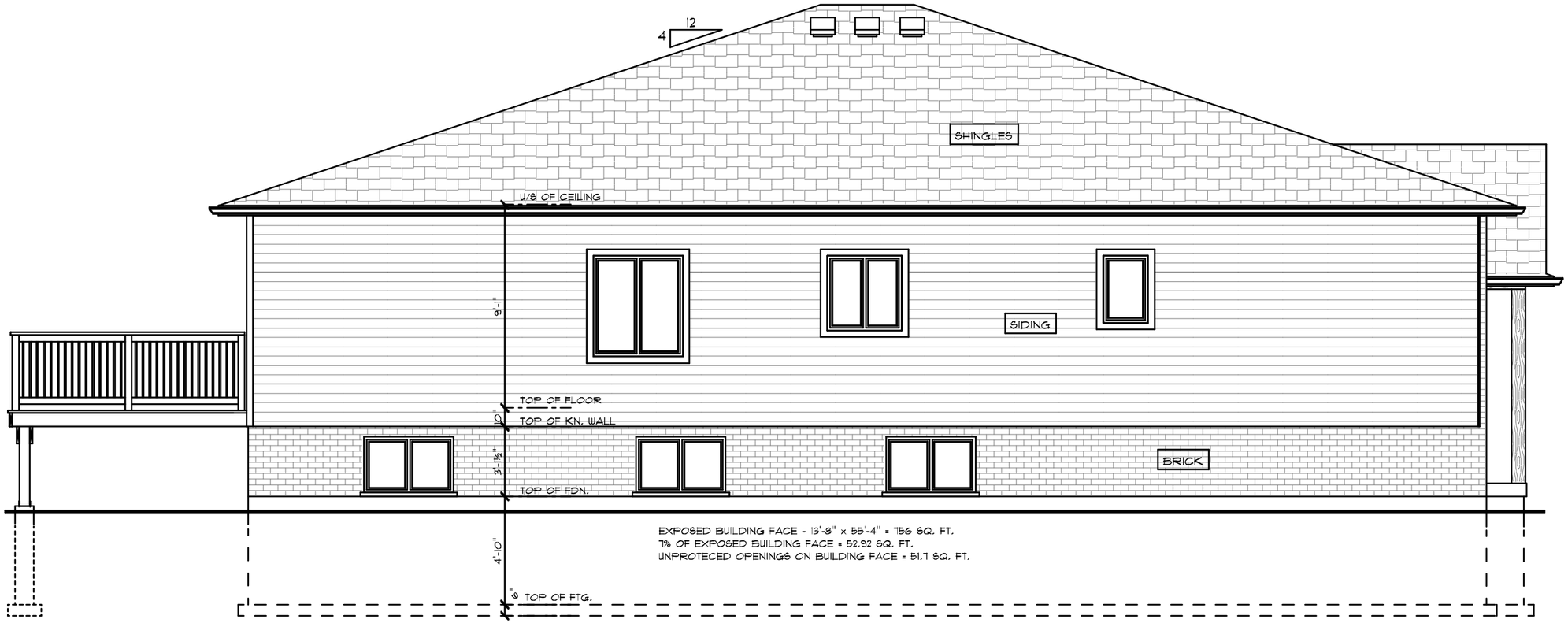
JONKMAN DESIGN
519-448-3214

SCALE 3/16" = 1'-0"

DRAWN BY JIM J

REVIEWED

PROJECT NAME
HAWK STREET (SEMI)
ST. GEORGE



LEFT SIDE ELEVATION

FILE NO. LUBB-1905-20

DATE MAY 19/20

REVISED

DRAWING # 2 OF 8

JONKMAN DESIGN
519-448-3214

SCALE 3/16" = 1'-0"

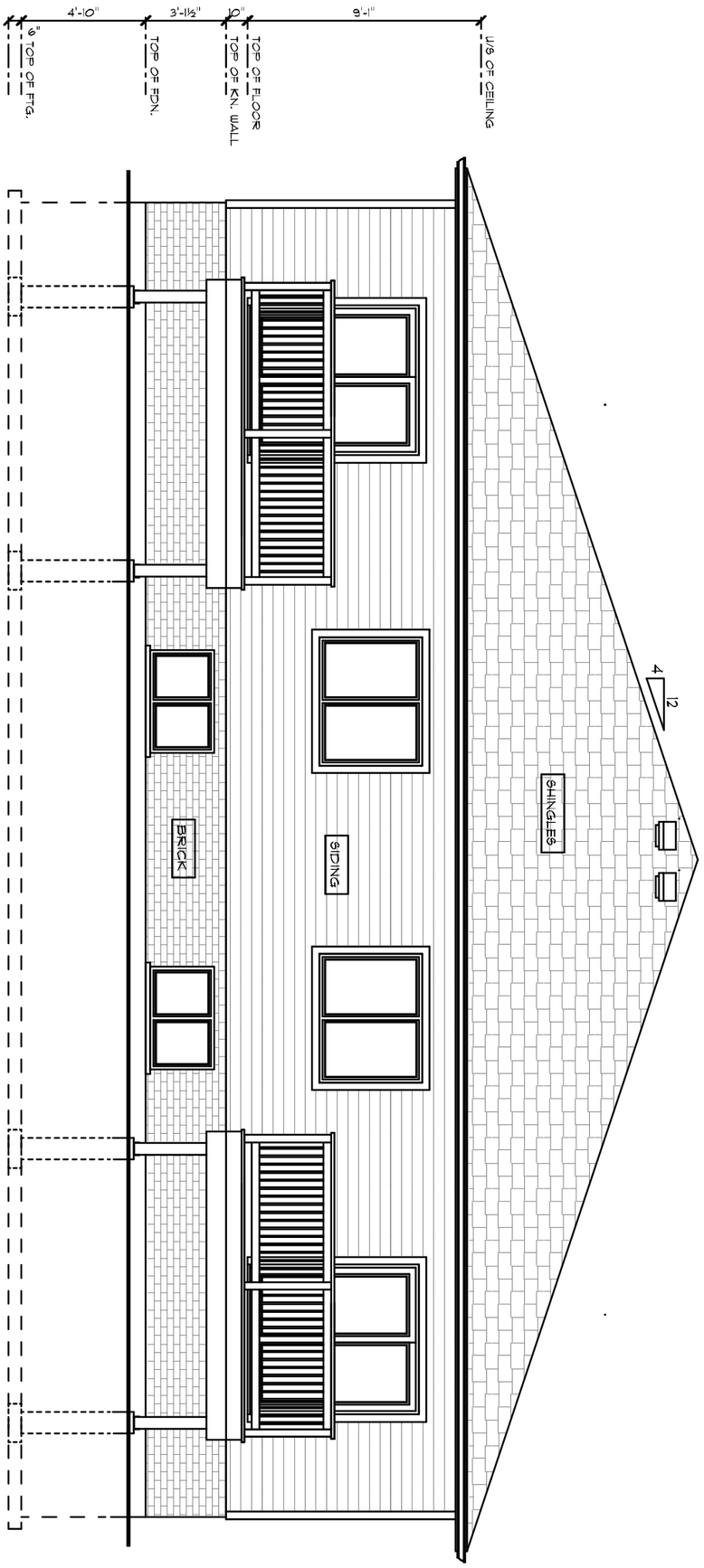
DRAWN BY JIM J

REVIEWED

PROJECT NAME

HAWK STREET (SEMI)
ST. GEORGE

REAR ELEVATION



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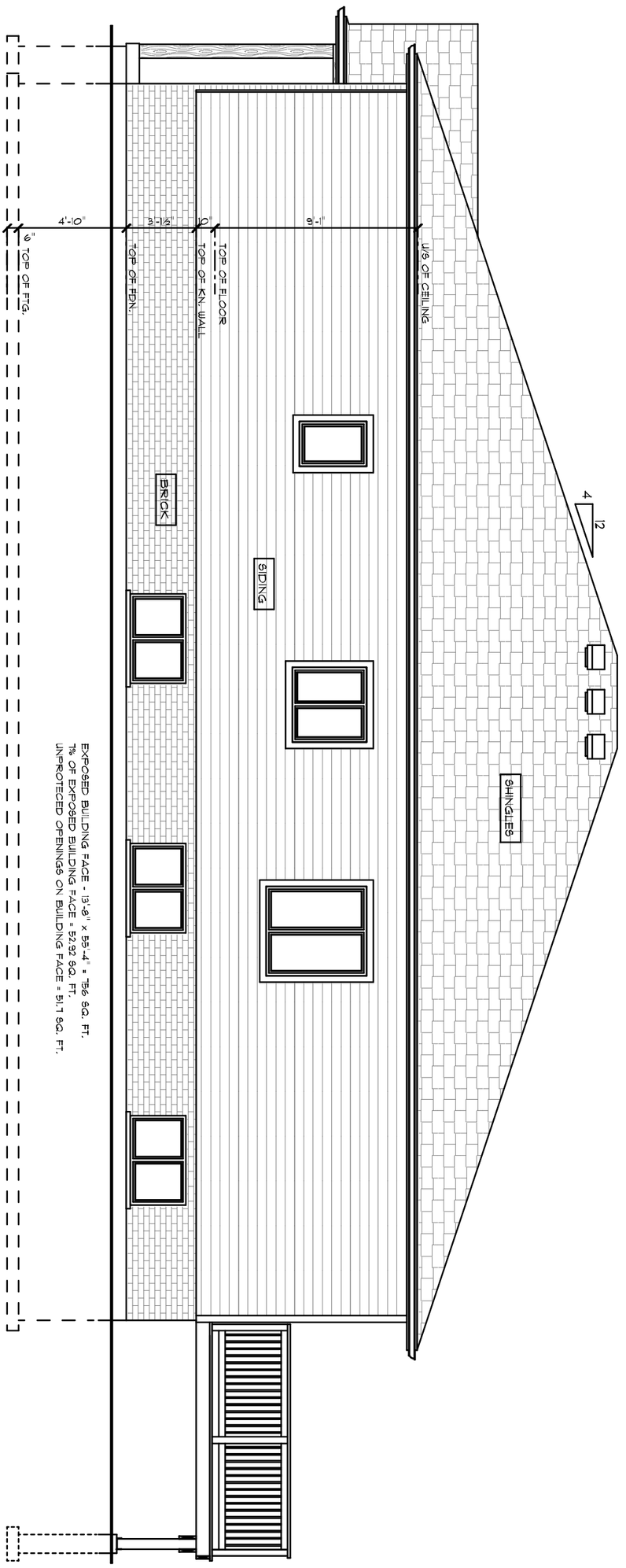
RIGHT SIDE ELEVATION



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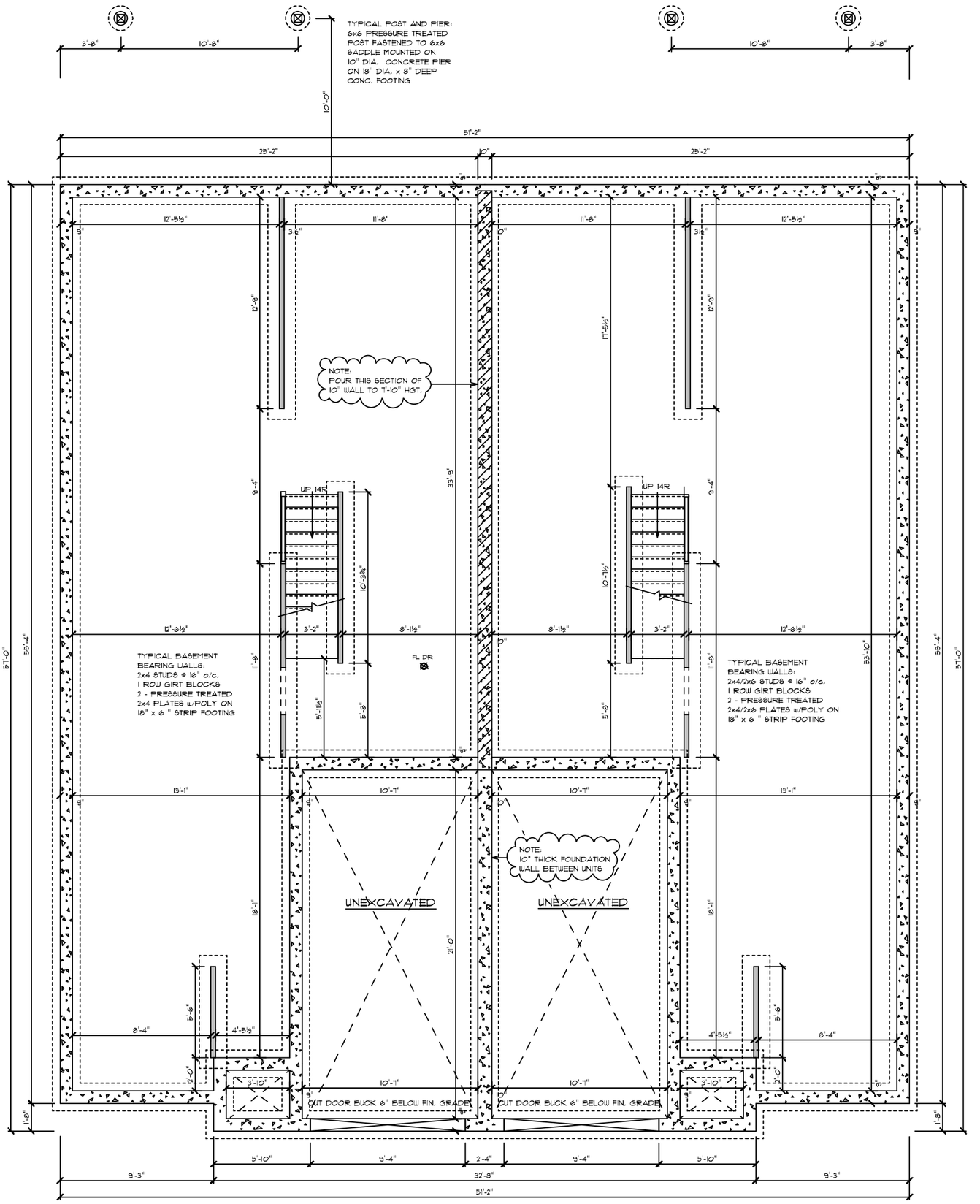
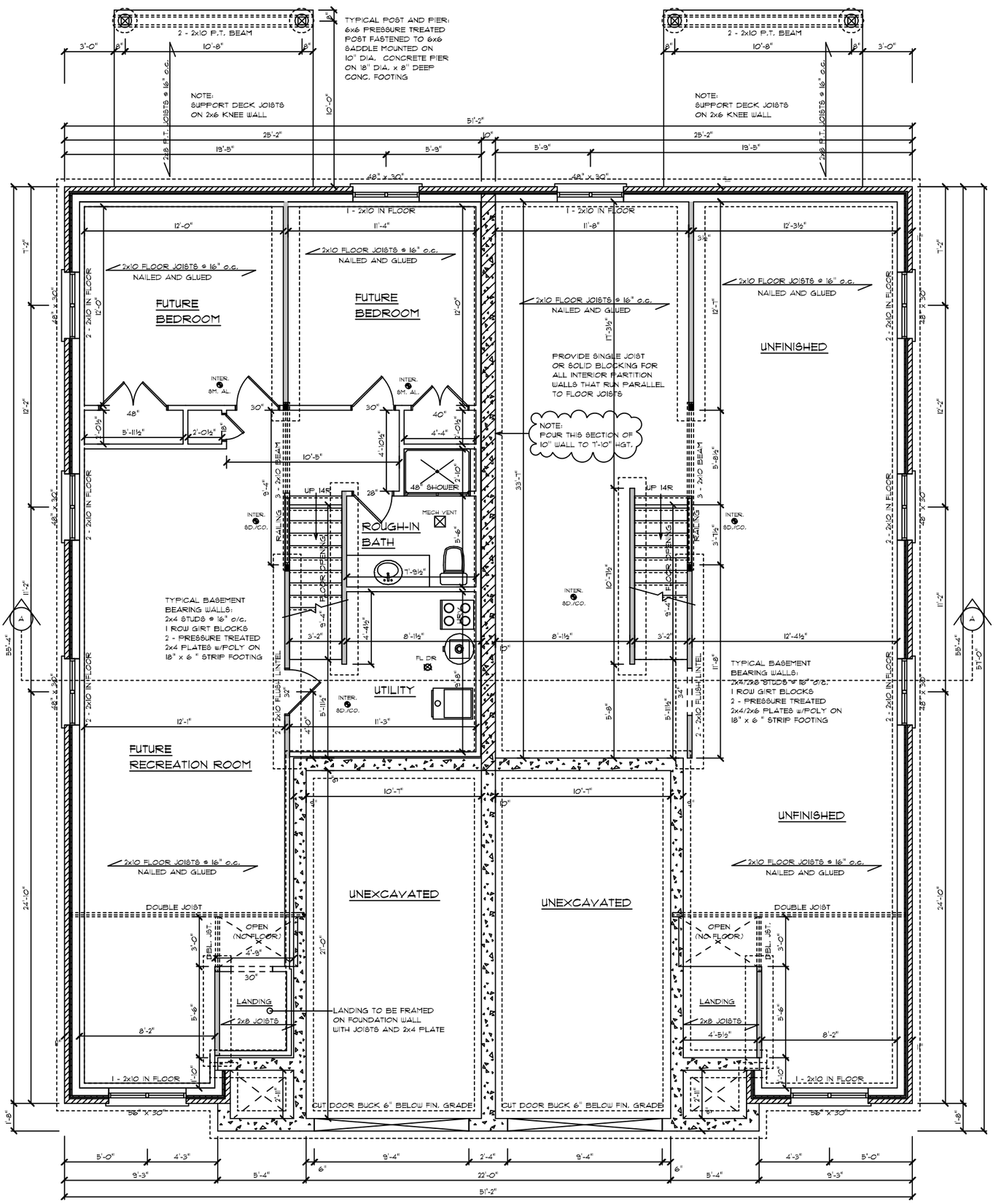
	DRAWN BY JIM J		REVISED	LUBB-1905-20
	REVIEWED		DRAWING # 4 OF 8	



FOUNDATION PLAN

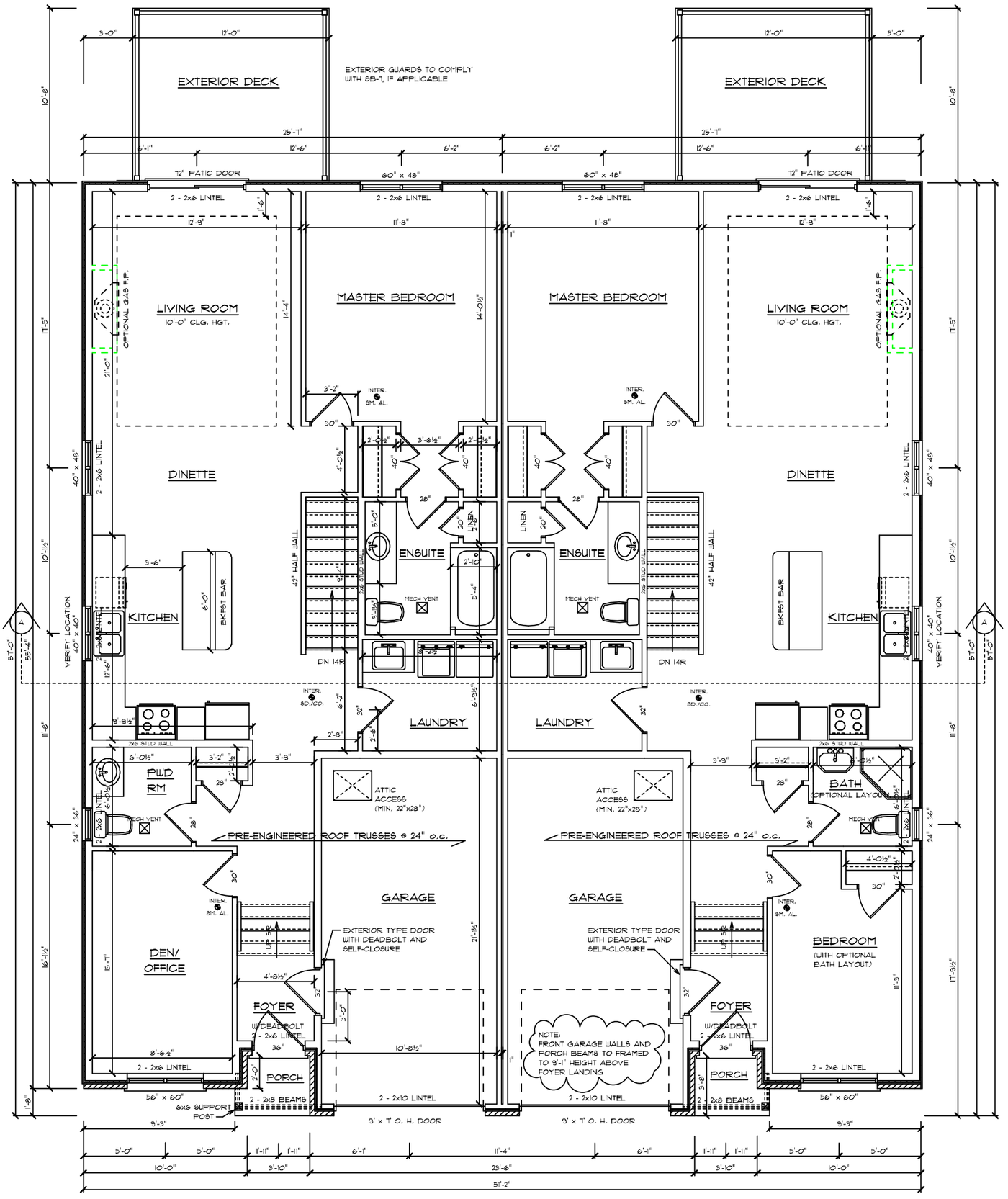
PROJECT NAME HAWK STREET (SEMI) ST. GEORGE	SCALE N.T.S. DRAWN BY JIM J REVIEWED	JONKMAN DESIGN 519-448-3214	DATE MAY 19/20 REVISED DRAWING # 5 OF 8	FILE NO. LUBB-1905-20



BASEMENT FLOOR PLAN

NOTE:
ALL LINTEL SIZES AND FLOOR JOIST SPANS TAKEN FROM THE CANADIAN WOOD COUNCIL - SPAN BOOK (2004 EDITION)

PROJECT NAME HAWK STREET (SEMI) ST. GEORGE	SCALE N.T.S. DRAWN BY JIM J REVIEWED	JONKMAN DESIGN 519-448-3214	DATE MAY 19/20 REVISED DRAWING # 6 OF 8	FILE NO. LUBB-1905-20

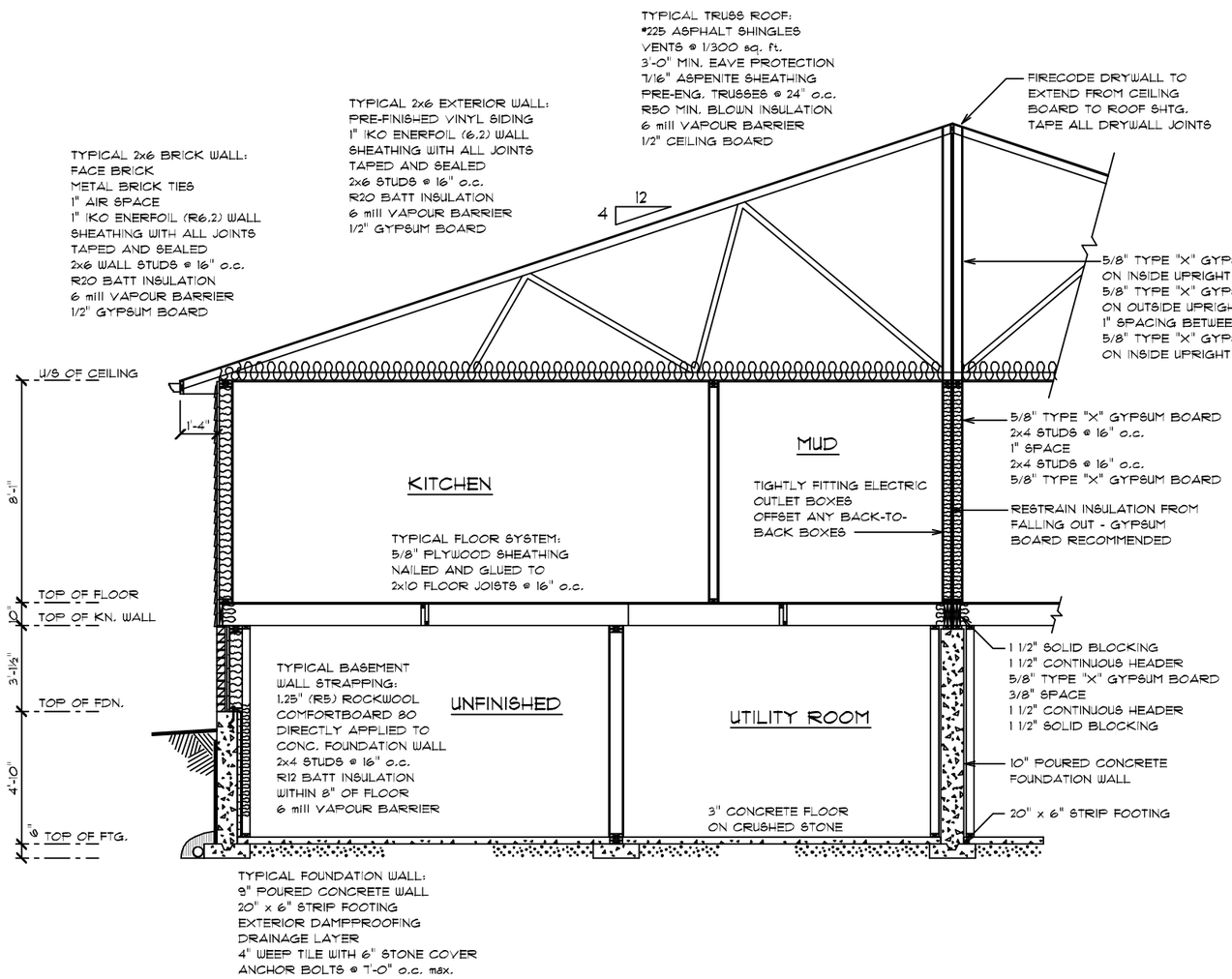


MAIN FLOOR PLAN

1176 SQ. FT.

NOTE:
ALL LINTEL SIZES AND FLOOR JOIST SPANS TAKEN FROM THE CANADIAN WOOD COUNCIL - SPAN BOOK (2004 EDITION)

PROJECT NAME HAWK STREET (SEMI) ST. GEORGE	SCALE N.T.S. DRAWN BY JIM J REVIEWED	JONKMAN DESIGN 519-448-3214	DATE MAY 19/20 REVISED DRAWING # 7 OF 8	FILE NO. LUBB-1905-20



CROSS-SECTION DETAIL

GENERAL NOTES:

1) OWNER AND/OR CONTRACTOR TO BE RESPONSIBLE FOR CHECKING AND CONFIRMING ALL MEASURMENTS
2) ALL CONSTRUCTION SHALL CONFORM TO THE ONTARIO BUILDING CODE (PART 9)
3) PLANS ARE TO BE REVIEWED BY THE LOCAL BUILDING DEPT. BEFORE PROCEEDING ANY WORK

DISCLAIMER/COPYRIGHT

THE CONTRACTOR AND/OR SUB-CONTRACTOR MUST ENSURE THAT ALL WORK PERFORMED MUST BE IN ACCORDANCE WITH PART 9 OF THE ONTARIO BUILDING CODE AND ANY DISCREPANCIES MUST BE REPORTED THE THE DESIGNER BEFORE COMMENCING ANY WORK

FILE NO. LUBB-1905-20

DATE MAY 19/20

REVISED

DRAWING # 8 OF 8

JONKMAN DESIGN
519-448-3214

SCALE 3/16" = 1'-0"

DRAWN BY JIM J

REVIEWED

PROJECT NAME
HAWK STREET (SEMI)
ST. GEORGE

J.H. COHOON ENGINEERING LIMITED

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

15373

December 26, 2022

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 42 Mechanic Street
Waterford, Ontario
Norfolk County
Traffic Considerations

Dear Sir:

In response to request from the owner of the property, Mr. P. Ligori of Lubella Homes, our firm has reviewed the traffic impacts of the proposed development to be located at MN 42 Mechanic Street in Waterford, Ontario, Norfolk County.

In support of an application for re-zoning and for severance of the property, to create two semi-detached lots (4 units total) on the subject property, a traffic brief was requested as part of the pre-consultation notes. The proposed site development has been included within Appendix 'A' of this report.

Existing Transportation Network

The subject property is located on the west side of Shadow Lake Lane on the southwest corner of the intersection of Mechanic Street and Shadow Lake Lane in Waterford, Ontario. The attached aerial photograph and the key plan presented within Figure No. 1, illustrates the existing transportation network in the area.

The site is serviced with municipal sidewalks on the existing streets (Mechanic Street), adjacent to the property. These sidewalks provide the existing and proposed residences to have access to the walkable community that exists. The uses that are present in the area are consistent with a residential area of a small community. Our firm reached out to Norfolk County and determined that no existing traffic volumes were available for either Mechanic Street or Shadow Lake Lane.

The current zoning for the site is 'R1A' – Urban Residential Type 1 Zone Type A which is predominately a single-family residential zone. Additional land uses in the area are also residential with a scattering of 'R2' – Urban Residential Type 2 Zone and 'R3' – Urban Residential Type 3 Zone where both zones include additional units on a lot. The 'R2' and 'R3' zones are scattered throughout the area. 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
Two Semi-Detached units (four units total)
= Approximately 0.6 trips per unit for the peak pm hour – this trip generation for single family homes is 1.0 and 0.6 for apartments. For the purpose of this analysis, a trip generation of 1.0 was utilized.

In this case, this would translate into about 4 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 4 peak hour trips associated with the development on Shadow Lake Lane and ultimately onto Mechanic Street would be considered insignificant for this area of the Town of Waterford. We have included the following information relating to this development.

Parking

The proposed parking on this site includes the construction of a surface parking area that is located on site either within the integral garage or a space in front of the garage. In total, the proposed development will have 2 parking spots per unit or 8 spaces to be constructed on the site. Within Norfolk County, the required parking space is to be 3.0m x 5.8m with the exception of the garage which is intended / required to be 3.3m in width (due to the presence of walls adjacent to the space) and 5.8m in length.

The Norfolk County Zoning Bylaw requires one (1) space per dwelling unit whereas two (2) spaces are proposed for this site.

It is our opinion that as a result of the incorporation of the 8 parking spaces is sufficient in this application. The proposed parking space as the site does not require any parking under the provisions of the current zoning bylaw.

The following memo has been subdivided into two sections: Existing Traffic Demand Management (TDM) Opportunities, and Proposed TDM Opportunities.

<u>Proposed TDM Opportunities</u>

Walking:	The site is intended to be pedestrian friendly in nature with concrete sidewalk pedestrian walkways to the existing concrete sidewalks on Shadow Lake Lane and Mechanic Street from the main entrances.
Parking:	The parking on each site lot will have sufficient parking to service the site.

With the inclusion of the TDM opportunities being undertaken are appropriate for the project's location. Our firm anticipates that the measures being implemented will allow for a much more accessible site making it easier for people to use alternative methods of transportation.

Site Access
The proposed site plan has been reviewed with consideration of access for all types of vehicles on this property.

In the review of the site plan in conjunction with the road network, the proposed driveway access locations are greater than 20m+ from the existing intersection at of Mechanic Street and Shadow Lake Lane. The location of the entrance would not have any impact on the operation of the municipal rights-of-way. Shadow Lake Lane is currently a dead-end street with only three (3) existing driveways

Fire protection for this development will be provided directly from the Shadow Lake Lane right-of-way to meet the requirements of the Ontario Building Code.

Conclusions:

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

- The development proposal to redevelop the subject property to allow for approximately two (2) semi-detached buildings (four (4) units total).
- The access to the site is intended to be a full movement driveway onto Shadow Lake Lane which is a dead-end street in Waterford, Ontario
- The development is going to generate only a maximum of 4 peak pm hour movements as a result of the increased development
- The anticipated increased traffic from the development would be considered insignificant as it relates to the overall capacity of existing infrastructure in the area.

I trust that this information will be sufficient to allow the re-zoning application to proceed.

Yours truly,

J.H. COHOON ENGINEERING LIMITED

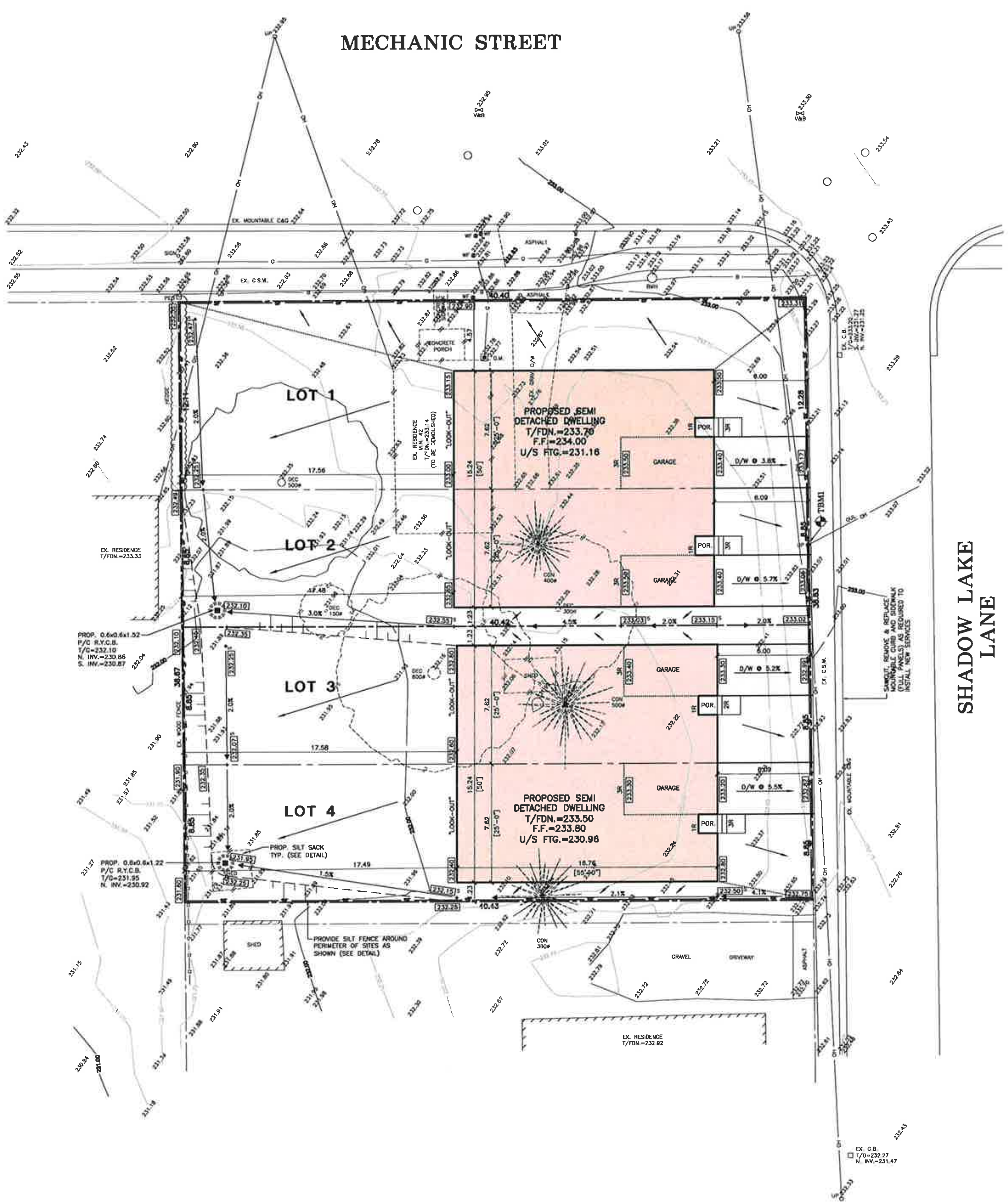
LICENSED PROFESSIONAL ENGINEER
26/12/22
R. W. PHILLIPS
PROVINCE OF ONTARIO

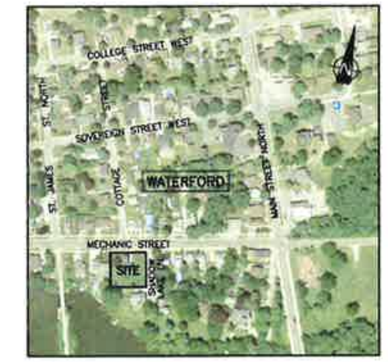
R.W. Phillips, P.Eng.

c.c. Lubella Homes

Appendix 'A'

J H Cohoon Engineering Limited – Site Development Plan
Being drawing 15373-1



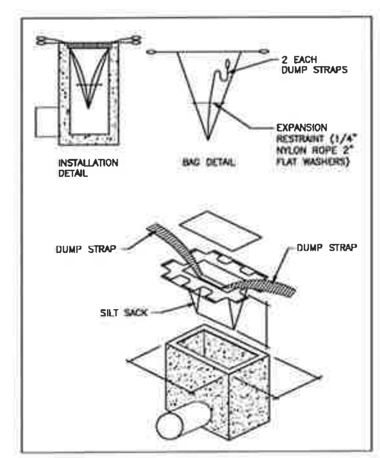


KEY PLAN:

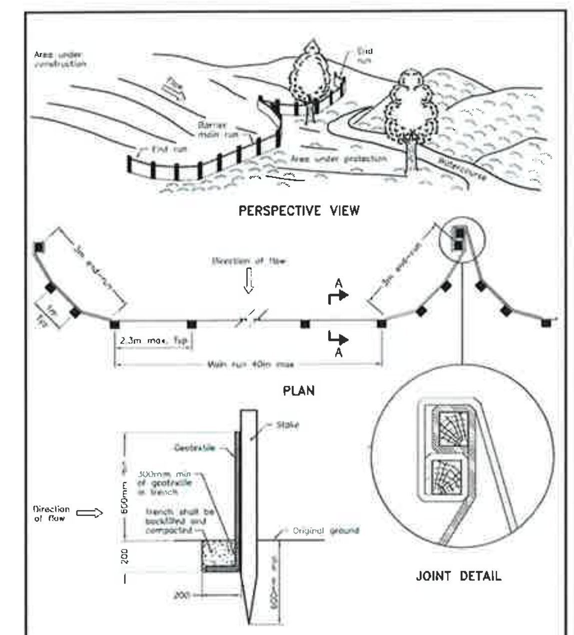
INDIVIDUAL UNIT SITE STATISTICS

ITEM	LOT 1	LOT 2	LOT 3	LOT 4	ZONING BYLAW REQUIREMENTS
ZONING CATEGORY		R2 (REZONED FROM R1-A)			R2
LOT AREA (sq. m.)	– – 492.8	357.7 – –	357.7 – –	357.7 – –	255.0 MIN. (INTERIOR) 345.0 MIN. (CORNER)
LOT FRONTAGE (m)	– – 12.25	8.85 – –	8.85 – –	8.85 – –	8.50 MIN. (INTERIOR) 11.50 MIN. (CORNER)
FRONT YARD (m)	6.00	6.09	6.00	6.09	6.00 MIN.
EXTERIOR SIDE YARD (m)	4.57**	– –	– –	– –	6.00 MIN.
INTERIOR SIDE YARD (m)	– –	1.23	1.23	1.23	1.20 MIN.
REAR YARD (m)	17.56	17.48	17.58	17.49	7.50 MIN.
PERCENTAGE OF FRONT YARD LANDSCAPED	72.8%	62.2%	62.9%	63.0%	50% MIN.
BUILDING HEIGHT (m)	– –	– –	– –	– –	11.00 MIN.

** ITEM REQUIRES A MINOR VARIANCE



SILT SACK DETAIL
N.T.S.



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

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
LIGHT-DUTY SILT FENCE BARRIER	OPSD 219.110	

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

LEGEND:

- 200.00 EXISTING ELEVATIONS
- [200.00] PROPOSED ELEVATIONS
- [200.00]S PROPOSED SWALE ELEVATIONS
- PROPOSED SWALE
- GENERAL DRAINAGE
- PROPOSED SILT FENCE
- SILT SACK AS SHOWN
- EX. TREES TO REMAIN
- EX. TREES TO BE REMOVED

NOTES:

1. ALL ELEVATIONS SHOWN ARE METRIC.
2. BUILDER/OWNER TO VERIFY COMPLIANCE WITH ZONING BYLAWS (ie. SIDEYARDS, SETBACKS, REARYARDS ETC.)
3. WHERE ONLY ONE ELEVATION IS SHOWN, EXISTING AND PROPOSED ELEVATIONS ARE THE SAME.
4. THE SILTATION & EROSION CONTROL (SEC) MEASURES ILLUSTRATED ON THIS PLAN ARE CONSIDERED TO BE THE MINIMUM REQUIREMENT. SITE CONDITIONS MAY REQUIRE ADDITIONAL MEASURES WHICH WILL BE IDENTIFIED BY THE ENGINEER DURING CONSTRUCTION.
5. ALL SEC MEASURES ARE TO BE IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. OWNER/CONTRACTOR TO MAINTAIN EROSION CONTROL MEASURES THROUGHOUT SITE UNTIL A COMPLETE GRASS/VEGETATION COVER IS ACHIEVED.
7. ONLY AT THE DIRECTION OF THE ENGINEER ARE THE SEC MEASURES TO BE REMOVED.
8. ALL EXPOSED AREAS NOT SUBJECT TO ACTIVE CONSTRUCTION WITHIN 30 DAYS ARE TO BE REVEGETATED AS PER O.P.S.S. 572 IMMEDIATELY UPON COMPLETION OF AREA GRADING.
9. CONTRACTOR TO PROVIDE SILT FENCE AROUND PERIMETER OF ALL ON SITE STOCKPILES.
10. CONTRACTOR TO PROVIDE SILT SACKS ON TOP OF ALL EXISTING AND PROPOSED STORM STRUCTURES WITHIN THE INFLUENCE OF RUNOFF DURING CONSTRUCTION UNTIL ADEQUATE VEGETATIVE COVER IS ACHIEVED.

T.B.M. No. 1 ELEV. = **233.54m** (GEO)
WOOD STAKE ON UTILITY POLE ON THE WEST SIDE OF SHADOW LAKE LANE AS SHOWN

NO.	REVISION	DATE (MM/DD/YY)	BY

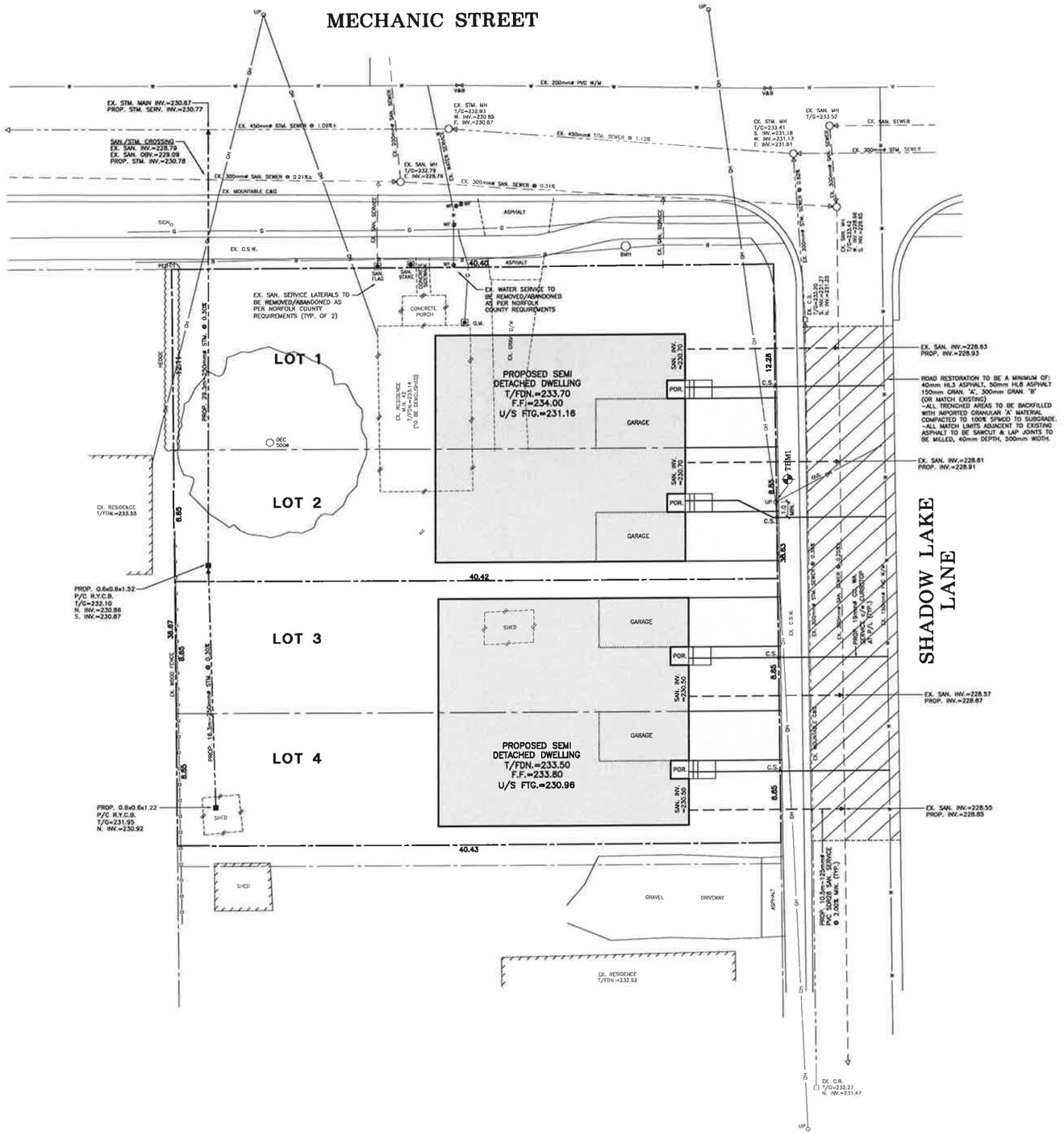
J.H. COHOON ENGINEERING LIMITED
CONSULTING ENGINEERS
440 HARDY ROAD , UNIT #1 , BRANTFORD – ONTARIO , N3T 5L8
TEL. (519) 753-2656 FAX. (519) 753-4263 www.cohooneng.com

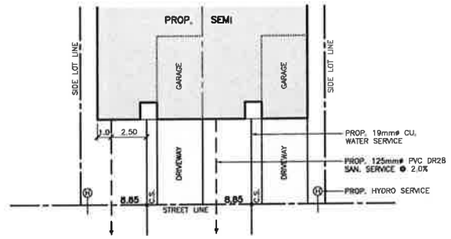
PROJECT:
PROPOSED RESIDENCES
LOTS 2, 3 & 4
BLOCK 5, R.P. 19B
M.N. 42 MECHANIC STREET
NORFOLK COUNTY

CLIENT:
LUBELLA HOMES

GRADING & SILTATION AND EROSION CONTROL PLAN

DESIGN:	M.J.W.	SCALE:	1:150
DRAWN:	K.P.B.	JOB No:	15373
CHECKED:	M.J.W.		
SHEET:	1 of 2	DWG. No:	15373-1
DATE:	DEC. 28/22		





TYPICAL LOT SERVICING

N.T.S.

GENERAL NOTES:

1. CONSTRUCTION OF SEWERS, WATERMAINS AND RELATED APPURTENANCES SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE CURRENT STANDARD DRAWINGS OF THE COUNTY OF NORFOLK, AND THE ONTARIO PROVINCIAL STANDARDS DRAWINGS (OPSD). THE COUNTY OF NORFOLK DRAWINGS SHALL TAKE PRECEDENCE OVER THE OPSD DRAWINGS.
2. INFORMATION REGARDING ANY EXISTING SERVICES AND/OR UTILITIES SHOWN ON THE APPROVED SET OF CONSTRUCTION DRAWINGS IS FURNISHED AS THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL INTERPRET THIS INFORMATION AS THEY SEE FIT WITH THE UNDERSTANDING THAT THE OWNER AND HIS AGENTS DISCLAIM ALL RESPONSIBILITY FOR ITS ACCURACY AND/OR SUFFICIENCY.
3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION AND HE SHALL REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
4. RELOCATION OF EXISTING SERVICES AND/OR UTILITIES SHALL BE CONSTRUCTED AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.
5. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FOR CONSTRUCTION.
6. FOR ALL SEWERS AND WATERMAIN IN FILL SECTIONS, THE COMPACTION SHALL BE VERIFIED PRIOR TO LAYING OF PIPE.
7. NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE COUNTY OF NORFOLK OR THE ENGINEER.
8. ALL EXCAVATIONS TO BE BACKFILLED WITH SELECT NATIVE MATERIAL, APPROVED BY THE ENGINEER, TO 95% S.P.D.
9. THE DEVELOPER AND/OR CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING (UNTIL ROAD CONSTRUCTION IS FINISHED) SILT CONTROL DEVICES AS SHOWN ON THE DRAWINGS AND AS DIRECTED BY THE ENGINEER.
10. ALL WORKS SHALL BE DESIGNED AND CONSTRUCTED SO AS TO COMPLY WITH APPLICABLE LAW, TO BE CONSISTENT WITH THE COUNTY OF NORFOLK DEVELOPMENT & ENGINEERING STANDARDS AND IN ACCORDANCE WITH CURRENT GUIDELINES, CODES, REGULATIONS AND STANDARDS PRESCRIBED BY THE COUNTY.
11. ALL BOULEVARD AREAS TO BE RESTORED WITH #1 NURSERY SOD ON A MINIMUM 100mm OF SELECT TOPSOIL.
12. ALL TRENCH BACKFILL UNDER EXISTING ROADWAYS SHALL BE COMPACTED IN MINIMUM 230mm LIFTS TO 98% STANDARD PROCTOR DENSITY. A GEOTECHNICAL ENGINEER'S REPRESENTATIVE SHALL BE ON SITE DURING THE WORK TO VERIFY THE COMPACTION OF EACH LIFT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS OF RE-TESTING.
13. AN ENGINEER IS REQUIRED TO BE ONSITE FOR INSPECTION OF ALL UNDERGROUND SERVICES.
14. DRIVEWAYS MUST HAVE A MINIMUM 1.0m CLEARANCE FROM ALL UTILITIES SUCH AS FIRE HYDRANT, STREETLIGHT POLES, TRANSFORMERS, CANADA POST COMMUNITY MAILBOX LOCATIONS, ETC.
15. ALL WATER SERVICE CONNECTIONS 19mm DIA. ASTM B88 TYPE 'K' SOFT COPPER AS PER OPSD 1104.01 & COUNTY OF NORFOLK ENGINEERING STANDARDS, & INSTALLED IN ACCORDANCE WITH OPSD 802.110 TYPE 2. TRENCH BEDDING TO BE GRANULAR 'A'.
16. CURB STOPS TO BE MUELLER A-726 OR EQUIVALENT APPROVED BY THE COUNTY OF NORFOLK.
17. CATHODIC PROTECTION TO BE PROVIDED AT ALL VALVES, BENDS AND FITTINGS WITH 11.0 KG ZINC ANODES AND ON ALL WATER SERVICE CONNECTIONS WITH 5.5 KG ZINC ANODES.
18. WATER SERVICES TO BE INSTALLED WITH A MINIMUM COVER OF 1.70m BELOW FINISHED GRADE.
19. LOT 2 WATER SERVICE INSTALLATION OF BE MIN. 1.0m FROM EXISTING UTILITY POLE.
20. ALL WATER SERVICES TO BE INSTALLED OVER EXISTING STORM SEWER. PROVIDE MINIMUM 1.70m COVER OVER AND MINIMUM SEPARATION TO EXISTING STORM SEWER.
21. NO WORK ON WATER SERVICES CAN TAKE PLACE WITHOUT SUPERVISION OF A LICENSED NORFOLK COUNTY OPERATOR ON SITE.
22. ALL APPLICABLE PERMITS ARE TO BE APPLIED FOR PRIOR TO THE INSTALLATION OF ANY SERVICES.

SANITARY SEWERS:

1. SANITARY & STORM SEWERS & RELATED APPURTENANCES SHALL BE DESIGNED AND CONSTRUCTED SO AS TO COMPLY WITH APPLICABLE LAW, TO BE CONSISTENT WITH THE COUNTY OF NORFOLK DEVELOPMENT AND ENGINEERING STANDARDS AND IN ACCORDANCE WITH CURRENT GUIDELINES, CODES, REGULATIONS, BEST PRACTICES AND STANDARDS PRESCRIBED BY THE COUNTY.
2. COVER AND BEDDING MATERIAL FOR PVC PIPE AS PER OPSD 802.010 TYPE 2 TRENCH BEDDING SHALL BE GRANULAR 'A' MATERIAL UNLESS OTHERWISE INDICATED.
3. PVC PIPE WILL REQUIRE SPECIAL CONSTRUCTION PROCEDURES FOR LEAKAGE AND TESTING, PIPE DEFLECTION, ETC.
4. ALTERNATE MATERIALS MAY BE ACCEPTABLE, PROVIDED APPROVAL HAS FIRST BEEN OBTAINED FROM THE COUNTY OF NORFOLK AND ENGINEER IN WRITING.
5. ALL SEWER AND CULVERT INSTALLATIONS TO CONFORM WITH OPSD 802.031 TYPE 3 SOIL.
6. PRIVATE SANITARY DRAINS TO 125mmø PVC DR28 PIPE AND HAVE A MIN. GRADE OF 2.0%, AS PER NORFOLK COUNTY DESIGN CRITERIA.
7. A 38x89mm x 2.0m LONG MARKER IS TO BE PLACED FROM THE CAPPED LATERAL AND EXTEND 1.0m ABOVE GROUND AND PAINTED GREEN FOR SANITARY AND WHITE FOR STORM.
8. BEDDING FOR PRIVATE SANITARY & STORM DRAINS AS PER OPSD 1006.02 TYPE 2 TRENCH WITH GRANULAR 'A' BEDDING AND COVER MATERIAL.
9. MINIMUM FALL FOR PRIVATE SANITARY & STORM DRAINS TO BE 2.0%
10. SANITARY SERVICES TO BE INSTALLED USING SERVICE SADDLES OR PRE-MANUFACTURED TEE APPROVED BY NORFOLK COUNTY. ALL CONNECTIONS TO SHALL CONFORM TO CURRENT OPSD 1008.010 AND OPSS 410.

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

LEGEND:

EX. 50m-300mmø STM. @ 0.5%	EXISTING STORM SEWER SYSTEM
EX. 60m-200mmø SAN. @ 0.4%	EXISTING SANITARY SEWER SYSTEM
W	EXISTING WATERMAIN
OH	EXISTING OVERHEAD UTILITY LINE
	EXISTING WOOD FENCE
S1	EXISTING SANITARY MANHOLE
ST1	EXISTING STORM MANHOLE
CB	EXISTING CATCHBASIN
BELL PED	EXISTING BELL PEDESTAL
WV	EXISTING WATER VALVE
UP	EXISTING UTILITY POLE
TBM	EXISTING TEMPORARY BENCHMARK
WF	EXISTING WATER FLAG
	PROPOSED SANITARY SERVICE
C.S.	PROPOSED WATER SERVICE
	PROPOSED CATCHBASIN

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PROJECT:

PROPOSED RESIDENCES LOTS 2, 3 & 4 BLOCK 5, R.P. 19B

M.N. 42 MECHANIC STREET
NORFOLK COUNTY

CLIENT: LUBELLA HOMES

SERVICING PLAN

DESIGN:	M.J.W.	SCALE:	1:150
DRAWN:	K.P.B.	JOB No:	15373
CHECKED:	M.J.W.		
SHEET:	2 of 2	DWG. No:	15373–2
DATE:	DEC. 28/22		

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

MAP NORFOLK - Community Web Map

12/27/2022, 3:15:17 PM

1:2,000

0 90 180 360 ft

0 25 50 100 m

Zones 1-Z-2014

- Zone
- Zone with Holding Provision
- Special Provisions
- Site Plan Control
- Lakeshore Erosion Prone Areas
- Land Parcels
- Civic Address
- Plan Lines

5.0 Residential *Zones*

5.1 Urban Residential Type 1 *Zone* (R1)

5.1.1 *Permitted* Uses

In an R1 *Zone*, no land, *building* or *structure* shall be used except in accordance with the following uses:

a) *dwelling, single detached*
b) *bed & breakfast*, subject to Subsection 3.4
c) *home occupation*
d) *accessory residential dwelling unit*, subject to Subsection 3.2.3.

5.1.2 *Zone* Provisions

In an R1-A and R1-B *Zone*, no *building* or *structure* shall be *erected* or *altered* except in accordance with the provisions in the following *Zones*:

	Provision	R1-A	R1-B
a)	minimum *lot area*:		
	i) *interior lot*	450 square metres	360 square metres
	ii) *corner lot*	560 square metres	450 square metres
b)	minimum *lot frontage*:		
	i) *interior lot*	15 metres	12 metres
	ii) *corner lot*	18 metres	15 metres
c)	minimum *front yard*:	6 metres	6 metres
	i) detached garage with rear *lane*	3 metres	3 metres
d)	minimum *exterior side yard*:	6 metres	6 metres
e)	minimum *interior side yard*:		
	i) detached garage	3 metres&1.2 metres	3 metres&1.2 metres
	ii) detached garage with a rear *lane*; attached garage	1.2 metres each side	1.2 metres each side
f)	minimum *rear yard*:	7.5 metres	7.5 metres
g)	maximum *building height*:	11 metres *[8-Z-2017]*	11 metres *[8-Z-2017]*

5.1.3 Projection of an Attached Garage

The wall of an attached garage facing the *street* in an R1-B *Zone* shall project no more than 3.5 metres from the main front wall of the *dwelling*. This projection shall be measured from the wall of the garage facing the *front lot line* to the nearest structural element of the front wall of the *dwelling* facing the *front lot line*, including any covered porch which extends along the entire front wall of the *dwelling*, but excluding eaves, stairs or gutters.

This provision shall not apply where:

a) the front wall of the *dwelling* and the wall of the attached garage containing the opening for vehicular access do not face the same *lot line*; or,

b) the width of the attached garage is less than 60 percent of the width of the *dwelling*.

5.2 Urban Residential Type 2 *Zone* (R2)

5.2.1 *Permitted* Uses

In an R2 *Zone*, no land, *building* or *structure* shall be used except in accordance with the following uses:

a) *dwelling, single detached*
b) *dwelling, semi-detached*
c) *dwelling, duplex*
d) *bed & breakfast*, subject to Subsection 3.4
e) *day care nursery*
f) *home occupation*
g) *accessory residential dwelling unit,* subject to Subsection 3.2.3.

5.2.2 *Zone* Provisions for *Semi-Detached* and *Duplex Dwellings*

In an R2 *Zone*, no *building* or *structure* shall be *erected* or *altered* except in accordance with the provisions for each of the following uses:

	Provision	*Semi-detached* (per unit)	*Duplex Dwelling*
a)	minimum *lot area*:		
	i) *interior lot*	255 square metres	450 square metres
	ii) *corner lot*	345 square metres	540 square metres
b)	minimum *lot frontage*:		
	i) *interior lot*	8.5 metres	15 metres
	ii) *corner lot*	11.5 metres for the corner unit	18 metres
c)	minimum *front yard*:	6 metres	6 metres
	i) except where a detached *private garage* or *parking space* is accessed via a rear *lane*	3 metres	3 metres
d)	minimum *exterior side yard*:	6 metres	6 metres
e)	minimum *interior side yard*:		
	i) detached *private garage* or *parking space* accessed via *front yard*	3 metres	3 metres&1.2 metres
	ii) detached *private garage* or *parking space* accessed via a rear *lane*	1.2 metres	1.2 metres each side
	iii) attached *private garage*	1.2 metres	1.2 metres each side
f)	minimum *rear yard*:	7.5 metres	7.5 metres
g)	maximum *building height*:	11 metres *[8-Z-2017]*	11 metres *[8-Z-2017]*

5.2.3 *Zone* Provisions for all Other *Permitted* Uses

The provisions in the R1-B *Zone* shall apply to all other uses except a *home occupation* which shall be *permitted* in any *dwelling* within the R2 *Zone*.

5.2.4 Mutual *Side Lot Line* for *Semi-Detached Dwelling*

On the mutual *side lot line* separating two (2) attached *semi-detached dwelling units*, no *interior side yard* is *required* where the walls are joined; where the walls are not joined, a 1.2 metre *side yard* shall be *required*.

5.2.5 Projection of an Attached Garage

The wall of an attached garage facing the *street* in an R2 *Zone* shall project no more than 3.5 metres from the front wall of the *dwelling*. This projection shall be measured from the wall of the garage facing the *front lot line* to the nearest structural element of the front wall of the *dwelling* facing the *front lot line*, including any covered porch which extends along the entire front wall of the *dwelling*, but excluding eaves, stairs or gutters.

This provision shall not apply where:

a) the front wall of the *dwelling* and the wall of the attached garage containing the opening for vehicular access do not face the same *lot line*;

b) the width of the attached garage is less than 60 percent of the width of the *dwelling*; or,

c) a *duplex* or *single detached dwelling* is located on a *lot* with a *lot frontage* of 15 metres or greater.

5.3 Urban Residential Type 3 *Zone* (R3)

5.3.1 *Permitted* Uses

In an R3 *Zone*, no land, *building* or *structure* shall be used except in accordance with the following uses:

a) *dwelling, single detached*
b) *dwelling, semi-detached*
c) *dwelling, duplex*
d) *dwelling, tri-plex*
e) *dwelling, four-plex*
f) *boarding or lodging house*
g) *bed & breakfast*, subject to Subsection 3.4
h) *day care nursery*
i) *home occupation*
j) *accessory residential dwelling unit*, subject to Subsection 3.2.3.

5.3.2 *Zone* Provisions for *Tri-plex, Four-plex, Boarding or Lodging House*

In an R3 *Zone*, no *building* or *structure* shall be *erected* or *altered* except in accordance with the provisions for each of the following *dwelling* types:

	Provision	*Tri-plex*	*Four-plex*	*Boarding or Lodging House*
a)	minimum *lot area*:			
	i) *interior lot*	510 sq. m.	660 sq. m.	450 sq. m.
	ii) *corner lot*	600 sq. m.	765 sq. m.	540 sq. m.
b)	minimum *lot frontage*:			
	i) *interior lot*	17 metres	19.5 metres	15 metres
	ii) *corner lot*	20 metres	22.5 metres	18 metres
c)	minimum *front yard*:	6 metres	6 metres	6 metres
d)	minimum *exterior side yard*:	6 metres	6 metres	6 metres
e)	minimum *interior side yard*:	3 metres& 1.2 metres	3 metres	
	i) attached garage			1.2 metres each side
	ii) detached garage			3 metres& 1.2 metres
f)	minimum *rear yard*:	12 metres	12 metres	12 metres
g)	minimum *usable floor area:* for a boarding room			8 sq. m. and an additional 6 sq. m. for each additional occupant
h)	maximum *building height*:	11 metres *[8-Z-2017]*	11 metres *[8-Z-2017]*	11 metres *[8-Z-2017]*

5.3.3 *Zone* Provisions for all Other *Permitted* Uses

The provisions for the Urban Residential Type 2 (R2) *Zone* shall apply to all other uses except a *home occupation* which shall be *permitted* in any *dwelling* within the R3 *Zone*.

5.3.4 *Yard* Exemption for a *Boarding or Lodging House*

Any *existing single detached dwelling* having any *yard* less than that *required* by this By-Law may be used as a *boarding or lodging house* provided any extension or addition to the *dwelling* house complies with the *yard* requirements.

Grand River Conservation Authority

Date: Dec 27, 2022

Author; R W Phillips

42 Mechanic Street, Waterford

Legend

- Regulation Limit (GRCA)
- Regulated Watercourse (GRCA)
- Regulated Waterbody (GRCA)
- Wetland (GRCA)
- Floodplain (GRCA)
  - Engineered
  - Estimated
  - Approximate
  - Special Policy Area
- Slope Valley (GRCA)
  - Steep
  - Oversteep
  - Steep
- Slope Erosion (GRCA)
  - Oversteep
  - Toe
- Lake Erie Flood (GRCA)
- Lake Erie Shoreline Reach (GRCA)
- Lake Erie Dynamic Beach (GRCA)
- Lake Erie Erosion (GRCA)
- Parcel - Assessment (MPAC/MNRF)

This legend is static and may not fully reflect the layers shown on the map. The text of Ontario Regulation 150/06 supercedes the mapping as represented by these layers.

0 20 40 80 120 Metres

N

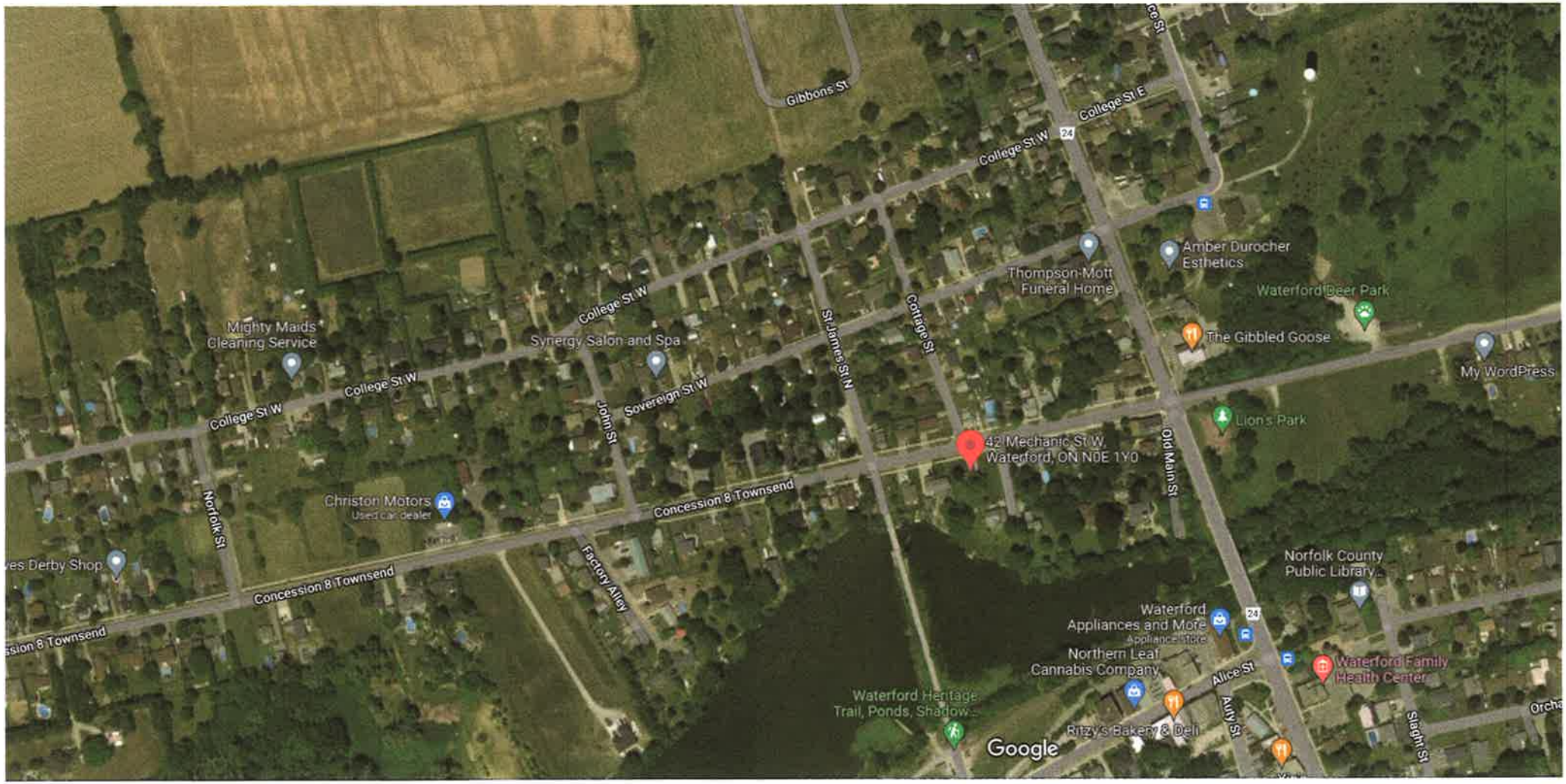
Map Centre (UTM NAD83 z17): 557,642.83 4,754,044.55

This map is not to be used for navigation | 2020 Ortho (ON)

NAD 1983 UTM Zone 17N

Scale: 3,885

Google Maps 42 Mechanic St W



Imagery ©2022 CNES / Airbus, First Base Solutions, Maxar Technologies, Map data ©2022 100 m

42 Mechanic St W

FUNCTIONAL SERVICING REPORT
(Including Stormwater Management)
PROPOSED RESIDENTIAL DEVELOPMENT

42 Mechanic Street
Waterford, Ontario
Norfolk County

Prepared for:

Lubella Homes

Prepared By:

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

March 2023

Our File No. 15373

1.0 INTRODUCTION

The following Preliminary Servicing Report was prepared by J.H. Cohoon Engineering Limited for Lubella Homes in support of an application for approval of a proposed residential development on the site located on Mechanic Street, at the intersection of Shadow Lake Lane, in the Town of Waterford, Norfolk County. The site is presently used for a single family dwelling facing Mechanic Street. The subject property is legally known as "Lot 2, 3 and 4, Block 5, Registered Plan 19B, Norfolk County". The property is illustrated on the attached legal survey document in the following Appendix 'A'

The objective of this report is to document the preliminary servicing to be utilized for the site. 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 allowance abutting the subject lot. The owner will assume full responsibility for the installation and maintenance of the services on the property.

2.0 PROPOSED DEVELOPMENT CONCEPT

The proposed development is to be constructed on the lands identified above in the Town of Waterford, Norfolk County. The site proposed for the development as a residential single-family style of development which is approximately 0.15 hectares in size. A key map illustrating the site location is provided in Figure 1.

The development is intended to be severed into two parcels, each of which will contain a semi-detached dwelling, totaling to four residential units. The overall development proposal is illustrated on the plans prepared by J H Cohoon Engineering Limited being drawings 15373-1 and 15373-2, which have been included within Appendix 'B' of this report for reference.

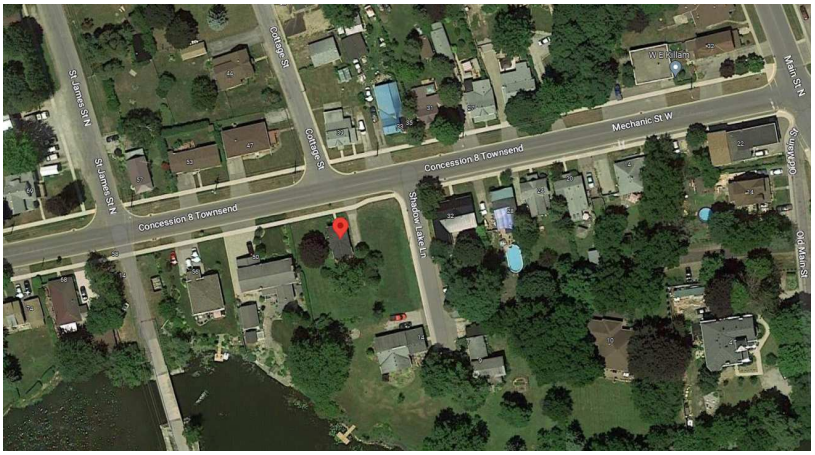


Figure 1 - Key Plan (Google Maps)

3.0 SANITARY SEWERS & APPURTENANCES

3.1 Design Flows

This particular development is proposed to be fully connected to the municipal sanitary sewer system that is located on the abutting streets to the development. The site is presently connected to the sanitary sewer on Mechanic Street, however new services are proposed out to the sanitary sewer facilities in Shadow Lake Lane, therefore external works will be required to direct the flows into the sanitary sewer located to the east of the property on Shadow Lake Lane.

In accordance with the current Norfolk County requirements, the design flows have been provided within this report for consideration of the Norfolk County Public Works Department. The following information is being provided to the County of Norfolk for their use and consideration.

Sanitary Design Flows

Residential Component
4 Units (Proposed)
2.75 persons per unit (average)
The average daily flow the average daily flow is based upon 450 litres per person per day

450 x 4 x 2.75	=	4,950 litres per day
	=	0.057 litres per second
Total Average Design Flow	=	0.057 litres per second.

On the basis of the Harmon Peaking Factor, and a total population for this site being 11 persons, the peaking factor of 4.6 was applied resulting in a peak design flow for this site being 0.262 litres per second.

With the consideration of Infiltration on this site as follows:

Site Area	= 0.15 hectares +/-
Infiltration Rate	= 0.28 litres per second per hectare
Infiltration Allowance	
	= 0.042 litres per second

Summary of Results

Average Flow Rate (including Infiltration)	=	0.099 litres per sec
Peak Flow Rate (including infiltration)	=	0.304 litres per sec

3.2 Sanitary Outlet

The sanitary sewer system for the subject development will be connected into the existing Sanitary Sewers near the site. Through the detailed design of this site, the conveyance of the sanitary flows to the existing sanitary sewer system will be undertaken. The analysis relating to the overall impact of this development on the receiving sanitary sewer system will be reviewed by the Norfolk County Public Works Department as part of this submission.

4.0 WATERMAINS & APPURTENANCES

4.0 Design Flows

The peak design flow rate from the proposed development using current Norfolk County Standards. As with the wastewater, the estimated average flows have been detailed with the Sanitary Sewer Section of this report. (Section 3.1 above). However, in this case, a consumption of 450 litres per person per day and a peaking factor of 2.25 have been utilized.

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

4 Unit Development	Average Daily Flow Rate (Litres per second)	Peak Daily Flow Rate (Litres per second)
	0.057	0.128

As noted in the Norfolk County design criteria, a peaking factor of 2.25 was used for the calculation of the peak flow rate.

The proposed fire protection to this development will be handled by the existing fire hydrants located on the Mechanic Street.

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

The analysis was carried out on a block-by-block basis to determine the maximum fire demand for each of the buildings on the site.

This largest fire compartment would be in the order of 505 sq.m. (2 storey) being 2 units within the plan within the development.

Utilizing the Fire Underwriters Survey Document, our estimation of the required fire demand is as follows:

Estimate of Fire Flow Required = 220 * C * SQRT (A)

Where C = Coefficient related to type of Construction
Wood Frame Construction (Type V) = 1.5
A = Total Area of the Building (As outlined above) = 505 sq. m.

= 220 x 1.5 * SQRT (505)
= 7,415.8 litres per m

Modifications
Occupancy = Normal Residential Hazard Occupancy -15%

Spatial Exposure (Estimated)

North	Street	+ 0%
East	Street	+ 0%
West	< 20m	+ 14%
South	<3m	+ 24%

Total Increase + 23%
1,705.6 litres per min

Total Fire Demand 9,121.4 litres per min
= 152.0 litres per sec.

5.0 STORM SEWERS & APPURTENANCES

5.1 Storm Sewers / Storm water Management

The site is intended to be serviced with municipal storm sewers which are to be designed to handle the 5-year storm event. The overall stormwater management system is to be consistent with the current policies of the County of Norfolk which require reduction in the post development flows to below the pre-development rates for all storm events up to and including the 100-year event.

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

Pre-Development Hydrologic Modeling Parameters

The runoff characteristics of this site were determined utilizing the latest version of "EPA SWMM 5.1.013" stormwater management computer simulation program. In accordance with Norfolk County Standards, all storm events (2, 5, 10, 25, 50, & 100) were analysed and the results of the analysis are summarized in the following **Table 1**. The pre-development site has an overall area of 0.157 Ha, and 7.7% impervious surfaces.

Post Development Conditions

The proposed concept plan includes the development of two semi-detached housing buildings, in addition to their driveway facilities. The existing singe family dwelling on the site will be demolished as part of this concept. The proposed development has an increase in impervious area from 7.7% pre-development, to 33.8%. As a result of this increase, on-site storm water management controls will be implemented.

Modelling Results – Quantity Control

Stormwater flows were calculated using EPA SWMM modeling software. Norfolk County IDF parameters were used to generate rainfall for sizing of the storm water system in accordance with Norfolk County Development Engineering Standards.

Peak flow reduction will be achieved through on-site retention in an effort minimize the potential for downstream surcharging. Post development discharge will be controlled to existing pre-development levels for the 2, 5, 10, 25, 50- and 100-year storm events. The results of the EPA SWMM modeling have been included within Appendix 'C' of this report and can be summarized as follows:

Table 1: Pre and Post Analysis Results

Storm Event	Pre-Development Peak Flow (m^3/sec)	Post Development Peak Flow No SWM (m^3/sec)	Post Development Peak Flow with SWM
2 Year	0.003	0.015	0.005*
5 Year	0.009	0.027	0.010*
10 Year	0.014	0.034	0.013
25 Year	0.022	0.045	0.015
50 Year	0.029	0.052	0.017
100 Year	0.035	0.059	0.019

* negligible increase

Peak flow reduction will be achieved by designing an outlet structure that restricts the runoff into the storm sewer system on Mechanic Street. Additional LID measures have been implemented at this site in the form of soak-away pits on the rain-water leaders. These have been implemented to meet the County's requirement for relief from a comprehensive analysis of the existing storm sewer system in the area, as well as to further reduce the peak discharge rates from the above values (LID controls are not modelled in the software, and will therefore further help to the off-site flows where a negligible increase was found).

The storage that is being proposed will be a combination of surface storage and soak-away pits located on the subject property. The overall details of the stormwater management scheme have been illustrated on the design drawings located in Appendix 'B.'

Quality Control

In this case, the run-off from the site has been directed through grassed swales as a means of quality control. The impervious surfaces on this site main consist of roof-top surfaces, which are considered as clean run-off. The driveway impervious areas will drain to the municipal right-of-way in a conventional flow pattern.

6.0 CONCLUSIONS

The preceding sections of this report outline the servicing requirements for the proposed semi-detached dwelling development at this site on Mechanic Street and Shadow Lake Lane in the Town of Waterford, Norfolk County. Based on the work completed to date, it may be concluded that the proposed development can be developed with full municipal services.

Report Prepared By:

J.H. COHOON ENGINEERING LIMITED

Matthew J. Whyte, P.Eng.

APPENDIX ‘ A’

Survey Information as prepared by West & Ruuska Ltd.

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

SITEPLAN OF
LOT 2, 3 and 4
BLOCK 5
REGISTERED PLAN 19B
NORFOLK COUNTY

SCALE – 1 : 150

5 4 3 2 1 0 5 10 Metres

WEST & RUUSKA LTD.

CAUTION :

UNDERGROUND SERVICES TO BE LOCATED BY CONTRACTOR/OWNER PRIOR TO ANY EXCAVATION.

ELEVATION NOTE :

ELEVATIONS SHOWN HEREON ARE GEODETIC and ARE DERIVED FROM CANSEL CAN-NET REAL TIME NETWORK OBSERVATION, UTM ZONE 17, NAD83 (CSRS) (2010).

LEGEND

□	DENOTES	SET MONUMENT
■	-	FOUND MONUMENT
IB	-	IRON BAR
SIB	-	STANDARD IRON BAR
SSIB	-	SHORT STANDARD BAR
UP	-	UTILITY POLE
GW	-	GUY WIRE
DEC	-	DECIDUOUS TREE
PB	-	PEDESTAL BOX
OUL	-	OVERHEAD UTILITY LINE
ø	-	DIAMETER (millimetres)
CB	-	CATCHBASIN
MH	-	MANHOLE
WF		WATER FLAG

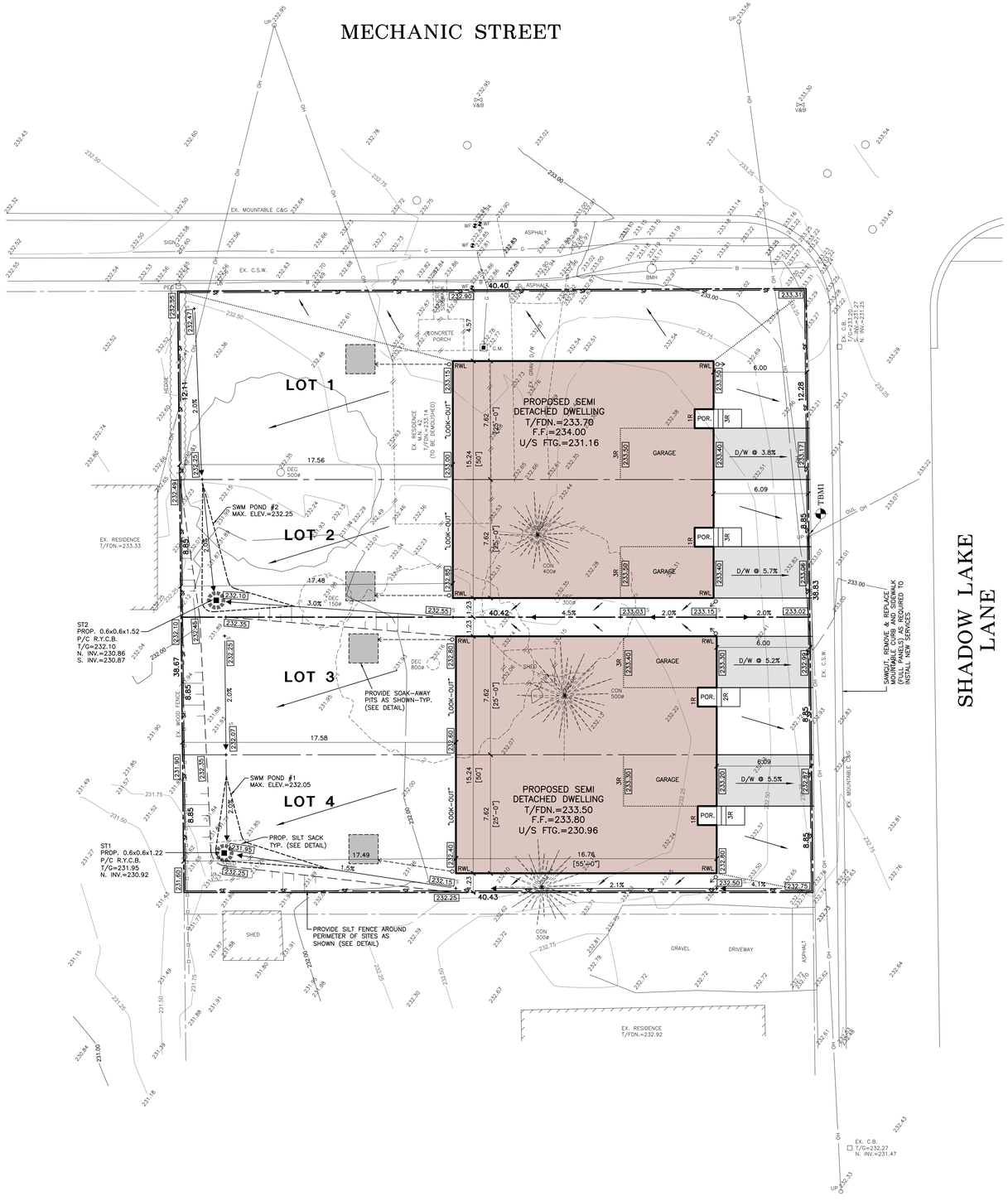
Date : 27 April, 2021.

WEST & RUUSKA LTD. Ontario Land Surveyors
17 NELSON STREET
BRANTFORD, ONT.,N3T 2M6
PHONE: (519)752-8641

DRWN: TSK | CHKD:
LUBELLA HOMES
L210046

APPENDIX ‘ B’

J H Cohoon Engineering Limited
Development & Grading & Servicing Plans
15373-1 & 15373-2

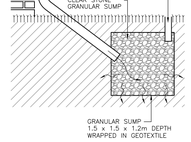


KEY PLAN:

INDIVIDUAL UNIT SITE STATISTICS

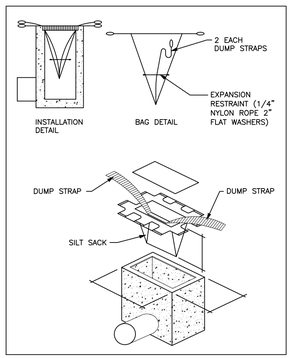
ITEM	*LOT 1*	*LOT 2*	*LOT 3*	*LOT 4*	*ZONING BYLAW REQUIREMENTS*
ZONING CATEGORY		R2 (REZONED FROM R1-A)			R2
LOT AREA (sq. m.)	– – 492.8	357.7 – –	357.7 – –	357.7 – –	255.0 MIN. (INTERIOR) 345.0 MIN. (CORNER)
LOT FRONTAGE (m)	– – 12.25	8.85 – –	8.85 – –	8.85 – –	8.50 MIN. (INTERIOR) 11.50 MIN. (CORNER)
FRONT YARD (m)	6.00	6.09	6.00	6.09	6.00 MIN.
EXTERIOR SIDE YARD (m)	4.57**	– –	– –	– –	6.00 MIN.
INTERIOR SIDE YARD (m)	– –	1.23	1.23	1.23	1.20 MIN.
REAR YARD (m)	17.56	17.48	17.58	17.49	7.50 MIN.
PERCENTAGE OF FRONT YARD LANDSCAPED	72.8%	62.2%	62.9%	63.0%	50% MIN.
BUILDING HEIGHT (m)	– –	– –	– –	– –	11.00 MIN.

** ITEM REQUIRES A MINOR VARIANCE



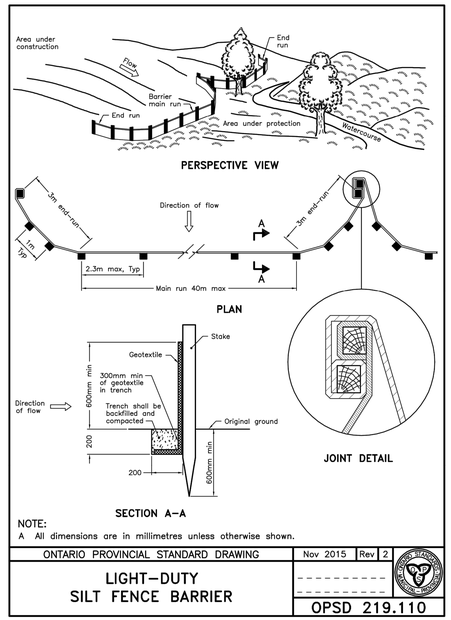
TYPICAL SOAK-AWAY PIT DETAIL

REPRODUCED FROM M.O.E.E. 2003 S.W.M. GUIDELINES



SILT SACK DETAIL

N.T.S.



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

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
LIGHT–DUTY SILT FENCE BARRIER		OPSD 219.110

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

LEGEND:

- 200.00 — EXISTING ELEVATIONS
- [200.00] — PROPOSED ELEVATIONS
- [200.00]S — PROPOSED SWALE ELEVATIONS
- PROPOSED SWALE
- GENERAL DRAINAGE
- SF — PROPOSED SILT FENCE
- SILT SACK AS SHOWN
- EX. TREES TO REMAIN
- EX. TREES TO BE REMOVED
- RWL — PROPOSED DOWNSPOUT c/w CONCRETE SPLASH PAD
- LIMIT OF S.W.M. POND (100 Yr. EVENT) MAX. POND ELEVATION AS NOTED

NOTES:

1. ALL ELEVATIONS SHOWN ARE METRIC.
2. BUILDER/OWNER TO VERIFY COMPLIANCE WITH ZONING BYLAWS (ie. SIDEYARDS, SETBACKS, REARYARDS ETC.)
3. WHERE ONLY ONE ELEVATION IS SHOWN, EXISTING AND PROPOSED ELEVATIONS ARE THE SAME.
4. THE SILTATION & EROSION CONTROL (SEC) MEASURES ILLUSTRATED ON THIS PLAN ARE CONSIDERED TO BE THE MINIMUM REQUIREMENT. SITE CONDITIONS MAY REQUIRE ADDITIONAL MEASURES WHICH WILL BE IDENTIFIED BY THE ENGINEER DURING CONSTRUCTION.
5. ALL SEC MEASURES ARE TO BE IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. OWNER/CONTRACTOR TO MAINTAIN EROSION CONTROL MEASURES THROUGHOUT SITE UNTIL A COMPLETE GRASS/VEGETATION COVER IS ACHIEVED.
7. ONLY AT THE DIRECTION OF THE ENGINEER ARE THE SEC MEASURES TO BE REMOVED.
8. ALL EXPOSED AREAS NOT SUBJECT TO ACTIVE CONSTRUCTION WITHIN 30 DAYS ARE TO BE REVEGETATED AS PER O.P.S.S. 572 IMMEDIATELY UPON COMPLETION OF AREA GRADING.
9. CONTRACTOR TO PROVIDE SILT FENCE AROUND PERIMETER OF ALL ON SITE STOCKPILES.
10. CONTRACTOR TO PROVIDE SILT SACKS ON TOP OF ALL EXISTING AND PROPOSED STORM STRUCTURES WITHIN THE INFLUENCE OF RUNOFF DURING CONSTRUCTION UNTIL ADEQUATE VEGETATIVE COVER IS ACHIEVED.
11. PROVIDE (2)–REAR YARD SOAK–AWAY PITS PER BUILDING AS SHOWN.

T.B.M. No. 1 ELEV. = 233.54m (GEO)
WOOD STAKE ON UTILITY POLE ON THE WEST SIDE OF SHADOW LAKE LANE AS SHOWN.

NO.	REVISION	DATE (MM/DD/YY)	BY

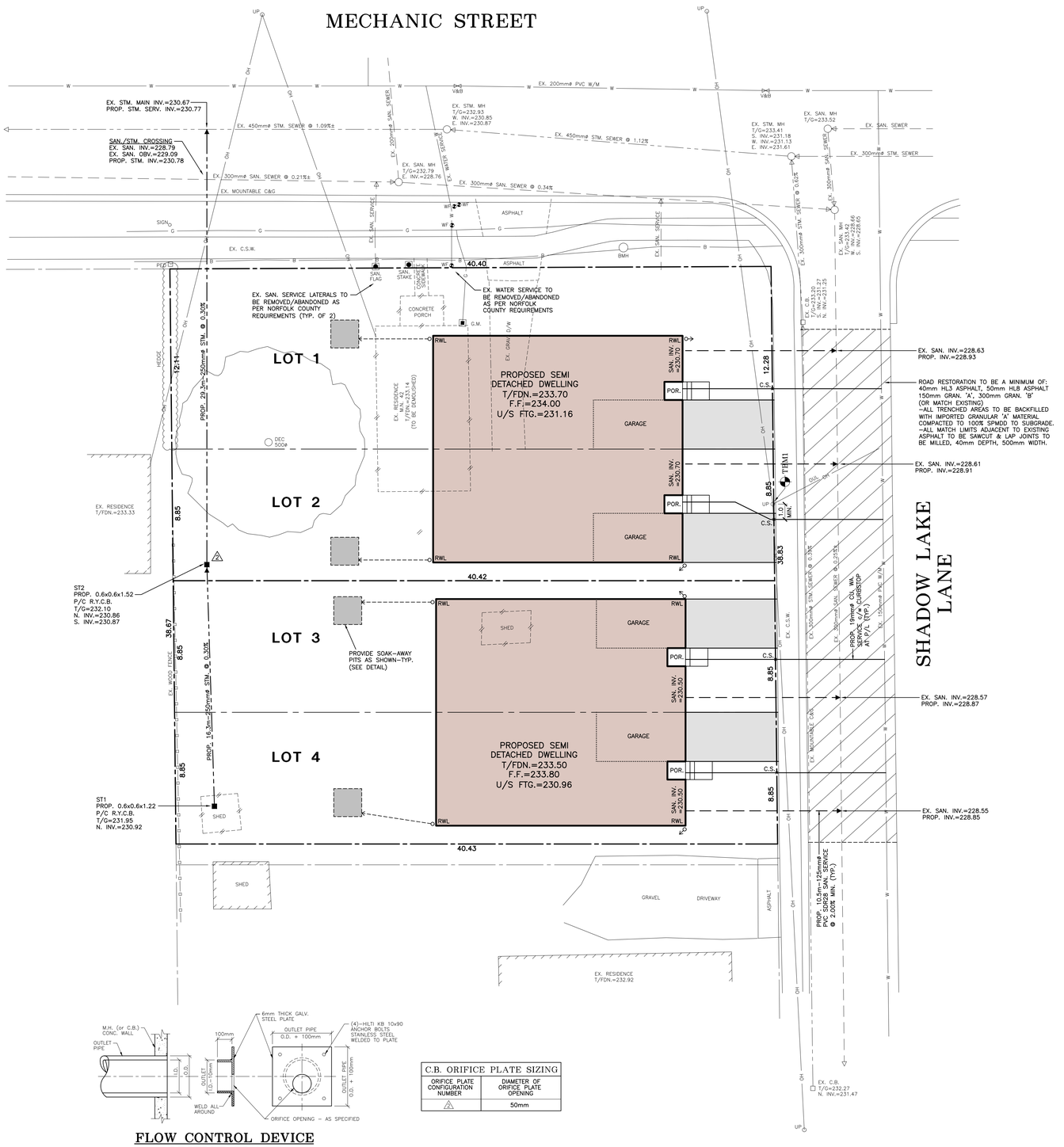
J.H. COHOON ENGINEERING LIMITED
CONSULTING ENGINEERS
440 HARDY ROAD , UNIT #1 , BRANTFORD – ONTARIO , N3T 5L8
TEL. (519) 753–2656 FAX. (519) 753–4263 www.cohooneng.com

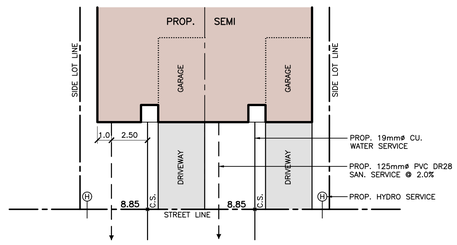
PROJECT:
PROPOSED SEMI DETACHED DWELLINGS
LOTS 2, 3 & 4
BLOCK 5, R.P. 19B
M.N. 42 MECHANIC STREET
NORFOLK COUNTY

CLIENT:
LUBELLA HOMES

GRADING & SILTATION AND EROSION CONTROL PLAN

DESIGN:	M.J.W.	SCALE:	1:150
DRAWN:	K.P.B.	JOB No:	15373
CHECKED:	M.J.W.		
SHEET:	1 of 2	DWG. No:	15373–1
DATE:	MAR. 28/23		





TYPICAL LOT SERVICING

N.T.S.

GENERAL NOTES:

1. CONSTRUCTION OF SEWERS, WATERMAINS AND RELATED APPURTENANCES SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE CURRENT STANDARD DRAWINGS OF THE COUNTY OF NORFOLK, AND THE ONTARIO PROVINCIAL STANDARDS DRAWINGS (OPSD). THE COUNTY OF NORFOLK DRAWINGS SHALL TAKE PRECEDENCE OVER THE OPSD DRAWINGS.
2. INFORMATION REGARDING ANY EXISTING SERVICES AND/OR UTILITIES SHOWN ON THE APPROVED SET OF CONSTRUCTION DRAWINGS IS FURNISHED AS THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL INTERPRET THIS INFORMATION AS THEY SEE FIT WITH THE UNDERSTANDING THAT THE OWNER AND HIS AGENTS DISCLAIM ALL RESPONSIBILITY FOR ITS ACCURACY AND/OR SUFFICIENCY.
3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION AND HE SHALL REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
4. RELOCATION OF EXISTING SERVICES AND/OR UTILITIES SHALL BE CONSTRUCTED AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.
5. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FOR CONSTRUCTION.
6. FOR ALL SEWERS AND WATERMAIN IN FILL SECTIONS, THE COMPACTION SHALL BE VERIFIED PRIOR TO LAYING OF PIPE.
7. NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE COUNTY OF NORFOLK OR THE ENGINEER.
8. ALL EXCAVATIONS TO BE BACKFILLED WITH SELECT NATIVE MATERIAL, APPROVED BY THE ENGINEER, TO 95% S.P.D.
9. THE DEVELOPER AND/OR CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING (UNTIL ROAD CONSTRUCTION IS FINISHED) SILT CONTROL DEVICES AS SHOWN ON THE DRAWINGS AND AS DIRECTED BY THE ENGINEER.
10. ALL WORKS SHALL BE DESIGNED AND CONSTRUCTED SO AS TO COMPLY WITH APPLICABLE LAW, TO BE CONSISTENT WITH THE COUNTY OF NORFOLK DEVELOPMENT & ENGINEERING STANDARDS AND IN ACCORDANCE WITH CURRENT GUIDELINES, CODES, REGULATIONS AND STANDARDS PRESCRIBED BY THE COUNTY.
11. ALL BOULEVARD AREAS TO BE RESTORED WITH #1 NURSERY SOD ON A MINIMUM 100mm OF SELECT TOPSOIL.
12. ALL TRENCH BACKFILL UNDER EXISTING ROADWAYS SHALL BE COMPACTED IN MINIMUM 230mm LIFTS TO 98% STANDARD PROCTOR DENSITY. A GEOTECHNICAL ENGINEER'S REPRESENTATIVE SHALL BE ON SITE DURING THE WORK TO VERIFY THE COMPACTION OF EACH LIFT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS OF RE-TESTING.
13. AN ENGINEER IS REQUIRED TO BE ONSITE FOR INSPECTION OF ALL UNDERGROUND SERVICES.
14. DRIVEWAYS MUST HAVE A MINIMUM 1.0m CLEARANCE FROM ALL UTILITIES SUCH AS FIRE HYDRANT, STREETLIGHT POLES, TRANSFORMERS, CANADA POST COMMUNITY MAILBOX LOCATIONS, ETC.
15. ALL WATER SERVICE CONNECTIONS 19mm DIA. ASTM B88 TYPE 'K' SOFT COPPER AS PER OPSD 1104.01 & COUNTY OF NORFOLK ENGINEERING STANDARDS, & INSTALLED IN ACCORDANCE WITH OPSD 802.110 TYPE 2. TRENCH BEDDING TO BE GRANULAR 'A'.
16. CURB STOPS TO BE MUELLER A-726 OR EQUIVALENT APPROVED BY THE COUNTY OF NORFOLK.
17. CATHODIC PROTECTION TO BE PROVIDED AT ALL VALVES, BENDS AND FITTINGS WITH 11.0 KG ZINC ANODES AND ON ALL WATER SERVICE CONNECTIONS WITH 5.5 KG ZINC ANODES.
18. WATER SERVICES TO BE INSTALLED WITH A MINIMUM COVER OF 1.70m BELOW FINISHED GRADE.
19. LOT 2 WATER SERVICE INSTALLATION OF BE MIN. 1.0m FROM EXISTING UTILITY POLE.
20. ALL WATER SERVICES TO BE INSTALLED OVER EXISTING STORM SEWER. PROVIDE MINIMUM 1.70m COVER OVER AND MINIMUM SEPARATION TO EXISTING STORM SEWER.
21. NO WORK ON WATER SERVICES CAN TAKE PLACE WITHOUT SUPERVISION OF A LICENSED NORFOLK COUNTY OPERATOR ON SITE.
22. ALL APPLICABLE PERMITS ARE TO BE APPLIED FOR PRIOR TO THE INSTALLATION OF ANY SERVICES.

SANITARY SEWERS:

1. SANITARY & STORM SEWERS & RELATED APPURTENANCES SHALL BE DESIGNED AND CONSTRUCTED SO AS TO COMPLY WITH APPLICABLE LAW, TO BE CONSISTENT WITH THE COUNTY OF NORFOLK DEVELOPMENT AND ENGINEERING STANDARDS AND IN ACCORDANCE WITH CURRENT GUIDELINES, CODES, REGULATIONS, BEST PRACTICES AND STANDARDS PRESCRIBED BY THE COUNTY.
2. COVER AND BEDDING MATERIAL FOR PVC PIPE AS PER OPSD 802.010 TYPE 2 TRENCH BEDDING SHALL BE GRANULAR 'A' MATERIAL UNLESS OTHERWISE INDICATED.
3. PVC PIPE WILL REQUIRE SPECIAL CONSTRUCTION PROCEDURES FOR LEAKAGE AND TESTING, PIPE DEFLECTION, ETC.
4. ALTERNATE MATERIALS MAY BE ACCEPTABLE, PROVIDED APPROVAL HAS FIRST BEEN OBTAINED FROM THE COUNTY OF NORFOLK AND ENGINEER IN WRITING.
5. ALL SEWER AND CULVERT INSTALLATIONS TO CONFORM WITH OPSD 802.031 TYPE 3 SOIL.
6. PRIVATE SANITARY DRAINS TO 125mmø PVC DR28 PIPE AND HAVE A MIN. GRADE OF 2.0%, AS PER NORFOLK COUNTY DESIGN CRITERIA.
7. A 38x89mm x 2.0m LONG MARKER IS TO BE PLACED FROM THE CAPPED LATERAL AND EXTEND 1.0m ABOVE GROUND AND PAINTED GREEN FOR SANITARY AND WHITE FOR STORM.
8. BEDDING FOR PRIVATE SANITARY & STORM DRAINS AS PER OPSD 1006.02 TYPE 2 TRENCH WITH GRANULAR 'A' BEDDING AND COVER MATERIAL.
9. MINIMUM FALL FOR PRIVATE SANITARY & STORM DRAINS TO BE 2.0%
10. SANITARY SERVICES TO BE INSTALLED USING SERVICE SADDLES OR PRE-MANUFACTURED TEE APPROVED BY NORFOLK COUNTY. ALL CONNECTIONS TO SHALL CONFORM TO CURRENT OPSD 1006.010 AND OPSS 410.

FLOW CONTROL DEVICE ORIFICE PLATE

N.T.S.

C.B. ORIFICE PLATE SIZING	
ORIFICE PLATE CONFIGURATION NUMBER	DIAMETER OF ORIFICE PLATE OPENING
2	50mm

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

LEGEND:

EX. 50m–300mmø STM. @ 0.5%	EXISTING STORM SEWER SYSTEM
EX. 60m–200mmø SAN. @ 0.4%	EXISTING SANITARY SEWER SYSTEM
W	EXISTING WATERMAIN
OH	EXISTING OVERHEAD UTILITY LINE
	EXISTING WOOD FENCE
S1	EXISTING SANITARY MANHOLE
ST1	EXISTING STORM MANHOLE
CB	EXISTING CATCHBASIN
PED	EXISTING BELL PEDESTAL
WV	EXISTING WATER VALVE
UP	EXISTING UTILITY POLE
TBM	EXISTING TEMPORARY BENCHMARK
WF	EXISTING WATER FLAG
	PROPOSED SANITARY SERVICE
C.S.	PROPOSED WATER SERVICE
	PROPOSED CATCHBASIN
RWL	PROPOSED DOWNSPOUT c/w CONCRETE SPLASH PAD

T.B.M. No. 1 ELEV. = 233.54m (GEO)

WOOD STAKE ON UTILITY POLE ON THE WEST SIDE OF SHADOW LAKE LANE AS SHOWN.

NO.	REVISION	DATE (MM/DD/YY)	BY

J.H. COHOON ENGINEERING LIMITED
CONSULTING ENGINEERS
440 HARDY ROAD , UNIT #1 , BRANTFORD – ONTARIO , N3T 5L8
TEL. (519) 753-2656 FAX. (519) 753-4263 www.cohooneng.com

PROJECT:

PROPOSED SEMI DETACHED DWELLINGS LOTS 2, 3 & 4 BLOCK 5, R.P. 19B

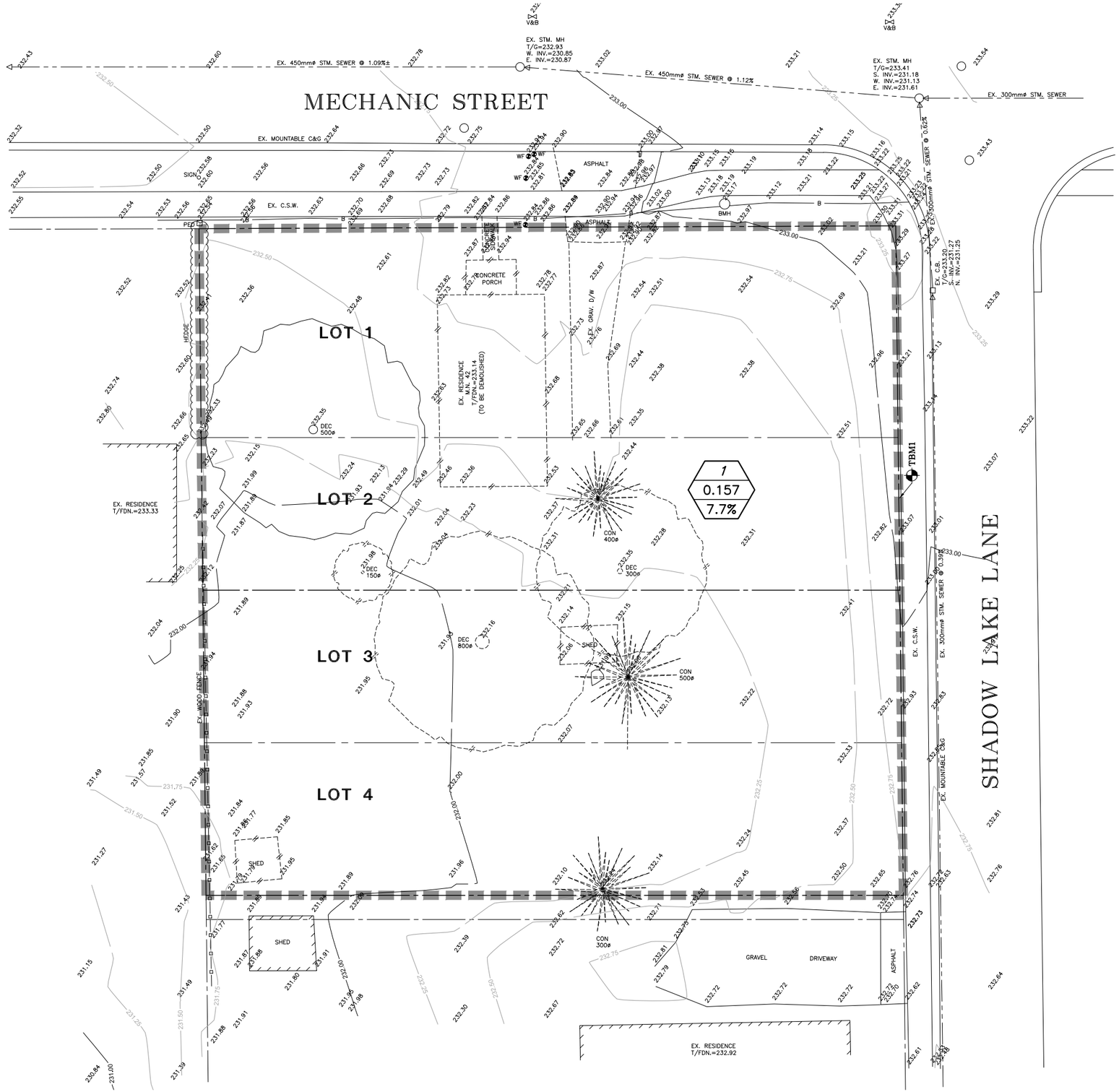
M.N. 42 MECHANIC STREET
NORFOLK COUNTY

CLIENT:
LUBELLA HOMES

SERVICING PLAN

DESIGN:	M.J.W.	SCALE:	1:150
DRAWN:	K.P.B.	JOB No:	15373
CHECKED:	M.J.W.		
SHEET:	2 of 2	DWG. No:	15373–2
DATE:	MAR. 28/23		

APPENDIX 'C'
EPA SWMM Analysis



LEGEND

STORM DRAINAGE BOUNDARY

1
0.53
35.0

STORM DRAINAGE NUMBER
STORM AREA IN HECTARES
% IMPERVIOUS

POST DEVELOPMENT STORM DRAINAGE AREAS

PROPOSED SEMI–DETACHED DWELLINGS
42 MECHANIC STREET – NORFOLK COUNTY

J.H. COHOON ENGINEERING LIMITED
CONSULTING ENGINEERS
BRANTFORD

CLIENT: LUBELLA HOMES
SCALE: 1:250

JOB: 15373

PRE-DEVELOPMENT: 2 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit C1

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.005   31.960
Evaporation Loss 0.000   0.000
Infiltration Loss 0.005   29.345
Surface Runoff 0.000   2.559
Final Storage 0.000   0.116
Continuity Error (%) .....   -0.188

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.000   0.004
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.000   0.004
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.000   0.000
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.00
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	31.96	0.00	0.00	29.35	2.35	0.21	2.56	0.00	0.00	0.080

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.00	0.00	0.00	0 00:00	0.00
Out1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.000	0.000	0 00:00	0	0	0.000 ltr
Out1	OUTFALL	0.003	0.003	0 01:50	0.00402	0.00402	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	45.14	0.000	0.003	0.004
System	45.14	0.000	0.003	0.004

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.000	0 00:00	0.00	0.00	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

```
Analysis begun on:  Thu Mar 30 09:17:57 2023
Analysis ended on:  Thu Mar 30 09:17:57 2023
Total elapsed time: < 1 sec
```

PRE-DEVELOPMENT: 5 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit C1

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.007   44.160
Evaporation Loss 0.000   0.000
Infiltration Loss 0.006   37.856
Surface Runoff 0.001   6.350
Final Storage 0.000   0.116
Continuity Error (%) .....   -0.365

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.001   0.010
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.001   0.010
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.000   0.000
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.00
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	44.16	0.00	0.00	37.86	3.29	3.06	6.35	0.01	0.01	0.144

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.00	0.00	0.00	0 00:00	0.00
Out1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.000	0.000	0 00:00	0	0	0.000 ltr
Out1	OUTFALL	0.009	0.009	0 01:50	0.00997	0.00997	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	50.14	0.001	0.009	0.010
System	50.14	0.001	0.009	0.010

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.000	0 00:00	0.00	0.00	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

```
Analysis begun on:  Thu Mar 30 09:17:49 2023
Analysis ended on:  Thu Mar 30 09:17:49 2023
Total elapsed time: < 1 sec
```

PRE-DEVELOPMENT: 10 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit C1

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.008   52.124
Evaporation Loss 0.000   0.000
Infiltration Loss 0.007   42.019
Surface Runoff 0.002   10.238
Final Storage 0.000   0.116
Continuity Error (%) .....   -0.478

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.002   0.016
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.002   0.016
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.000   0.000
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.00
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	52.12	0.00	0.00	42.02	3.91	6.33	10.24	0.02	0.01	0.196

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.00	0.00	0.00	0 00:00	0.00
Out1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.000	0.000	0 00:00	0	0	0.000 ltr
Out1	OUTFALL	0.014	0.014	0 01:50	0.0161	0.0161	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	50.42	0.001	0.014	0.016
System	50.42	0.001	0.014	0.016

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.000	0 00:00	0.00	0.00	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

```
Analysis begun on:  Thu Mar 30 09:17:38 2023
Analysis ended on:  Thu Mar 30 09:17:38 2023
Total elapsed time: < 1 sec
```

PRE-DEVELOPMENT: 25 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit C1

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.010   62.200
Evaporation Loss 0.000   0.000
Infiltration Loss 0.007   46.165
Surface Runoff 0.003   16.343
Final Storage 0.000   0.116
Continuity Error (%) .....   -0.680

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.003   0.026
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.003   0.026
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.000   0.000
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.00
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	62.20	0.00	0.00	46.16	4.69	11.66	16.34	0.03	0.02	0.263

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.00	0.00	0.00	0 00:00	0.00
Out1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.000	0.000	0 00:00	0	0	0.000 ltr
Out1	OUTFALL	0.022	0.022	0 01:50	0.0257	0.0257	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	50.69	0.002	0.022	0.026
System	50.69	0.002	0.022	0.026

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.000	0 00:00	0.00	0.00	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

```
Analysis begun on:  Thu Mar 30 09:17:26 2023
Analysis ended on:  Thu Mar 30 09:17:26 2023
Total elapsed time: < 1 sec
```

PRE-DEVELOPMENT: 50 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit C1

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.011   70.071
Evaporation Loss 0.000   0.000
Infiltration Loss 0.008   49.090
Surface Runoff 0.003   21.389
Final Storage 0.000   0.116
Continuity Error (%) .....   -0.746

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.003   0.034
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.003   0.034
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.000   0.000
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.00
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	70.07	0.00	0.00	49.09	5.29	16.10	21.39	0.03	0.03	0.305

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.00	0.00	0.00	0 00:00	0.00
Out1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.000	0.000	0 00:00	0	0	0.000 ltr
Out1	OUTFALL	0.029	0.029	0 01:50	0.0336	0.0336	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	50.69	0.003	0.029	0.034
System	50.69	0.003	0.029	0.034

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.000	0 00:00	0.00	0.00	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

```
Analysis begun on:  Thu Mar 30 09:17:16 2023
Analysis ended on:  Thu Mar 30 09:17:16 2023
Total elapsed time: < 1 sec
```

PRE-DEVELOPMENT: 100 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit C1

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.012   77.764
Evaporation Loss 0.000   0.000
Infiltration Loss 0.008   51.813
Surface Runoff 0.004   26.467
Final Storage 0.000   0.116
Continuity Error (%) .....   -0.813

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.004   0.042
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.004   0.042
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.000   0.000
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.00
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	77.76	0.00	0.00	51.81	5.90	20.57	26.47	0.04	0.04	0.340

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.00	0.00	0.00	0 00:00	0.00
Out1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.000	0.000	0 00:00	0	0	0.000 ltr
Out1	OUTFALL	0.035	0.035	0 01:50	0.0416	0.0416	0.000

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	50.83	0.004	0.035	0.042
System	50.83	0.004	0.035	0.042

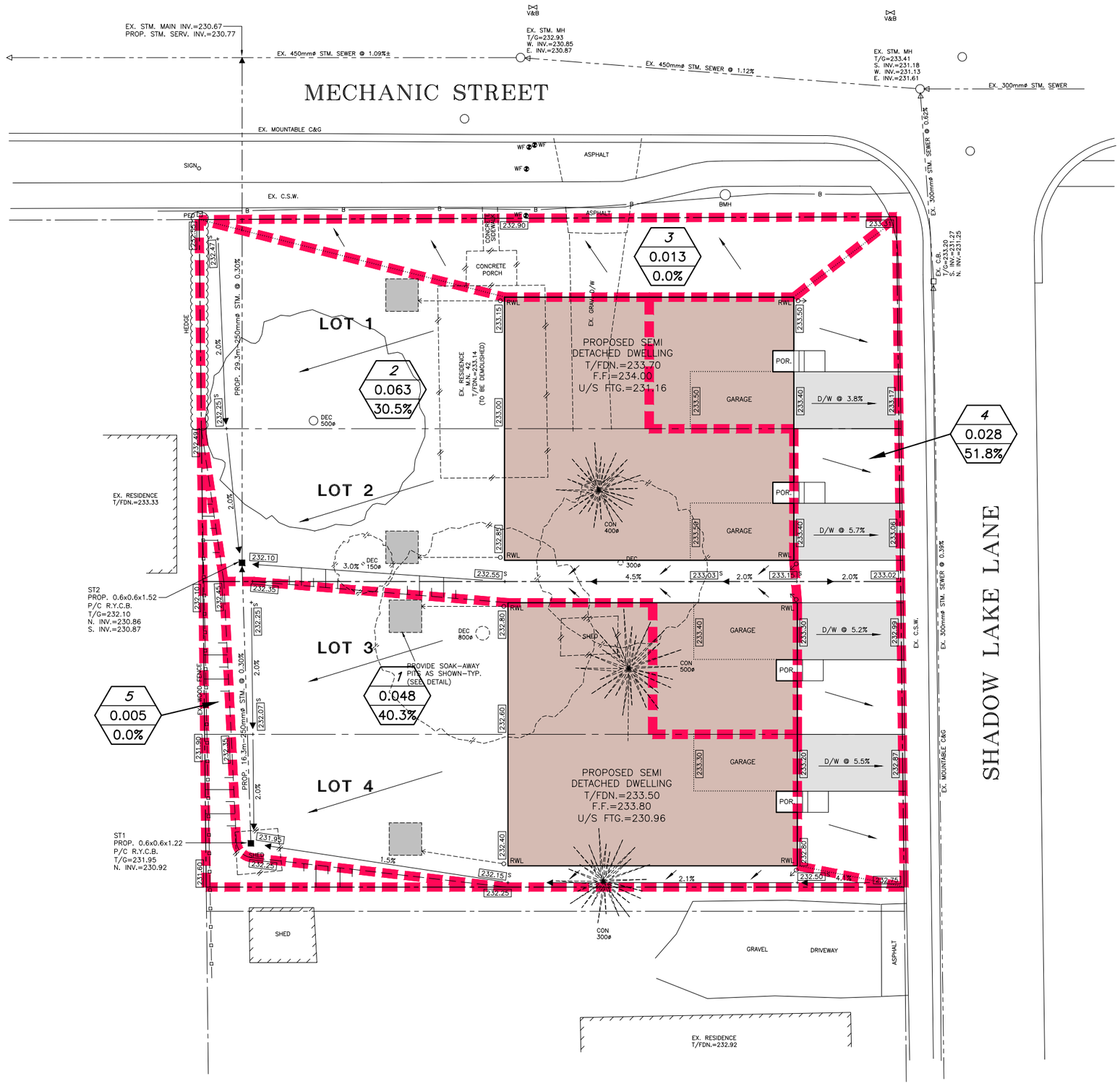
****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.000	0 00:00	0.00	0.00	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

```
Analysis begun on:  Thu Mar 30 09:14:12 2023
Analysis ended on:  Thu Mar 30 09:14:12 2023
Total elapsed time: < 1 sec
```



LEGEND

STORM DRAINAGE BOUNDARY

1 — STORM DRAINAGE NUMBER
0.53 — STORM AREA IN HECTARES
35.0 — % IMPERVIOUS

N

POST DEVELOPMENT STORM DRAINAGE AREAS

PROPOSED SEMI-DETACHED DWELLINGS
42 MECHANIC STREET - NORFOLK COUNTY

J.H. COHOON ENGINEERING LIMITED
CONSULTING ENGINEERS
BRANTFORD

CLIENT: LUBELLA HOMES
JOB: 15373
SCALE: 1:250

POST-DEVELOPMENT: 2 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit O2

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.005   31.960
Evaporation Loss 0.000   0.000
Infiltration Loss 0.003   20.790
Surface Runoff 0.002   10.940
Final Storage 0.000   0.507
Continuity Error (%) .....   -0.866

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.002   0.017
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.002   0.017
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.000   0.000
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.18
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	31.96	0.00	0.00	18.83	12.30	0.36	12.66	0.01	0.00	0.396
A2	31.96	0.00	0.00	21.97	9.31	0.34	9.65	0.01	0.00	0.302
A3	31.96	0.00	0.00	31.10	0.00	1.55	1.55	0.00	0.00	0.048
A4	31.96	0.00	0.00	14.94	15.80	0.87	16.67	0.00	0.00	0.522
A5	31.96	0.00	0.00	30.64	0.00	2.97	2.97	0.00	0.00	0.093

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.01	0.06	230.98	0 01:50	0.06
ST2	JUNCTION	0.29	1.24	232.10	0 01:12	1.24
N2	JUNCTION	0.04	0.05	230.91	0 01:13	0.05
Out1	OUTFALL	0.02	0.02	230.79	0 01:13	0.02

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.004	0.004	0 01:50	0.00608	0.00608	0.000
ST2	JUNCTION	0.004	0.009	0 01:50	0.00608	0.0121	0.000
N2	JUNCTION	0.000	0.001	0 01:12	0	0.0119	0.000
Out1	OUTFALL	0.005	0.005	0 01:50	0.00502	0.0168	0.000

****
Node Flooding Summary
****

Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Volume 1000 m3
ST2	4.81	0.008	0 01:50	0.007	0.007

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	95.97	0.001	0.005	0.017
System	95.97	0.001	0.005	0.017

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.004	0	01:50	0.50	0.12	0.23
C2	CONDUIT	0.001	0	01:13	0.27	0.02	0.10
O2	CONDUIT	0.001	0	01:12	0.37	1.04	1.00

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
O2	4.81	4.81	4.81	4.81	4.81

Analysis begun on: Thu Mar 30 11:48:26 2023
Analysis ended on: Thu Mar 30 11:48:26 2023
Total elapsed time: < 1 sec

POST-DEVELOPMENT: 5 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit O2

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.007   44.160
Evaporation Loss 0.000   0.000
Infiltration Loss 0.004   25.904
Surface Runoff 0.003   18.105
Final Storage 0.000   0.507
Continuity Error (%) .....   -0.806

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.003   0.028
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.002   0.021
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.001   0.008
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.20
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	44.16	0.00	0.00	23.51	17.22	3.09	20.31	0.01	0.01	0.460
A2	44.16	0.00	0.00	27.59	13.03	3.34	16.37	0.01	0.01	0.371
A3	44.16	0.00	0.00	38.26	0.00	6.68	6.68	0.00	0.00	0.151
A4	44.16	0.00	0.00	18.36	22.14	3.30	25.44	0.01	0.01	0.576
A5	44.16	0.00	0.00	37.77	0.00	7.46	7.46	0.00	0.00	0.169

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.01	0.08	231.00	0 01:50	0.08
ST2	JUNCTION	0.47	1.24	232.10	0 00:45	1.24
N2	JUNCTION	0.05	0.05	230.91	0 00:47	0.05
Out1	OUTFALL	0.02	0.02	230.79	0 00:47	0.02

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.008	0.008	0 01:50	0.00975	0.00975	0.000
ST2	JUNCTION	0.009	0.016	0 01:50	0.0103	0.02	0.000
N2	JUNCTION	0.000	0.001	0 00:46	0	0.0124	0.000
Out1	OUTFALL	0.010	0.010	0 01:50	0.00836	0.0207	0.000

****
Node Flooding Summary
****

Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Volume 1000 m3
ST2	5.26	0.015	0 01:51	0.014	0.014

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	96.39	0.001	0.010	0.021
System	96.39	0.001	0.010	0.021

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.008	0	01:51	0.59	0.21	0.32
C2	CONDUIT	0.001	0	00:47	0.28	0.02	0.10
O2	CONDUIT	0.001	0	00:46	0.37	1.07	1.00

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
O2	5.26	5.26	5.26	5.26	5.26

Analysis begun on: Thu Mar 30 11:48:18 2023
Analysis ended on: Thu Mar 30 11:48:18 2023
Total elapsed time: < 1 sec

POST-DEVELOPMENT: 10 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit O2

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.008   52.124
Evaporation Loss 0.000   0.000
Infiltration Loss 0.004   28.611
Surface Runoff 0.004   23.705
Final Storage 0.000   0.507
Continuity Error (%) .....   -1.342

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.004   0.037
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.002   0.024
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.001   0.014
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.20
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	52.12	0.00	0.00	25.94	20.45	5.56	26.00	0.01	0.01	0.499
A2	52.12	0.00	0.00	30.46	15.47	6.15	21.62	0.01	0.01	0.415
A3	52.12	0.00	0.00	42.27	0.00	11.36	11.36	0.00	0.00	0.218
A4	52.12	0.00	0.00	20.31	26.26	5.68	31.94	0.01	0.01	0.613
A5	52.12	0.00	0.00	41.92	0.00	13.86	13.86	0.00	0.00	0.266

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.01	0.09	231.01	0 01:50	0.09
ST2	JUNCTION	0.56	1.24	232.10	0 00:36	1.24
N2	JUNCTION	0.05	0.05	230.91	0 00:38	0.05
Out1	OUTFALL	0.02	0.02	230.79	0 00:38	0.02

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.010	0.010	0 01:50	0.0125	0.0125	0.000
ST2	JUNCTION	0.012	0.022	0 01:50	0.0136	0.0261	0.000
N2	JUNCTION	0.000	0.001	0 00:37	0	0.0126	0.000
Out1	OUTFALL	0.012	0.013	0 01:50	0.0111	0.0237	0.000

****
Node Flooding Summary
****

Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Volume 1000 m3
ST2	5.40	0.021	0 01:51	0.020	0.020

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	96.39	0.001	0.013	0.024
System	96.39	0.001	0.013	0.024

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.010	0	01:50	0.64	0.28	0.37
C2	CONDUIT	0.001	0	00:38	0.27	0.02	0.10
O2	CONDUIT	0.001	0	00:37	0.37	1.04	1.00

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
O2	5.40	5.40	5.40	5.40	5.40

Analysis begun on: Thu Mar 30 11:48:09 2023
Analysis ended on: Thu Mar 30 11:48:09 2023
Total elapsed time: < 1 sec

POST-DEVELOPMENT: 25 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit O2

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.010   62.200
Evaporation Loss 0.000   0.000
Infiltration Loss 0.005   31.470
Surface Runoff 0.005   31.328
Final Storage 0.000   0.507
Continuity Error (%) .....   -1.776

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.005   0.049
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.003   0.027
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.002   0.022
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.19
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	62.20	0.00	0.00	28.51	24.53	9.28	33.81	0.02	0.01	0.544
A2	62.20	0.00	0.00	33.43	18.57	10.43	28.99	0.02	0.02	0.466
A3	62.20	0.00	0.00	46.66	0.00	18.16	18.16	0.00	0.00	0.292
A4	62.20	0.00	0.00	22.43	31.54	8.97	40.51	0.01	0.01	0.651
A5	62.20	0.00	0.00	46.30	0.00	19.71	19.71	0.00	0.00	0.317

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.02	0.11	231.03	0 01:50	0.10
ST2	JUNCTION	0.58	1.24	232.10	0 00:31	1.24
N2	JUNCTION	0.05	0.05	230.91	0 00:32	0.05
Out1	OUTFALL	0.02	0.02	230.79	0 00:58	0.02

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.014	0.014	0 01:50	0.0162	0.0162	0.000
ST2	JUNCTION	0.016	0.030	0 01:50	0.0183	0.0345	0.000
N2	JUNCTION	0.000	0.001	0 00:31	0	0.0128	0.000
Out1	OUTFALL	0.015	0.015	0 01:50	0.0147	0.0274	0.000

****
Node Flooding Summary
****

Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Volume 1000 m3
ST2	5.49	0.028	0 01:50	0.028	0.028

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	96.53	0.001	0.015	0.027
System	96.53	0.001	0.015	0.027

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.013	0	01:50	0.69	0.37	0.43
C2	CONDUIT	0.001	0	00:58	0.27	0.02	0.10
O2	CONDUIT	0.001	0	00:31	0.37	1.07	1.00

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
O2	5.49	5.49	5.49	5.49	5.49

Analysis begun on: Thu Mar 30 11:48:00 2023
Analysis ended on: Thu Mar 30 11:48:00 2023
Total elapsed time: < 1 sec

POST-DEVELOPMENT: 50 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit O2

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.011   70.071
Evaporation Loss 0.000   0.000
Infiltration Loss 0.005   33.604
Surface Runoff 0.006   37.136
Final Storage 0.000   0.507
Continuity Error (%) .....   -1.678

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.006   0.058
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.003   0.030
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.003   0.028
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.19
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	70.07	0.00	0.00	30.42	27.67	12.22	39.89	0.02	0.02	0.569
A2	70.07	0.00	0.00	35.64	20.94	13.84	34.78	0.02	0.02	0.496
A3	70.07	0.00	0.00	49.95	0.00	22.89	22.89	0.00	0.00	0.327
A4	70.07	0.00	0.00	24.02	35.56	11.18	46.74	0.01	0.01	0.667
A5	70.07	0.00	0.00	49.65	0.00	23.59	23.59	0.00	0.00	0.337

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.02	0.12	231.04	0 01:50	0.12
ST2	JUNCTION	0.59	1.24	232.10	0 00:29	1.24
N2	JUNCTION	0.05	0.05	230.91	0 00:29	0.05
Out1	OUTFALL	0.02	0.02	230.79	0 00:57	0.02

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.016	0.016	0 01:50	0.0191	0.0191	0.000
ST2	JUNCTION	0.019	0.035	0 01:50	0.0219	0.041	0.000
N2	JUNCTION	0.000	0.001	0 00:29	0	0.0129	0.000
Out1	OUTFALL	0.017	0.017	0 01:50	0.0172	0.03	0.000

****
Node Flooding Summary
****

Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Volume 1000 m3
ST2	5.53	0.034	0 01:50	0.034	0.034

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	96.67	0.001	0.017	0.030
System	96.67	0.001	0.017	0.030

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.016	0	01:50	0.72	0.44	0.47
C2	CONDUIT	0.001	0	00:57	0.27	0.02	0.10
O2	CONDUIT	0.001	0	00:29	0.37	1.04	1.00

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
O2	5.53	5.53	5.53	5.53	5.53

Analysis begun on: Thu Mar 30 11:47:47 2023
Analysis ended on: Thu Mar 30 11:47:47 2023
Total elapsed time: < 1 sec

POST-DEVELOPMENT: 100 YEAR STORM
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)

WARNING 04: minimum elevation drop used for Conduit O2

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
Analysis Options
****
Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... YES
  Water Quality ..... NO
Infiltration Method ..... MODIFIED_GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date 03/29/2023 00:00:00
Ending Date 03/29/2023 06:00:00
Antecedent Dry Days 0.0
Report Time Step 00:10:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step ..... 30.00 sec

**************************   Volume   Depth
Runoff Quantity Continuity   hectare-m   mm
**************************   ---------   -------
Total Precipitation 0.012   77.764
Evaporation Loss 0.000   0.000
Infiltration Loss 0.006   35.641
Surface Runoff 0.007   42.854
Final Storage 0.000   0.507
Continuity Error (%) .....   -1.593

**************************   Volume   Volume
Flow Routing Continuity   hectare-m   10^6 ltr
**************************   ---------   ---------
Dry Weather Inflow 0.000   0.000
Wet Weather Inflow 0.007   0.067
Groundwater Inflow 0.000   0.000
RDII Inflow 0.000   0.000
External Inflow 0.000   0.000
External Outflow 0.003   0.033
Flooding Loss 0.000   0.000
Evaporation Loss 0.000   0.000
Exfiltration Loss 0.000   0.000
Initial Stored Volume 0.000   0.000
Final Stored Volume 0.003   0.035
Continuity Error (%) 0.000

****
Highest Flow Instability Indexes
****
All links are stable.

****
Routing Time Step Summary
****
Minimum Time Step   :   30.00 sec
Average Time Step   :   30.00 sec
Maximum Time Step   :   30.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   1.23
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	77.76	0.00	0.00	32.24	30.82	15.08	45.90	0.02	0.02	0.590
A2	77.76	0.00	0.00	37.75	23.33	17.19	40.52	0.03	0.02	0.521
A3	77.76	0.00	0.00	53.10	0.00	27.27	27.27	0.00	0.00	0.351
A4	77.76	0.00	0.00	25.55	39.67	13.22	52.89	0.01	0.01	0.680
A5	77.76	0.00	0.00	52.81	0.00	27.33	27.33	0.00	0.00	0.351

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
ST1	JUNCTION	0.02	0.13	231.05	0 01:50	0.12
ST2	JUNCTION	0.60	1.24	232.10	0 00:25	1.24
N2	JUNCTION	0.05	0.05	230.91	0 00:25	0.05
Out1	OUTFALL	0.02	0.02	230.79	0 00:53	0.02

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
ST1	JUNCTION	0.018	0.018	0 01:50	0.022	0.022	0.000
ST2	JUNCTION	0.022	0.040	0 01:50	0.0255	0.0475	0.000
N2	JUNCTION	0.000	0.001	0 00:25	0	0.013	0.000
Out1	OUTFALL	0.019	0.019	0 01:50	0.0197	0.0326	0.000

****
Node Flooding Summary
****

Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Volume 1000 m3
ST2	5.59	0.039	0 01:50	0.041	0.041

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
Out1	96.67	0.002	0.019	0.033
System	96.67	0.002	0.019	0.033

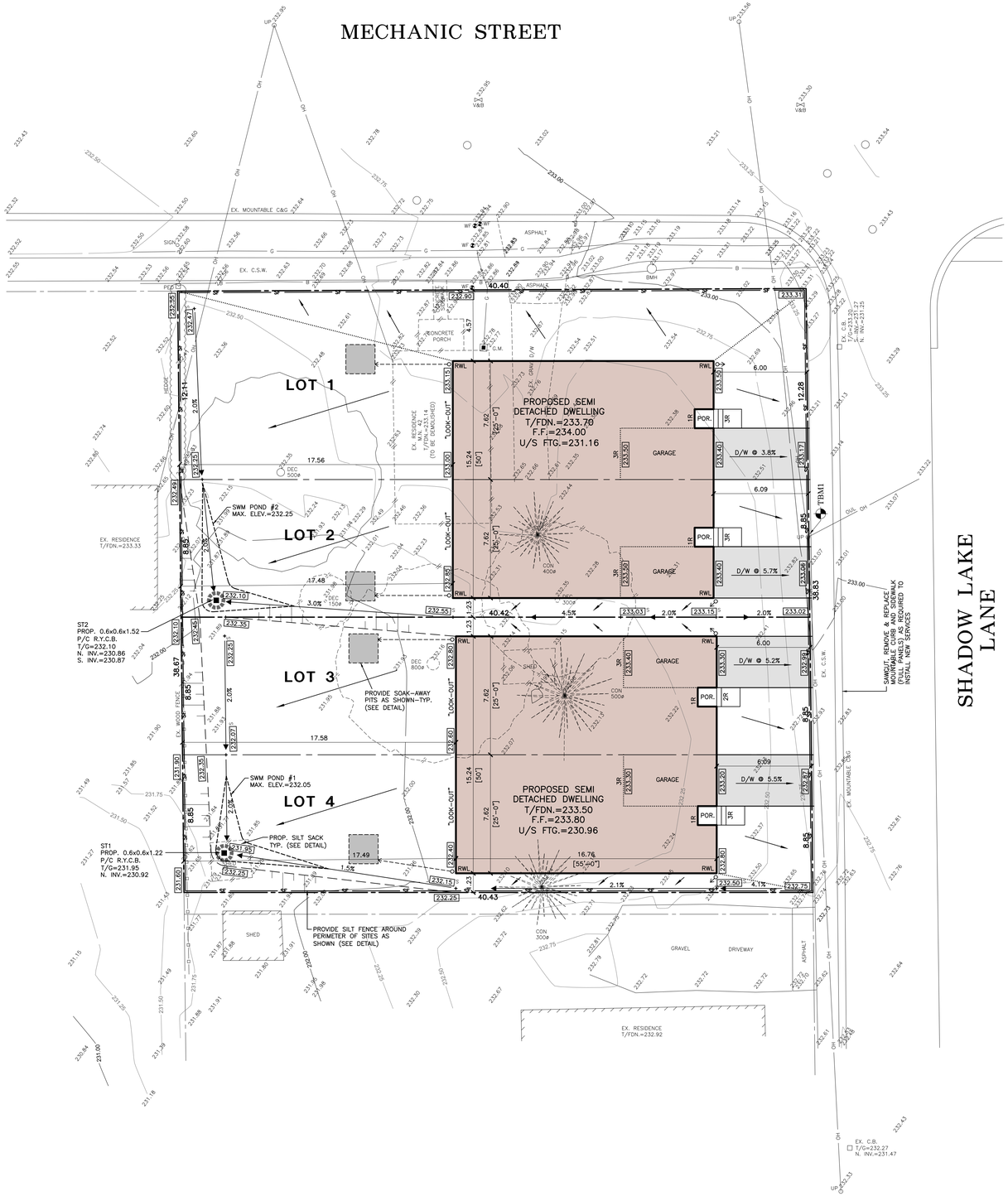
****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.018	0	01:50	0.74	0.50	0.50
C2	CONDUIT	0.001	0	00:53	0.27	0.02	0.10
O2	CONDUIT	0.001	0	00:25	0.37	1.02	1.00

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
O2	5.59	5.59	5.59	5.59	5.59

Analysis begun on: Thu Mar 30 11:46:01 2023
Analysis ended on: Thu Mar 30 11:46:01 2023
Total elapsed time: < 1 sec

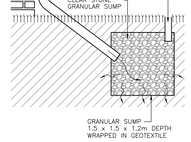


KEY PLAN:

INDIVIDUAL UNIT SITE STATISTICS

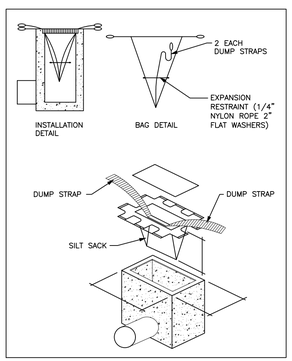
ITEM	*LOT 1*	*LOT 2*	*LOT 3*	*LOT 4*	*ZONING BYLAW REQUIREMENTS*
ZONING CATEGORY		R2 (REZONED FROM R1-A)			R2
LOT AREA (sq. m.)	– – 492.8	357.7 – –	357.7 – –	357.7 – –	255.0 MIN. (INTERIOR) 345.0 MIN. (CORNER)
LOT FRONTAGE (m)	– – 12.25	8.85 – –	8.85 – –	8.85 – –	8.50 MIN. (INTERIOR) 11.50 MIN. (CORNER)
FRONT YARD (m)	6.00	6.09	6.00	6.09	6.00 MIN.
EXTERIOR SIDE YARD (m)	4.57**	– –	– –	– –	6.00 MIN.
INTERIOR SIDE YARD (m)	– –	1.23	1.23	1.23	1.20 MIN.
REAR YARD (m)	17.56	17.48	17.58	17.49	7.50 MIN.
PERCENTAGE OF FRONT YARD LANDSCAPED	72.8%	62.2%	62.9%	63.0%	50% MIN.
BUILDING HEIGHT (m)	– –	– –	– –	– –	11.00 MIN.

** ITEM REQUIRES A MINOR VARIANCE



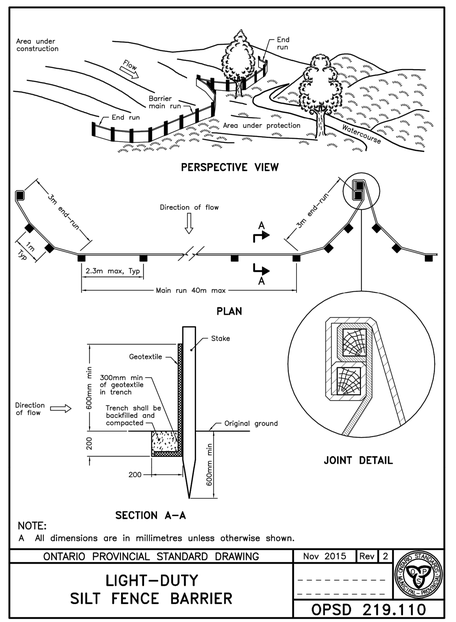
TYPICAL SOAK-AWAY PIT DETAIL

REPRODUCED FROM M.O.E.E. 2003 S.W.M. GUIDELINES



SILT SACK DETAIL

N.T.S.



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

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2015 | Rev 2

LIGHT–DUTY SILT FENCE BARRIER

OPSD 219.110

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

LEGEND:

- 200.00 — EXISTING ELEVATIONS
- [200.00] — PROPOSED ELEVATIONS
- [200.00]S — PROPOSED SWALE ELEVATIONS
- PROPOSED SWALE
- GENERAL DRAINAGE
- SF — PROPOSED SILT FENCE
- SILT SACK AS SHOWN
- EX. TREES TO REMAIN
- EX. TREES TO BE REMOVED
- RWL — PROPOSED DOWNSPOUT c/w CONCRETE SPLASH PAD
- LIMIT OF S.W.M. POND (100 Yr. EVENT) MAX. POND ELEVATION AS NOTED

NOTES:

1. ALL ELEVATIONS SHOWN ARE METRIC.
2. BUILDER/OWNER TO VERIFY COMPLIANCE WITH ZONING BYLAWS (ie. SIDEYARDS, SETBACKS, REARYARDS ETC.)
3. WHERE ONLY ONE ELEVATION IS SHOWN, EXISTING AND PROPOSED ELEVATIONS ARE THE SAME.
4. THE SILTATION & EROSION CONTROL (SEC) MEASURES ILLUSTRATED ON THIS PLAN ARE CONSIDERED TO BE THE MINIMUM REQUIREMENT. SITE CONDITIONS MAY REQUIRE ADDITIONAL MEASURES WHICH WILL BE IDENTIFIED BY THE ENGINEER DURING CONSTRUCTION.
5. ALL SEC MEASURES ARE TO BE IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. OWNER/CONTRACTOR TO MAINTAIN EROSION CONTROL MEASURES THROUGHOUT SITE UNTIL A COMPLETE GRASS/VEGETATION COVER IS ACHIEVED.
7. ONLY AT THE DIRECTION OF THE ENGINEER ARE THE SEC MEASURES TO BE REMOVED.
8. ALL EXPOSED AREAS NOT SUBJECT TO ACTIVE CONSTRUCTION WITHIN 30 DAYS ARE TO BE REVEGETATED AS PER O.P.S.S. 572 IMMEDIATELY UPON COMPLETION OF AREA GRADING.
9. CONTRACTOR TO PROVIDE SILT FENCE AROUND PERIMETER OF ALL ON SITE STOCKPILES.
10. CONTRACTOR TO PROVIDE SILT SACKS ON TOP OF ALL EXISTING AND PROPOSED STORM STRUCTURES WITHIN THE INFLUENCE OF RUNOFF DURING CONSTRUCTION UNTIL ADEQUATE VEGETATIVE COVER IS ACHIEVED.
11. PROVIDE (2)–REAR YARD SOAK–AWAY PITS PER BUILDING AS SHOWN.

LICENSED PROFESSIONAL ENGINEER 2023-03-31 M. J. WHYTE 100503618 PROVINCE OF ONTARIO

T.B.M. No. 1 ELEV. = 233.54m (GEO)
WOOD STAKE ON UTILITY POLE ON THE WEST SIDE OF SHADOW LAKE LANE AS SHOWN.

NO.	REVISION	DATE (MM/DD/YY)	BY

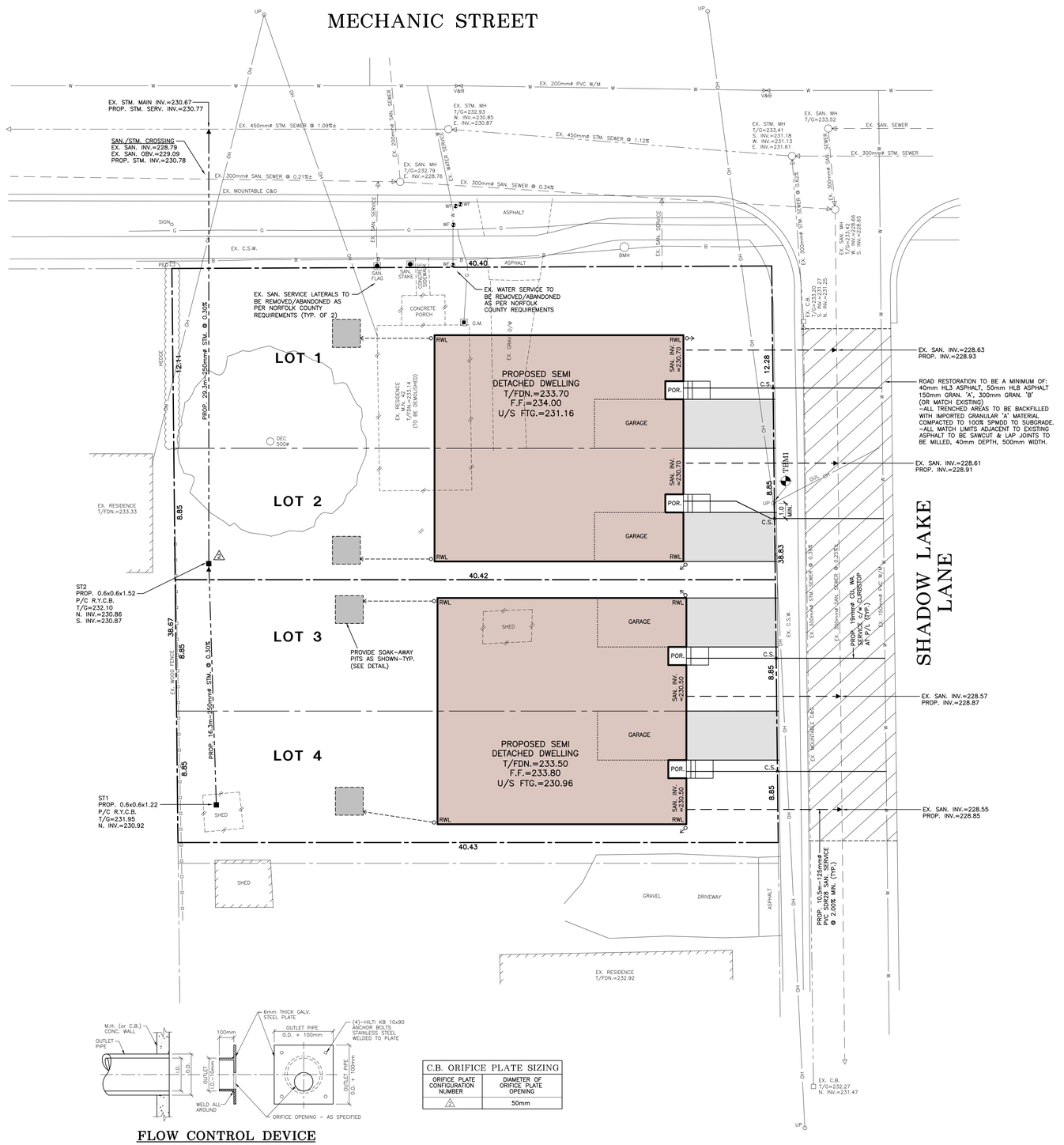
J.H. COHOON ENGINEERING LIMITED
CONSULTING ENGINEERS
440 HARDY ROAD , UNIT #1 , BRANTFORD – ONTARIO , N3T 5L8
TEL. (519) 753–2656 FAX. (519) 753–4263 www.cohooneng.com

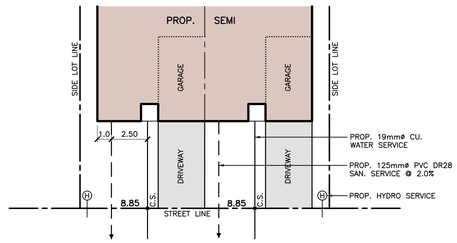
PROJECT:
PROPOSED SEMI DETACHED DWELLINGS LOTS 2, 3 & 4 BLOCK 5, R.P. 19B
M.N. 42 MECHANIC STREET
NORFOLK COUNTY

CLIENT:
LUBELLA HOMES

GRADING & SILTATION AND EROSION CONTROL PLAN

DESIGN:	M.J.W.	SCALE:	1:150
DRAWN:	K.P.B.	JOB No:	15373
CHECKED:	M.J.W.		
SHEET:	1 of 2	DWG. No:	15373–1
DATE:	MAR. 28/23		





TYPICAL LOT SERVICING

N.T.S.

GENERAL NOTES:

1. CONSTRUCTION OF SEWERS, WATERMAINS AND RELATED APPURTENANCES SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE CURRENT STANDARD DRAWINGS OF THE COUNTY OF NORFOLK, AND THE ONTARIO PROVINCIAL STANDARDS DRAWINGS (OPSD). THE COUNTY OF NORFOLK DRAWINGS SHALL TAKE PRECEDENCE OVER THE OPSD DRAWINGS.
2. INFORMATION REGARDING ANY EXISTING SERVICES AND/OR UTILITIES SHOWN ON THE APPROVED SET OF CONSTRUCTION DRAWINGS IS FURNISHED AS THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL INTERPRET THIS INFORMATION AS THEY SEE FIT WITH THE UNDERSTANDING THAT THE OWNER AND HIS AGENTS DISCLAIM ALL RESPONSIBILITY FOR ITS ACCURACY AND/OR SUFFICIENCY.
3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION AND HE SHALL REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
4. RELOCATION OF EXISTING SERVICES AND/OR UTILITIES SHALL BE CONSTRUCTED AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.
5. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FOR CONSTRUCTION.
6. FOR ALL SEWERS AND WATERMAIN IN FILL SECTIONS, THE COMPACTION SHALL BE VERIFIED PRIOR TO LAYING OF PIPE.
7. NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE COUNTY OF NORFOLK OR THE ENGINEER.
8. ALL EXCAVATIONS TO BE BACKFILLED WITH SELECT NATIVE MATERIAL, APPROVED BY THE ENGINEER, TO 95% S.P.D.
9. THE DEVELOPER AND/OR CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING (UNTIL ROAD CONSTRUCTION IS FINISHED) SILT CONTROL DEVICES AS SHOWN ON THE DRAWINGS AND AS DIRECTED BY THE ENGINEER.
10. ALL WORKS SHALL BE DESIGNED AND CONSTRUCTED SO AS TO COMPLY WITH APPLICABLE LAW, TO BE CONSISTENT WITH THE COUNTY OF NORFOLK DEVELOPMENT & ENGINEERING STANDARDS AND IN ACCORDANCE WITH CURRENT GUIDELINES, CODES, REGULATIONS AND STANDARDS PRESCRIBED BY THE COUNTY.
11. ALL BOULEVARD AREAS TO BE RESTORED WITH #1 NURSERY SOD ON A MINIMUM 100mm OF SELECT TOPSOIL.
12. ALL TRENCH BACKFILL UNDER EXISTING ROADWAYS SHALL BE COMPACTED IN MINIMUM 230mm LIFTS TO 98% STANDARD PROCTOR DENSITY. A GEOTECHNICAL ENGINEER'S REPRESENTATIVE SHALL BE ON SITE DURING THE WORK TO VERIFY THE COMPACTION OF EACH LIFT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS OF RE-TESTING.
13. AN ENGINEER IS REQUIRED TO BE ONSITE FOR INSPECTION OF ALL UNDERGROUND SERVICES.
14. DRIVEWAYS MUST HAVE A MINIMUM 1.0m CLEARANCE FROM ALL UTILITIES SUCH AS FIRE HYDRANT, STREETLIGHT POLES, TRANSFORMERS, CANADA POST COMMUNITY MAILBOX LOCATIONS, ETC.
15. ALL WATER SERVICE CONNECTIONS 19mm DIA. ASTM B88 TYPE 'K' SOFT COPPER AS PER OPSD 1104.01 & COUNTY OF NORFOLK ENGINEERING STANDARDS, & INSTALLED IN ACCORDANCE WITH OPSD 802.110 TYPE 2. TRENCH BEDDING TO BE GRANULAR 'A'.
16. CURB STOPS TO BE MUELLER A-726 OR EQUIVALENT APPROVED BY THE COUNTY OF NORFOLK.
17. CATHODIC PROTECTION TO BE PROVIDED AT ALL VALVES, BENDS AND FITTINGS WITH 11.0 KG ZINC ANODES AND ON ALL WATER SERVICE CONNECTIONS WITH 5.5 KG ZINC ANODES.
18. WATER SERVICES TO BE INSTALLED WITH A MINIMUM COVER OF 1.70m BELOW FINISHED GRADE.
19. LOT 2 WATER SERVICE INSTALLATION OF BE MIN. 1.0m FROM EXISTING UTILITY POLE.
20. ALL WATER SERVICES TO BE INSTALLED OVER EXISTING STORM SEWER. PROVIDE MINIMUM 1.70m COVER OVER AND MINIMUM SEPARATION TO EXISTING STORM SEWER.
21. NO WORK ON WATER SERVICES CAN TAKE PLACE WITHOUT SUPERVISION OF A LICENSED NORFOLK COUNTY OPERATOR ON SITE.
22. ALL APPLICABLE PERMITS ARE TO BE APPLIED FOR PRIOR TO THE INSTALLATION OF ANY SERVICES.

SANITARY SEWERS:

1. SANITARY & STORM SEWERS & RELATED APPURTENANCES SHALL BE DESIGNED AND CONSTRUCTED SO AS TO COMPLY WITH APPLICABLE LAW, TO BE CONSISTENT WITH THE COUNTY OF NORFOLK DEVELOPMENT AND ENGINEERING STANDARDS AND IN ACCORDANCE WITH CURRENT GUIDELINES, CODES, REGULATIONS, BEST PRACTICES AND STANDARDS PRESCRIBED BY THE COUNTY.
2. COVER AND BEDDING MATERIAL FOR PVC PIPE AS PER OPSD 802.010 TYPE 2 TRENCH BEDDING SHALL BE GRANULAR 'A' MATERIAL UNLESS OTHERWISE INDICATED.
3. PVC PIPE WILL REQUIRE SPECIAL CONSTRUCTION PROCEDURES FOR LEAKAGE AND TESTING, PIPE DEFLECTION, ETC.
4. ALTERNATE MATERIALS MAY BE ACCEPTABLE, PROVIDED APPROVAL HAS FIRST BEEN OBTAINED FROM THE COUNTY OF NORFOLK AND ENGINEER IN WRITING.
5. ALL SEWER AND CULVERT INSTALLATIONS TO CONFORM WITH OPSD 802.031 TYPE 3 SOIL.
6. PRIVATE SANITARY DRAINS TO 125mmø PVC DR28 PIPE AND HAVE A MIN. GRADE OF 2.0%, AS PER NORFOLK COUNTY DESIGN CRITERIA.
7. A 38x89mm x 2.0m LONG MARKER IS TO BE PLACED FROM THE CAPPED LATERAL AND EXTEND 1.0m ABOVE GROUND AND PAINTED GREEN FOR SANITARY AND WHITE FOR STORM.
8. BEDDING FOR PRIVATE SANITARY & STORM DRAINS AS PER OPSD 1006.02 TYPE 2 TRENCH WITH GRANULAR 'A' BEDDING AND COVER MATERIAL.
9. MINIMUM FALL FOR PRIVATE SANITARY & STORM DRAINS TO BE 2.0%
10. SANITARY SERVICES TO BE INSTALLED USING SERVICE SADDLES OR PRE-MANUFACTURED TEE APPROVED BY NORFOLK COUNTY. ALL CONNECTIONS TO SHALL CONFORM TO CURRENT OPSD 1006.010 AND OPSS 410.

FLOW CONTROL DEVICE ORIFICE PLATE

N.T.S.

C.B. ORIFICE PLATE SIZING	
ORIFICE PLATE CONFIGURATION NUMBER	DIAMETER OF ORIFICE PLATE OPENING
2	50mm

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LEGEND:

EX. 50m–300mmø STM. @ 0.5%	EXISTING STORM SEWER SYSTEM
EX. 60m–200mmø SAN. @ 0.4%	EXISTING SANITARY SEWER SYSTEM
W	EXISTING WATERMAIN
OH	EXISTING OVERHEAD UTILITY LINE
	EXISTING WOOD FENCE
S1	EXISTING SANITARY MANHOLE
ST1	EXISTING STORM MANHOLE
CB	EXISTING CATCHBASIN
PED	EXISTING BELL PEDESTAL
WV	EXISTING WATER VALVE
UP	EXISTING UTILITY POLE
TBM	EXISTING TEMPORARY BENCHMARK
WF	EXISTING WATER FLAG
	PROPOSED SANITARY SERVICE
C.S.	PROPOSED WATER SERVICE
	PROPOSED CATCHBASIN
RWL	PROPOSED DOWNSPOUT c/w CONCRETE SPLASH PAD

T.B.M. No. 1 ELEV. = 233.54m (GEO)

WOOD STAKE ON UTILITY POLE ON THE WEST SIDE OF SHADOW LAKE LANE AS SHOWN.

NO.	REVISION	DATE (MM/DD/YY)	BY

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PROJECT:

PROPOSED SEMI DETACHED DWELLINGS LOTS 2, 3 & 4 BLOCK 5, R.P. 19B

M.N. 42 MECHANIC STREET
NORFOLK COUNTY

CLIENT:
LUBELLA HOMES

SERVICING PLAN

DESIGN:	M.J.W.	SCALE:	1:150
DRAWN:	K.P.B.	JOB No:	15373
CHECKED:	M.J.W.		
SHEET:	2 of 2	DWG. No:	15373–2
DATE:	MAR. 28/23		

MAP A

ZNPL2024148

CONTEXT MAP

Urban Area of WATERFORD

Legend

Subject Lands

2020 Air Photo

5/31/2024

N

8 4 0 8 16 24 32 Meters

MAP B

ZNPL2024148

OFFICIAL PLAN MAP

Urban Area of WATERFORD

Legend

- Subject Lands

Official Plan Designations

- Hazard Lands
- Urban Residential
- Commercial
- Urban Area Boundary

5/31/2024

N

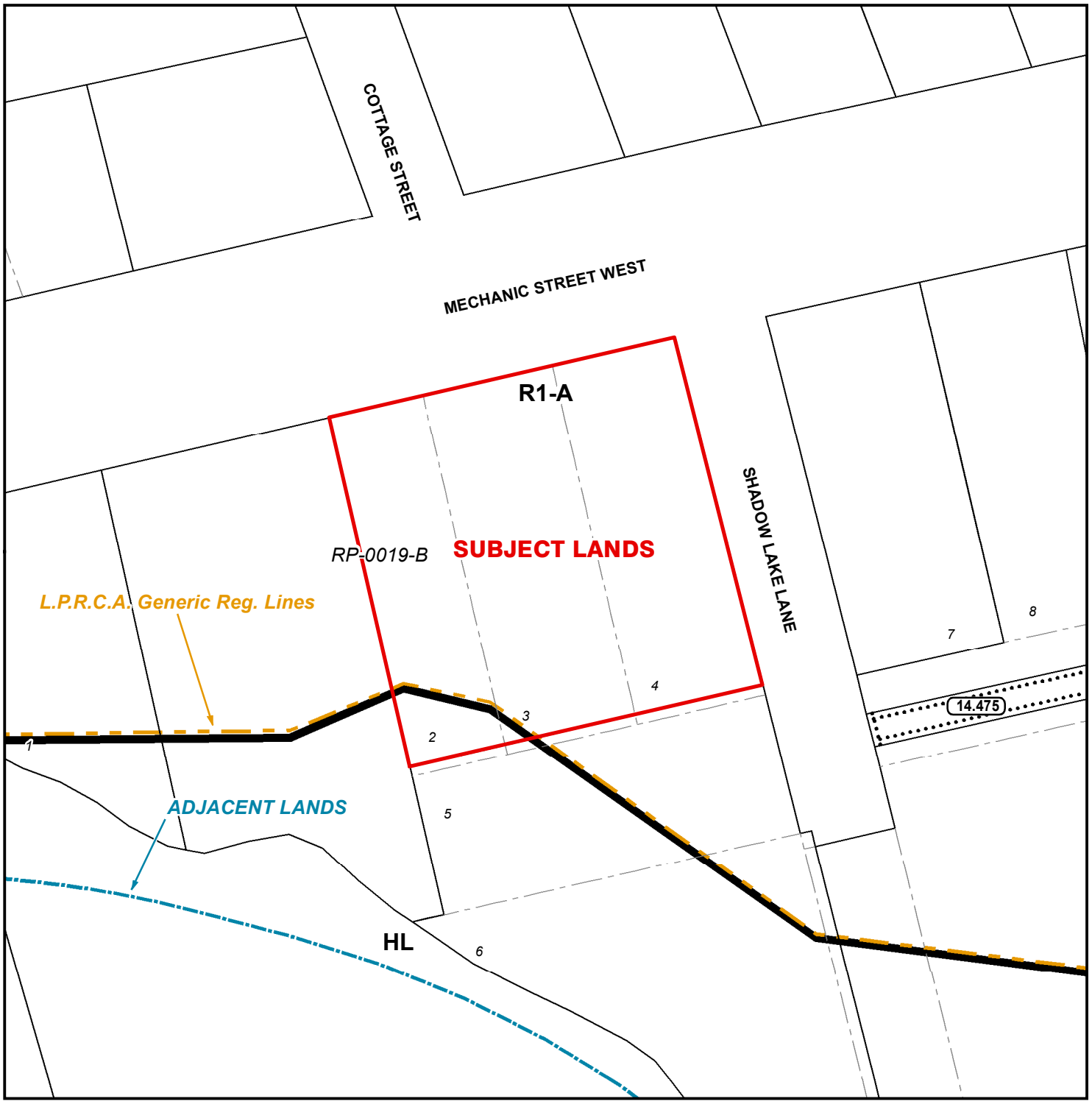
6.5 3.25 0 6.5 13 19.5 26 Meters

MAP C

ZNPL2024148

PROPOSED ZONING BY-LAW AMENDMENT MAP

Urban Area of WATERFORD



LEGEND

- Subject Lands
- Adjacent Lands
- LPRCA Generic RegLines

ZONING BY-LAW 1-Z-2014

(H) - Holding

HL - Hazard Land Zone

R1-A - Residential R1-A Zone

5/31/2024

From: R1-A
To: R2 with special provision

N

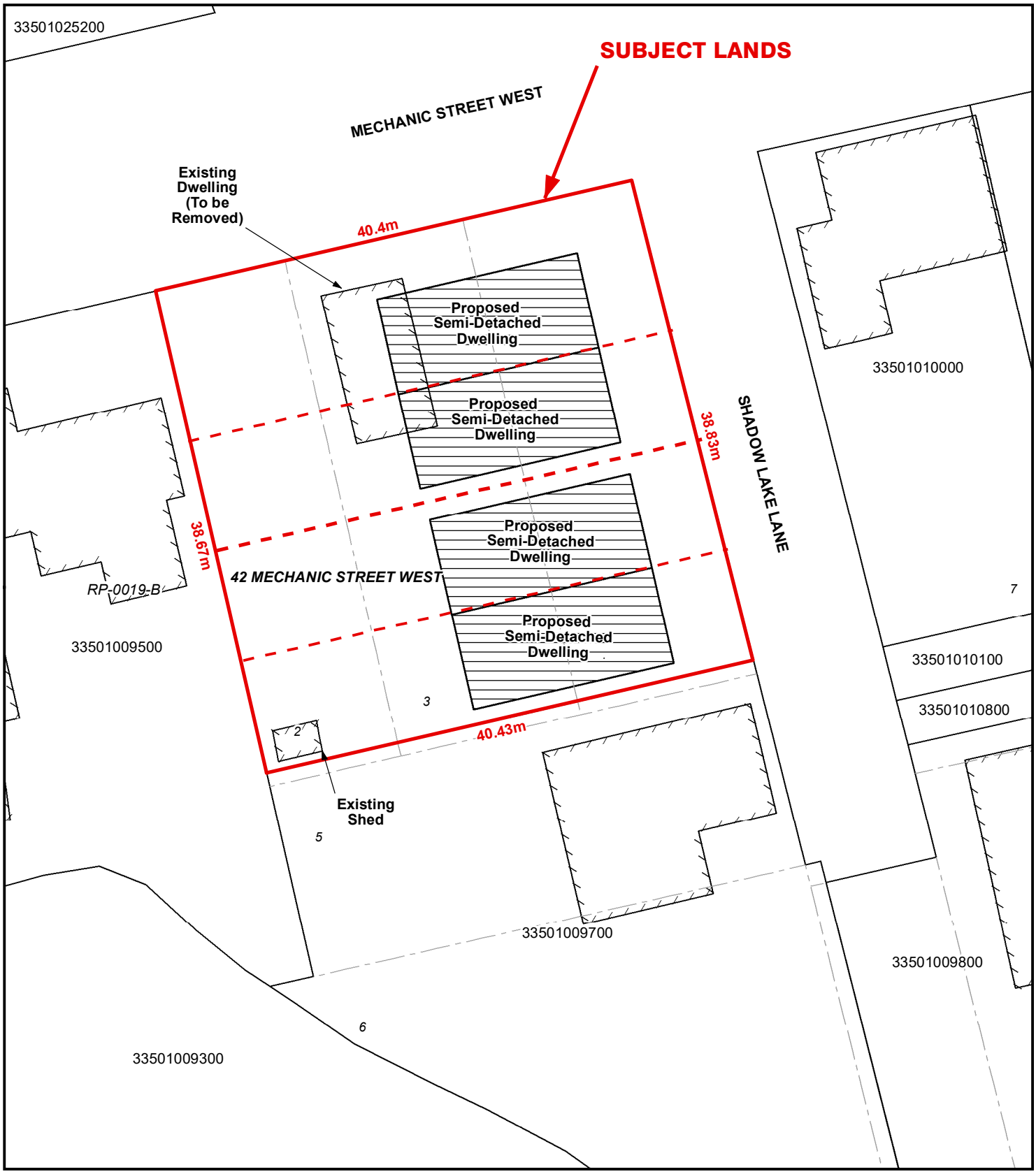
4.52.25 0 4.5 9 13.5 18 Meters

MAP D

ZNPL2024148

CONCEPTUAL PLAN

Urban Area of WATERFORD



Legend

Subject Lands

5/31/2024

N

3.5 1.75 0 3.5 7 10.5 14 Meters