JONES
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PLANNERS & ENGINEERS

Excellence Reliance Innovation

Pine Valley Homes Limited

9332 County Road 93, Town of Midland

Preliminary Functional Servicing Report

May 2026

The Jones Consulting Group Ltd.
#1-229 Mapleview Drive East, Barrie ON L4N 0W5

PIN-19037 (70)

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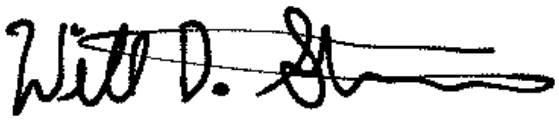
Report Prepared By:



Will Stevenson. B.Eng.
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Project Engineer

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Disclaimer

This Preliminary Functional Servicing Report (PFSR) was prepared by **The Jones Consulting Group Ltd.** for **Pine Valley Homes Limited.** The material in the Report reflects **The Jones Consulting Group Ltd.'s** best judgment in light of the information available at the time of the Report preparation. Any use which a third party makes of this Report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **The Jones Consulting Group Ltd.** accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this Report.

Preliminary Functional Servicing Report
Pine Valley Homes Limited
9332 County Road, Town of Midland

1. Introduction

1.1. Appointment

The Jones Consulting Group Ltd. (TJCG) was retained by Pine Valley Homes Limited (Client) to prepare this Preliminary Functional Servicing Report (PFSR) for the proposed residential Development known as the Pine Valley Homes Limited. The proposed development is located at 9332 County Road 93, the Town of Midland (Town) and consists of residential type (low and medium density townhouses, high density apartment) development.

This *Preliminary Functional Servicing Report* (PFSR) has been prepared in support of Official Plan Amendment, Zoning By-law Amendment and Draft Plan Approval for the proposed 9332 County Road 93 Draft Plan of Subdivision, prepared by TJCG, dated May 5th 2026, and the 9332 County Road 93 Concept Plan, prepared by Orchard Design Studio Inc., dated October 16 2025. This Report demonstrates how the lands will be serviced by the surrounding municipal infrastructure.

In particular, this Report examines the Development's servicing in relation to:

- Sanitary Servicing
- Water Servicing
- Stormwater Servicing
- Roads and Grading
- Utility Servicing

1.2. Property Description

The Site is rectangular in shape and bound to the north and west by undeveloped, forested lands, to the south by Fosters Road, and to the east by existing commercial development. It is located approximately 350 metres (m) West of County 93. An existing municipal road known as Lanigan Drive extends to the property's east limit.

The property has a total area of approximately 27.63 hectares (ha), of which 10.61 ha will be dedicated as environmental protection. The development is municipally known as 9332 County Road 93, Midland, and legally described as Part of Lot 107, Concession 1, Geographic Township of Tiny, Town of Midland, County of Simcoe (County). The location of the subject property is shown below in Figure 1.

Figure 1– Site Location Plan

The development lands are currently vegetated with a mix of forested and cleared land cover. In general, the existing topography is considered to be gently sloping and drains in a north-easterly direction toward County Road 93. The topography ranges from an elevation of approximately 248m to approximately 243m and corresponds to an average gradient of 1%.

According to the Soil Survey of Simcoe County Report No. 29 North Sheet, and MTO Design Chart H2-6A, the predominant soils of the site are represented by the Vasey Sandy Loam Series and

Wyevale Gravely Sandy Loam Series, which correspond to hydrologic soil groups AB and A of the SCS Hydrologic Soil Group Classification System, respectively.

1.3. Proposed Land Use

The proposed Draft Plan of Subdivision prepared by TJCG (May 5th, 2026) indicates that the development will be subdivided into various sized residential blocks (5 street townhome blocks, 2 medium density blocks, 2 high density blocks, and 1 stormwater management block). The Site's proposed land use statistics are illustrated on the concept plan prepared by Orchard Design Studio Inc. (October 2025) and are summarized in **Table 1**, below. Refer to the Draft Plan of Subdivision and the Concept Plan attached in **Appendix A** for the location and orientation of the Lots, Blocks and Municipal Streets.

Table 1 – Land Use Statistics

Residential Lot Breakdown	Units
Apartment Units	432
Rear Lane Units	138
Stacked Towns	288
3 Storey Towns	138
2 Storey Towns	55
Total	1051

The development will be serviced by proposed municipal sanitary, water, and stormwater infrastructure, as well as a proposed SWM facility, connected to existing municipal infrastructure. The proposed SWM facility will provide the required quality and quantity control in accordance with Ministry of Environment guidelines.

Two site access/egress locations are proposed to connect the Site's internal roadways to the existing municipal right-of-ways. The first access/egress is an extension of existing Lanigan Drive, which extends through the site and connects to County Road 93 to the north of the commercial development, becoming the second point of access/egress. A third connection is provided to the existing private road to the south known as Fosters Road.

2. Existing Municipal Services

2.1. Sanitary Servicing

An existing 300mm PVC sanitary sewer runs east along the existing Lanigan Drive. An existing Sanitary maintenance hole is located approximately 1.5 m from the site boundary. The sewer drains easterly within Lanigan Drive, before connecting to an existing 375mm diameter sanitary sewer which drains south along County Road 93. This sanitary system drains to an existing sanitary trunk sewer located on Hugel Avenue. The existing sanitary system is located within the Yonge Street sewershed. Refer Appendix A for a map detailing the Existing Sewershed Areas. At the time of Report preparation, record drawings for the existing trunk sanitary sewers were not available from the Town.

2.2. Water Servicing

An existing 300mm diameter watermain is located along the existing portion of Lanigan Drive, where it is stubbed at the site boundary. There are existing 200mm and 300mm diameter watermain running along County Road 93, which crosses the road just south of the Lanigan Drive/County Road 93 intersection. The current underground service information provided by the Town is included in Appendix A for reference.

2.3. Storm Servicing

An existing 375mm diameter storm sewer flowing eastward is located within the existing Lanigan Drive right-of-way, with a maintenance hole approximately 5m from the site boundary. Additionally, there is an existing ditch located to the south of Lanigan Drive, running along the eastern boundary of the site. This ditch outlets via a headwall into the Lanigan Drive storm sewer network and flows easterly.

2.4. Utilities

Secondary utilities are available within the County Road 93 right-of-way adjacent to the development. This includes:

- NT Power (Electrical, available 5-10 MV service area)
- Enbridge (Gas)

- Rogers (Phone/Internet)
- Bell (Phone/Internet)

3. Supporting Documents

The following documents have been referenced in the preparation of this Report:

- Town of Midland Engineering Development Design Standards, Revised 2024
- Town of Midland Official Plan, 2017
- Ministry of the Environment, Design Guidelines for Sewage Works, 2008
- Ministry of the Environment, Design Guidelines for Drinking-Water Systems, 2008
- Ministry of the Environment, Stormwater Management Planning and Design Manual, March 2003;
- Soils Map of Simcoe County, Ontario, Soil Survey Report No. 29
- Fire Underwriters Survey, Water Supply for Public Protection, 2020

4. Sanitary Servicing

4.1. Overview

The proposed sanitary servicing is detailed on **Drawings SAN-1**. Refer to **Appendix E**. Internally, sewage flows will be collected via proposed 200mm and 250mm diameter PVC SDR35 sanitary mains, and a series of 1200mm diameter maintenance holes to facilitate bends, appropriate clean out lengths, etc. Each proposed townhouse will be serviced with individual 100mm diameter PVC SDR28 service laterals that connect to the internal sanitary main, while each apartment building will be serviced with a 200mm diameter PVC SDR35 sanitary main. Sanitary servicing within the proposed municipal right-of-ways on Lanigan Drive and Street B will be municipally owned infrastructure. Sanitary servicing within the Site Plan Blocks (Blocks 6 to 9) will be privately owned infrastructure.

The internal sanitary flows are proposed to be conveyed via gravity to the existing 300mm municipal sanitary sewer which drains east along the existing Lanigan Drive. The proposed flows will then be conveyed to the sanitary system on County Road 93 and ultimately to the trunk sanitary system on Hugel Avenue.

4.2. Sanitary Service Design Flows

For proposed residential development, the analytical sanitary forecast is determined based on estimated population. In order to determine population each residential building type is assigned a number of Persons Per Unit (PPU). The following PPU's have been assigned to the proposed building types:

Apartment Unit = 2.0 PPU

Townhouse Unit = 2.5 PPU

With the above PPU's the estimated population of the development is determined to be 2412 people (432 Units x 2.0 PPU (apartment) + 619 Units x 2.5 PPU (townhouse)). The total sanitary flow for the development can therefore be calculated with the following formula.

$$Qd = Qpd + Qi = \left[\frac{PQM}{86400}\right] + [I \times Area]$$

Where: Qd = Total peak sewage flow (L/s)

Qpd = Peak domestic sewage flow (L/s)

Qi = Extraneous sewage flow (L/s)

P = Design population (2412 people)

Q = Average daily flow (450 L/person/day)

Area = Area of Residential Development (14.87ha)

I = Units of extraneous flow (0.23 L/s/Ha)

M = Harmon Peaking Factor; $1 + \left[\frac{14}{\left[\left(\frac{P}{1000}\right)^{0.5} + 4\right]}\right]$ (2.0<M<4.0)

Therefore: $M = 1 + \left[\frac{14}{\left[\left(\frac{2412}{1000}\right)^{0.5} + 4\right]}\right]$

M = 3.52

$$Qd = \left[\frac{2412 \times 450 \times 3.52}{86400}\right] + [0.23 \times 14.87]$$

Qd = 47.64 L/s ← total peak sewage flow

In order to confirm the proposed sanitary infrastructure within the development lands has been appropriately sized a sanitary sewer design sheet has been completed. Refer to Appendix D. The design sheet demonstrates that the proposed sewers have been appropriately sized to convey the required flows, in addition to meeting the minimum (0.6m/s) and maximum (3.0m/s) velocity requirements stipulated by the Town of Midland. Based on Town data of existing sanitary sewers downstream of the site, within Lanigan Drive, the existing sanitary sewer infrastructure is capable of supporting the addition of the subdivisions proposed sanitary flows. Furthermore, based on correspondence from this Town, we are not aware of any downstream capacity concerns for the development.

5. Water Servicing and Distribution

5.1. Overview

Water servicing within the proposed municipal right-of-ways on Lanigan Drive and Street B will be municipally owned infrastructure. Water servicing within the Site Plan Blocks (Blocks 6 to 9) will be privately owned infrastructure.

The proposed domestic and fire water servicing is detailed on Drawing GS-1, attached in Appendix E. In order to provide a fully looped water distribution system, two (2) connections to the existing water system is proposed. The first connection will be to the existing 300mm diameter watermain on Lanigan Drive and the second connection will be to the existing 200mm diameter watermain on County Road 93. The existing municipal water servicing information is illustrated on the *Loblaws Site Servicing Plan (As-Built)*, located in Appendix A. The proposed connections will coincide with the Site entrance locations. Internally, the development will be serviced with PVC watermain ranging in size from 200mm to 300mm. 25mm diameter (PE or Copper) domestic water services will be provided to each of the proposed townhouse units. Apartment style buildings will be serviced with 100mm domestic water services and 150mm fire water services. Fire hydrants will be provided and strategically located within the development to meet the Town's requirements for Fire Department suppression coverage.

5.2. Domestic Water Design Flows

Based on the estimated population of 2412 people, the Average Daily Flow (ADF) is determined to be 1,085,400 L/day or 12.56 L/s (2412 people x 450 L/day/person). In order to determine the appropriate water distribution design flows for the Maximum Daily Demand (MDD) and Peak Hour Demand (PHD), the ADF is multiplied by the Ministry of Environment standard peaking factors. Refer to Table 3-1, Design Guidelines for Drinking-Water Systems 2008 prepared by the Ministry of Environment. The peaking factors and corresponding flows are summarized below:

Maximum Daily Demand Factor: 2.15

Maximum Daily Demand: 12.56L/s x 2.15 = 27.00L/s

Peak Hourly Demand Factor: 4.50 (Refer to Section 8.3.3 of the *Town of Midland Engineering Development Standards)*

Peak Hourly Demand: 12.56L/s x 4.50 = 56.52 L/s

Based on the determined flows above and initial discussion with Town technical staff, it is anticipated that the Town's overall water supply has sufficient pressure and capacity to provide the required flows to the Development. A Water System Analysis (WSA) will be completed at the detailed design stage to confirm watermain sizing and ensure adequate supply for potable use and fire protection is achieved for this development.

5.3. Fire Water Supply Design Flows

Current Town of Midland policy requires that fire flows for the proposed building be calculated by applying the Fire Underwriters Survey (FUS) method. The calculations are based on Part 2 of the "Water Supply for Public Protection" (Fire Underwriters Survey, 2020). An estimate of the required fire flow is given by the following formula:

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

Where: F= Required fire flow (L/min.)
C= Coefficient related to the type of construction
A= Total effective floor area (m^2)

The fire flows calculated from the above formula are adjusted based on three building factors, including; occupancy contents, sprinklers and exposure. The calculated fire flow is increased or

decreased based on these factors. At the time of this writing, building information related to these factors has not been provided, and therefore several assumptions have been made. The first several assumptions are that all townhouses are of wood-frame construction, are limited combustible, and have exposed openings. As well, it is assumed that the townhouses do not have an adequately designed sprinkler system per NFPA 13. The proposed 6-storey apartment buildings are assumed to be ordinary construction, limited combustible, and have a sprinkler system that is adequately designed per NFPA, with standard water supply and is fully monitored. A sample building was chosen for each of the 5 types of buildings proposed for the site.

The maximum calculated fire flow is outlined below for the sample buildings.

Fire Flow: 283 L/s

The maximum fire flow does not account for any firewalls. Once the existing system pressures and flows are known, the maximum fire flow may be reduced by incorporating firewalls into the building's built form. Refer to Appendix C for detailed supporting calculations and a copy of the site plan identifying the sample buildings.

6. Stormwater Servicing

6.1. Stormwater Management Plan

The stormwater management plan described herein is intended to provide an environmentally sound approach to stormwater issues. These issues can be divided into four main categories: stormwater quality control, stormwater quantity control, water balance, and erosion and sediment control.

A *Preliminary Stormwater Management Report* (PSWMR), being submitted concurrently under separate cover, outlines the proposed design of the Site's stormwater management plan in further detail.

6.2. Site Soils

6.2.1. Soil Survey of Simcoe County

The *Soil Survey of Simcoe County Report No. 29 North Sheet* shows that the site is comprised of Wyevale Gravelly Sandy Loam (18%) and Vasey Sandy Loam (82%). These soil groups form Groups

A & AB, respectively, as identified by the SCS Hydrologic Soil Group Classification System. A breakdown of the site soil coverage is provided below in **Table 2**. A copy of the *Soil Survey of Simcoe County Report 29 North Sheet* has been attached to this report in **Appendix A**. An excerpt of the map, including the subject land's positioning, is shown below in **Figure 2**.

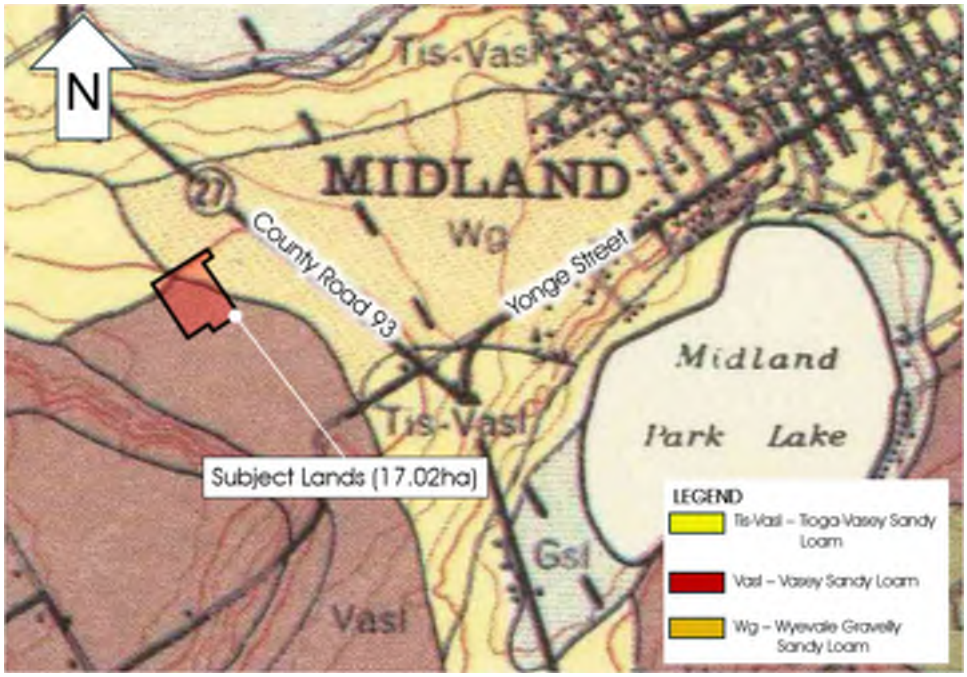

Figure 2 - Site Soils Identification

Table 2 - Soil Type Distribution

Soil Type	Soil Name	SCS Group	Total Area (ha)	Percentage Area (%)
Wg	Wyevale Gravelly Sandy Loam	Group A	3.14	18
Vasl	Tioga Loamy Sand	Group AB	13.88	82

6.3. Existing Drainage Conditions

The developable portion of the site consists of approximately 17.02 hectares of land which is primarily undeveloped forested land coverage with some pockets of cleared forest. The site's

topography ranges from an elevation of approximately 248m to approximately 243m and corresponds to an average gradient of 1%, generally draining in a north-easterly fashion to the County Road 93 roadside ditch.

There are no existing stormwater management facilities on the Site and all flows are released uncontrolled to the County Road 93 roadside ditch. The existing drainage conditions of the Subject Lands are depicted on Drawing SWM-1 in Appendix C.

6.4. Proposed Drainage Conditions

Development of the subject site will consist of nine 2-storey, twenty-three 3-storey townhouses, eighteen 3.5-storey stacked townhouses, twelve 3-storey stacked rear lane townhouses, and three 6-storey apartment buildings. Additionally, an internal road network, four amenity spaces, and a stormwater management facility are included in the proposed development plan.

The development will be serviced from a stormwater management perspective by a proposed subsurface storm sewer network, an oil grit separator (OGS) unit, and an underground stormwater management facility (SWMF). The grading of the lots will direct the majority of stormwater runoff generated by the development to the Site's internal road network, which will contain a proposed subsurface storm sewer system to convey flows to the Site's stormwater management facility. The Storm Area Drainage Plan, referenced as Drawing STM-1 in Appendix E, is to be reviewed in conjunction with the *Storm* Sewer Design Sheet in Appendix B.

The proposed SWMF features an open bottom clear stone layer to provide on site infiltration during smaller rain events, and a control structure with an overflow outlet to provide safe conveyance during larger events. The orifice-controlled outlet configuration has been designed to reduce post-development peak flows to pre-development rates. This stormwater management plan is intended to capture and treat runoff generated by the development (and portions of external drainage currently entering the lands) prior to discharging to the County Road 93 Roadside Ditch. The stormwater management plan has been designed to provide the required quality and quantity control in accordance with the Town of Midland and Ministry of Environment guidelines.

The proposed stormwater management plan is intended to capture, treat, and control runoff generated by the majority of the subdivision, with some small sections along the Site's boundary flowing offsite in an uncontrolled manner due to grading constraints.

The Stormwater Management Plan Post-Development Conditions Drainage Area Plan, Drawing SWM-2 is included in Appendix E and illustrate the proposed drainage scenario.

For further details regarding the proposed stormwater management plan, refer to the *Pine Valley Homes Limited - Preliminary Stormwater Management Report*, prepared by TJCG, dated May 2026, provided under separate cover.

6.5. Erosion & Sediment Control

During construction, the majority of the development's natural features will be removed and the topsoil stripped within the development area. The exposed surface will be susceptible to erosion, increasing the potential for sediment runoff. To minimize local and downstream impacts from erosion and sedimentation during construction, the following measures have been recommended:

- Excess earth and topsoil is to be stockpiled away from the existing drainage channel limits and/or removed from site. Stockpiles shall be seeded or covered with erosion control if left for periods of greater than 30 days.
- Temporary sediment control fencing should be erected around the perimeter of all grading activities.
- Temporary sediment traps should be installed on catch basins until surface cover has been stabilized.
- A temporary construction access mud mat should be installed at the construction accesses to reduce the amount of materials that may be transported off site.
- Construction during drier months should be monitored for wind-borne transport of sediments. At the direction of the engineer, the contractor may be directed to water down exposed earth areas with an aqueous solution of calcium chloride.
- All disturbed areas not under immediate construction for 30 days, or not intended for building activities within a 3-month time period, should be stabilized with seeding.
- Phased removal of temporary sediment basins during building phase of the development to coincide with upstream stabilization (established vegetation) of catchment areas.
- A weekly monitoring program to ensure all ESC measures are in place and not damaged by vandalism or a significant storm event.

Through proper implementation of these erosion and sediment control measures, off-site impacts are expected to be minimized during the construction phase of the project.

Erosion and Sediment Control Plans will be prepared at the detailed design stage.

7. Transportation

7.1. External Road Network

The County of Simcoe *County Road System (2019)* identifies County Road 93 as a County Road, and Lanigan Drive as a Local Road. A copy of the *County Road System* has been attached in Appendix A. County Road 93 runs in a north/south direction to the east of the development lands, beyond the existing commercial plaza directly to the east of the site. Lanigan Drive runs in a east/west direction, with the end of the existing portion of the road stopping at the sites eastern boundary. Lanigan Drive intersects with County Road 93 east of the subject lands.

7.2. Proposed Site Entrances and Internal Road Network

The Draft Plan identifies two main accesses/egresses to the development that connect to existing municipal roads. The eastern site entrance will be an extension of the existing Lanigan Drive, which will turn to the north within the site, where it exits to the north, providing the second site entrance. Lanigan Drive will be extended eastward to the north of the subdivision, and connect to County Road 93. A third access/egress is provided at Street B at Fosters Road (Private Road). This access/egress is aligned with a future development on the south side of the private road and will eventually connect to Sundowner Road.

The proposed municipal right-of-ways will consist of 20.0m and 27.0m right of way widths. The proposed road cross sections will generally conform to the Town's current right-of-way standards.

Refer to the *Pine Valley Homes Limited Site Plan* (October 16th, 2025) attached in Appendix A for the proposed entrance alignment, ROW widths and internal roadway networks.

8. Secondary Utilities

All secondary utility services will be co-coordinated at the detailed design stage and a Composite Utility Plan provided to indicate all underground locations once feedback from each utility company is provided. Electrical, Telephone/Cable and Gas are all available within the adjacent right-of-ways. At this time, we do not foresee any limitations in servicing the development with secondary utilities; however, formal confirmation from each service provider is still required.

9. Conclusion

The Pine Valley Homes Limited has been fully examined for serviceability in this Report. The development lands can be appropriately serviced via the municipal sanitary, water and storm infrastructure. Through proper execution of the preliminary site servicing described herein and on the accompanying drawings, it is evident that the proposed development can become a functional part of the Town of Midland.

This Preliminary Servicing Report is respectfully submitted,

THE JONES CONSULTING GROUP LTD.

Appendix A

Planning and External Information

- Pine Valley Homes Limited Site Plan, Orchard Design Studio Inc. dated October 16th, 2025
- Draft Plan of Subdivision, TJCG, dated May 5th, 2026
- Existing Sewershed Areas, J.L.Richards, dated December 11th, 2020
- Pre-Consultation Meeting Notes on Water Capacity
- Site Servicing Plan, (Drawing 96223-1AB), Odan Detech, dated November 12th, 2008
- Plan & Profile County Road 93 Improvements Station 0+0.00 to 0+340.00, Odan Detech, November 8th, 2008
- Plan & Profile County Road 93 Improvements Station 0+340.00 to 0+420.00, Odan Detech, November 8th, 2008
- County Road System, Simcoe County, 2019

UNITS BREAKDOWN

PHASE	APARTMENT UNITS	REAR LANE UNITS	STACKED TOWNS	3 STOREY TOWNS	2 STOREY TOWNS	TOTAL NUMBER OF UNITS
PHASE 1	288	0	0	0	0	288
PHASE 2	0	48	32	0	0	80
PHASE 3	0	45	224	120	41	430
PHASE 4	144	45	32	0	0	221
FREEHOLD	0	0	0	18	14	32
TOTAL	432	138	288	138	55	1051

UNIT LEGEND

	# units
21' (6.4m) 2 STOREY TOWN	55 units
16' - 6" (5.0m) 3 STOREY TOWN	138 units
20'-10"(6.3m) 3.5 STOREY STACKED TOWN	288 units
33' -7" (10.2m) 3 STOREY STACKED REAR LANE TOWN	138 units
6 STOREY APARTMENT BUILDING	432 units
TOTAL UNITS =	1051 units

COMMUNITY TRAIL / LINEAR PARK

PARKING CALCULATIONS

PHASE	NUMBER OF UNITS	REQUIRED PARKING SPACES	REQUIRED VISITOR SPACES (25% OF REGULAR SPACES)(NOT ADDITIONAL)	PROVIDED PARKING SPACES
PHASE 1	288	288 x 1.5 = 432	108	441
PHASE 2	98	98 x 1.5 = 147	37	159
PHASE 3	432	432 x 1.5 = 648	162	697
PHASE 4	224	224 x 1.5 = 336	84	378
TOTAL	1042	1042 x 1.5= 1563	391	1675

P:\1-Projects\Pine Valley Homes\16142_9332 County Road 93, Midland\2-Drawings\

North Arrow

True North:

ORCHARD DESIGN STUDIO INC.
marketingmeetsarchitecture

Project Information

PINE VALLEY HOMES

PINE VALLEY ESTATES
9332 County Road 93, Midland ON

Set Issuance

No.	Date	Description

Sheet Information

SITE PLAN

Project No. 16142
Project Start Date: 2025-10-16
File: 9332 County Road 93 - Site Plan.dwg
Drawn by: MGL
Scale: 1:1000

PRELIMINARY

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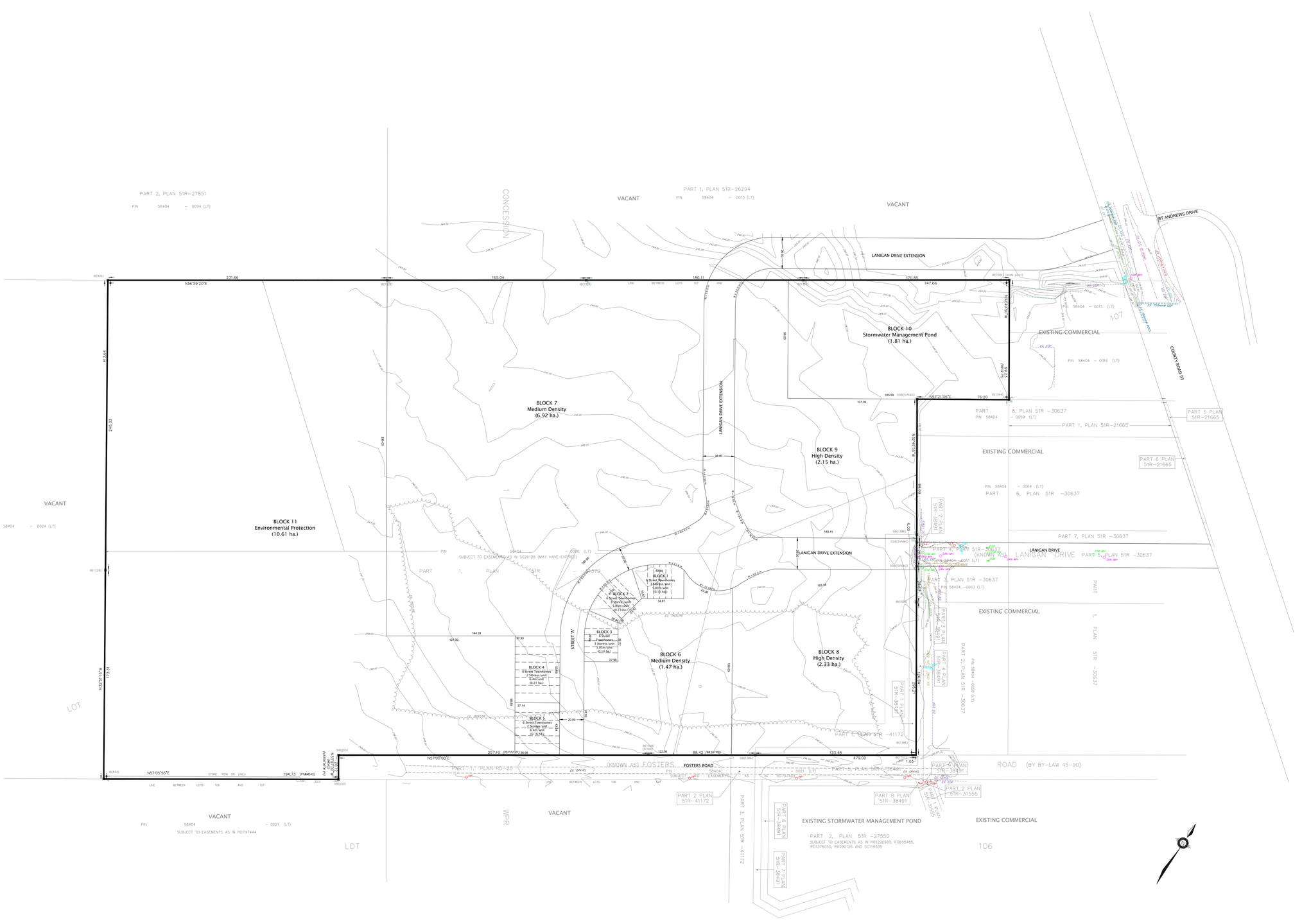
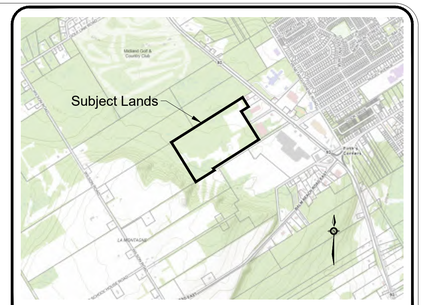
Plot Date|Time - 12/12/2025 12:14:45 PM





Draft Plan of Subdivision
9332 County Road 93
Part of Lot 107
Concession 1
West of the Penetanguishene Road
Town of Midland
County of Simcoe
2026

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

g)	SHOWN ON DRAFT PLAN	h)	MUNICIPAL WATER
b)	SHOWN ON DRAFT PLAN	i)	TIOGA LOAMY SAND & BONDHEAD SANDY LOAM
c)	SHOWN ON KEY PLAN	j)	SHOWN ON DRAFT PLAN
d)	STREET TOWNHOMES, MEDIUM DENSITY, HIGH DENSITY, STORMWATER MANAGEMENT AND ENVIRONMENTAL PROTECTION	k)	ALL MUNICIPAL SERVICES TO BE PROVIDED
		l)	THERE ARE NO RESTRICTIVE COVENANTS AFFECTING THE LAND TO BE SUBDIVIDED.
e)	SHOWN ON DRAFT PLAN		
f)	SHOWN ON DRAFT PLAN		
g)	SHOWN ON DRAFT PLAN		

OWNER'S CERTIFICATE

I, THE UNDERSIGNED, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS, HEREBY AUTHORIZE THE JONES CONSULTING GROUP LTD., TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND TO SUBMIT SAME TO THE TOWN OF MIDLAND FOR APPROVAL.

DATE

PINE VALLEY HOMES LIMITED

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE

RUDY MAK, O.L.S.
RUDY MAK SURVEYING LTD.

DRAFT PLAN STATISTICS

	Number of Units	Area (ha.)
3 Storey Street Townhouses (Blocks 1 - 3)	18 units	0.32 ha.
2 Storey Street Townhouses (Blocks 4 & 5)	14 units	0.37 ha.
Medium Density (Blocks 6 & 7)	510 units	8.39 ha.
High Density (Blocks 8 & 9)	509 units	4.48 ha.
Stormwater Management (Block 10)	n/a	1.81 ha.
Environmental Protection (Block 11)	n/a	10.61ha.
Municipal Roads - Existing/Extended Lanigan Drive - New Local Street 'A'	n/a	1.65ha.
Totals	1051 units	27.63 ha.

0 10 50 100M

SCALE 1 : 1500 (A1)

Pine Valley Homes Limited

DRAFT PLAN OF SUBDIVISION

Brandi L. Clement
REGISTERED PROFESSIONAL PLANNER
R.P.P.

Date Issued:	MAY 5, 2026
Checked By:	BC
Project No.:	PIN-19037
Drawn By:	m.c.r.
Drawing Name:	PIN-19037-DP-1a.dwg

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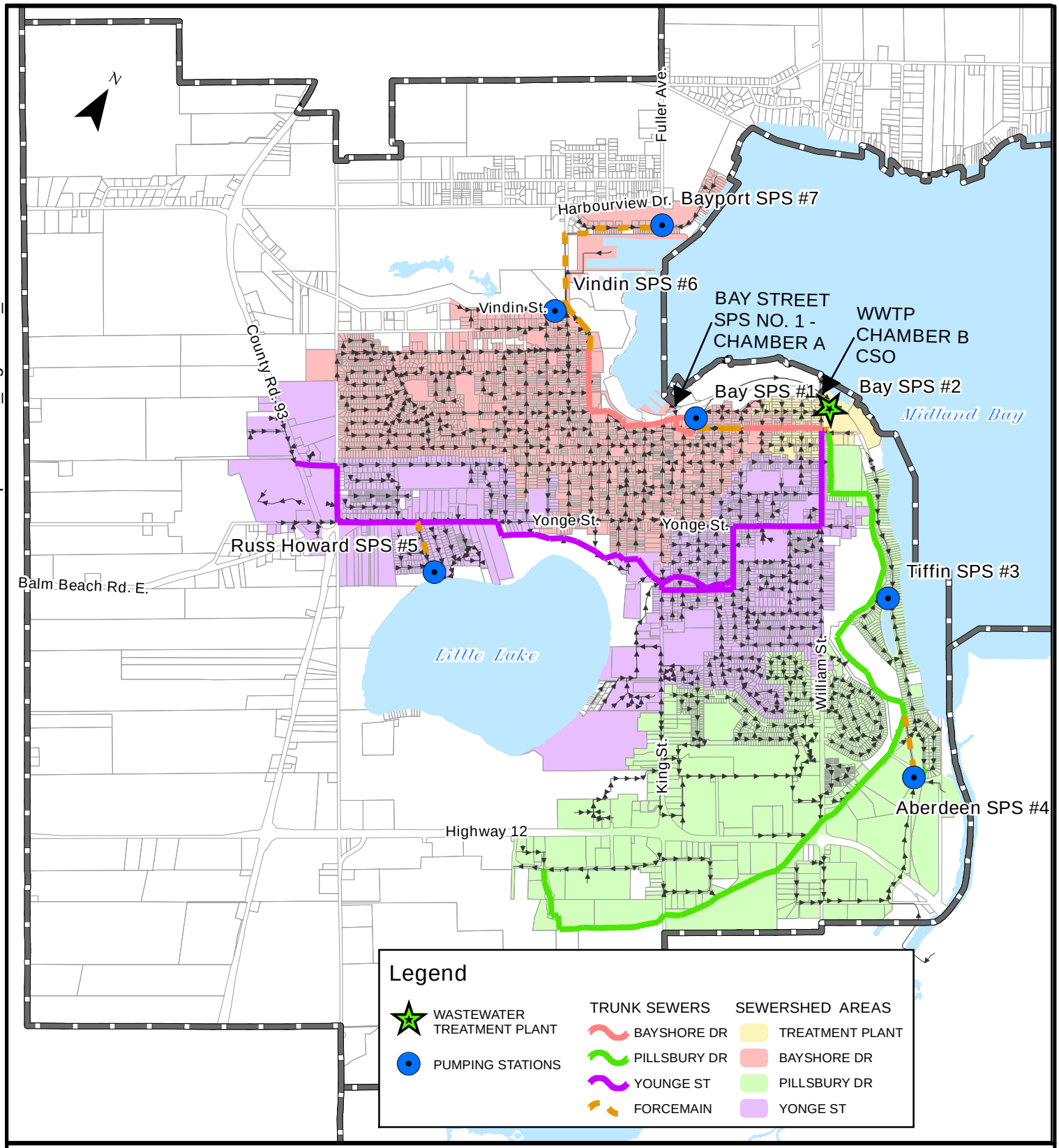
PINE VALLEY HOMES LIMITED
TOWN OF MIDLAND



PROJECT:

TOWN OF MIDLAND WASTEWATER MASTER PLAN

MIDLAND, ONTARIO

DRAWING:

EXISTING SEWERSHED AREAS

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS
www.jlrichards.ca

DESIGN:	BP
DRAWN:	TB
CHECKED:	BP/JW
JLR #:	28243

DRAWING #:

FIGURE 3-3

File Location: P:\28000\28243-000 - Midland Wastewater Master Plan\3-Production\1-Civil\GIS\1 - Phase 1 Report\28243_Figure3-3_ExSewershed.mxd

Plot Date: Friday, December 11, 2020 11:53:44 AM

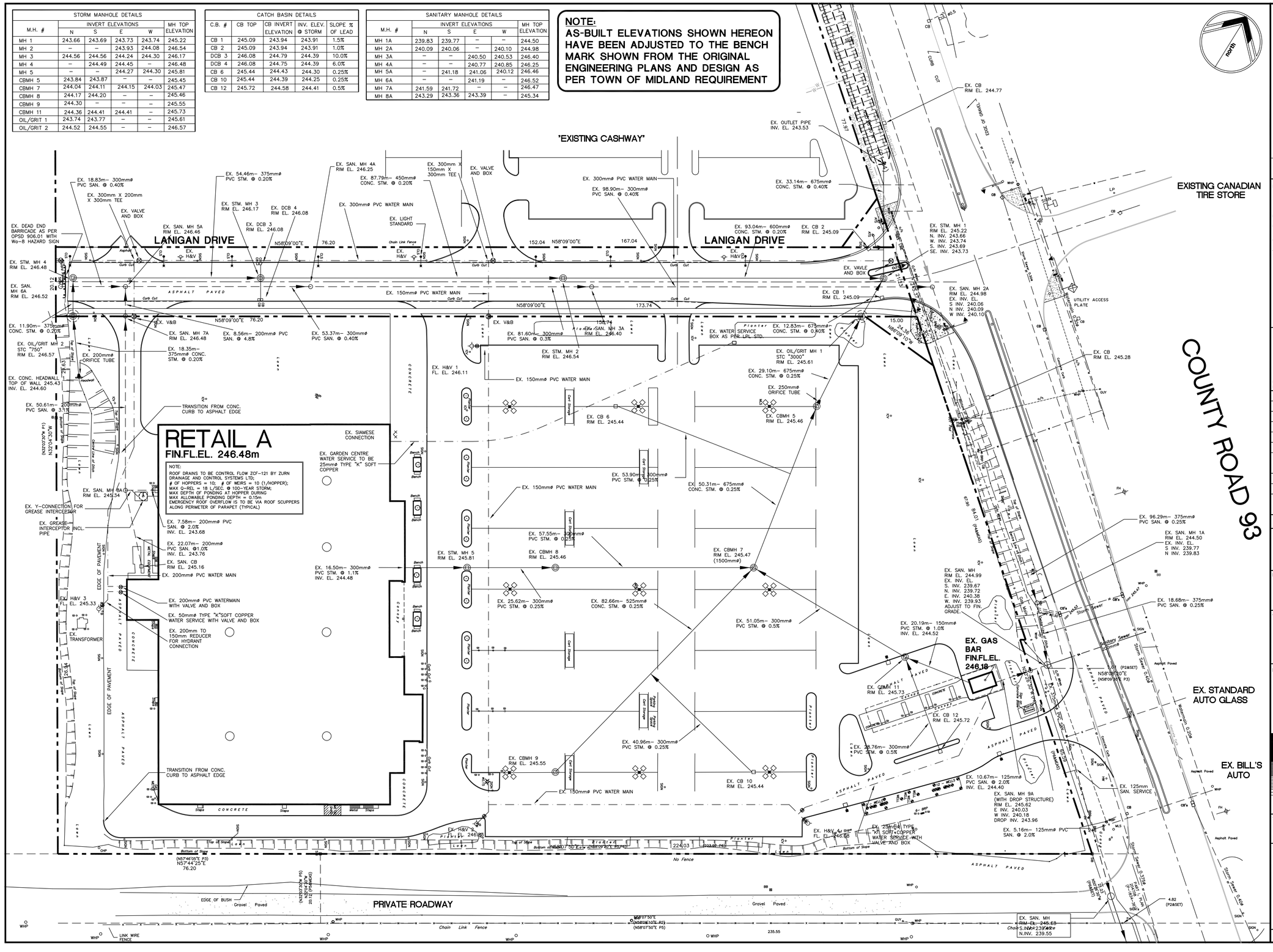
5	**Town** • Road width at 6m is not wide enough. • Town has no standards for private roadways, must meet the emergency services radius and width. The best management practices will govern. • JI noted he will confirm the road width with cross sections. • MS asked if Lanigan will be a private road. • TW noted he would like a local road to come in with extension of Lanigan and then condo roads off the municipal roadway.	JI to propose a cross section.
6	**Town** • Would also support B2B townhouses with rear laneway townhouses also. • Open to a mix of different townhouse types. • As part of OPA process will establish the road cross-sections.	
7	**Town** • For now should work with SSEA as the Town will be hiring consultants for peer reviewing documents but have not done so as of yet. • Town noted that they will likely have a consultant on retainer for environmental work by the end of August. • MS noted to engage NT power early on as information will be needed early.	Town to advise if working with SSEA or not.
8	**CM** • Noted to make sure there is appropriate fire suppression – included link for turning movements to see what is needed. Other examples in Town that have done this such as Little Lake development behind Walmart. • TW noted that he thinks a couple of the streets should be municipal – A, B, C maybe municipal?\	
9	**JI** • Asked if we have public roads can the pond be municipal rather than private. • Town noted they have had it done both ways before. • MS noted he would like to avoid private backyard easements. • JI noted that he thinks a roadway should go to the north along those lands to provide an outlet from the pond and to provide servicing looping.	
10	**MS** • Noted that the risk management comments will not come right away as it is part of SSEA, this could be provided by them.	
11	**DR** • Asked if there are capacity concerns. • MS noted that issues are not anticipated. • DR asked about the water supply side. • MS noted that there are no issues right now.	

STORM MANHOLE DETAILS					
M.H. #	INVERT ELEVATIONS				MH TOP ELEVATION
	N	S	E	W	
MH 1	243.66	243.69	243.73	243.74	245.22
MH 2	–	–	243.93	244.08	246.54
MH 3	244.56	244.56	244.24	244.30	246.17
MH 4	–	244.49	244.45	–	246.48
MH 5	–	–	244.27	244.30	245.81
CBMH 5	243.84	243.87	–	–	245.45
CBMH 7	244.04	244.11	244.15	244.03	245.47
CBMH 8	244.17	244.20	–	–	245.46
CBMH 9	244.30	–	–	–	245.55
CBMH 11	244.36	244.41	244.41	–	245.73
OIL/GRIT 1	243.74	243.77	–	–	245.61
OIL/GRIT 2	244.52	244.55	–	–	246.57

CATCH BASIN DETAILS				
C.B. #	CB TOP	CB INVERT ELEVATION	INV. ELEV. @ STORM	SLOPE % OF LEAD
CB 1	245.09	243.94	243.91	1.5%
CB 2	245.09	243.94	243.91	1.0%
DCB 3	246.08	244.79	244.39	10.0%
DCB 4	246.08	244.75	244.39	6.0%
CB 6	245.44	244.43	244.30	0.25%
CB 10	245.44	244.39	244.25	0.25%
CB 12	245.72	244.58	244.41	0.5%

SANITARY MANHOLE DETAILS					
M.H. #	INVERT ELEVATIONS				MH TOP ELEVATION
	N	S	E	W	
MH 1A	239.83	239.77	–	–	244.50
MH 2A	240.09	240.06	–	240.10	244.98
MH 3A	–	–	240.50	240.53	246.40
MH 4A	–	–	240.77	240.85	246.25
MH 5A	–	241.18	241.06	240.12	246.46
MH 6A	–	–	241.19	–	246.52
MH 7A	241.59	241.72	–	–	246.47
MH 8A	243.29	243.36	243.39	–	245.34

NOTE:
AS-BUILT ELEVATIONS SHOWN HEREON HAVE BEEN ADJUSTED TO THE BENCH MARK SHOWN FROM THE ORIGINAL ENGINEERING PLANS AND DESIGN AS PER TOWN OF MIDLAND REQUIREMENT



NOTE:
ROOF DRAINS TO BE CONTROL FLOW ZCF–121 BY ZURN DRAINAGE AND CONTROL SYSTEMS LTD;
OF HOPPERS = 10; # OF WEIRS = 10 (1/HOPPER);
MAX Q–REL = 18 L/SEC. @ 100–YEAR STORM;
MAX DEPTH OF PONDING AT HOPPER DURING
MAX ALLOWABLE PONDING DEPTH = 0.15m
EMERGENCY ROOF OVERFLOW IS TO BE VIA ROOF SCUPPERS ALONG PERIMETER OF PARAPET (TYPICAL)

LEGEND :

□	DENOTES EXISTING CATCH BASIN
⊡	DENOTES EXISTING STORM MANHOLE
⊡	DENOTES EXISTING STORMCEPTOR
▶	DENOTES EXISTING INLET CONTROL DEVICE (ICD)
○	DENOTES EXISTING SANITARY MANHOLE
⊗	DENOTES EXISTING WATER VALVE & BOX
-○-	DENOTES EXISTING HYDRANT

NOTE :

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

THE CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS ON THE JOB AND REPORT ANY DISCREPANCY TO THE ARCHITECTS/ENGINEERS BEFORE PROCEEDING WITH THE WORKS.

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THIS DRAWING IS NOT TO BE SCALED.

THIS PLAN MUST NOT BE USED TO SITE THE EXISTING BUILDINGS.

THE APPROVAL OF THIS PLAN DOES NOT EXEMPT THE OWNER'S CONTRACTOR FROM OBTAINING, BUT NOT LIMITED TO THE FOLLOWING PERMITS: ROAD CUT, SEWER PERMITS, RELOCATION OF SERVICES, ENCROACHMENT AGREEMENTS, APPROACH APPROVAL PERMITS, ETC...

EXISTING TOPOGRAPHICAL INFORMATION SUPPLIED BY SPEIGHT, VAN NOSTRAND AND GIBSON LIMITED.

BOUNDARY DATA DERIVED FROM INFORMATION FROM SPEIGHT, VAN NOSTRAND AND GIBSON LIMITED.

BENCH MARK:
ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM THE TOWN OF MIDLAND TEMPORARY BENCHMARK
LOCATION :
ON TRAFFIC LIGHT POLE SOUTH OF CENTRE MEDIAM OF HUGEL ROAD AND HIGHWAY No.93 NORTH WEST BOLT TOP.
ELEVATION:
PUBLISHED ELEVATION = 247.055 metres.

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

NO.	REVISIONS	DATE	BY
9	AS–BUILT	NOV–12–08	MHH
8	UPDATED TO SITE PLAN	FEB–03–02	MHH
7	CHANGES AS PER COUNTY COMMENTS	OCT–29–02	MHH
6	CHANGES AS PER COUNTY COMMENTS	SEP–26–02	MHH
5	AS PER ARCHITECT/TOWN CHANGES	SEP–11–02	MHH
4	AS PER TRAFFIC SIGNAL DRAWINGS, COUNTY COMMENTS AND SITE PLAN CHANGES	JUL–23–02	MHH
3	ADD GAS BAR AS PER SITE PLAN	MAY–15–02	MHH
2	AS PER SITE PLAN CHANGES	MAY–10–02	MHH
1	AS PER COUNTY/TOWN COMMENTS AS PER ARCHITECT/CLIENT CHANGES	APR–26–02	MHH

SCALE:
0 5 10 15 20 25 30 35 40 45 50

DRAWING :
SITE SERVICING PLAN
(AS-BUILT)

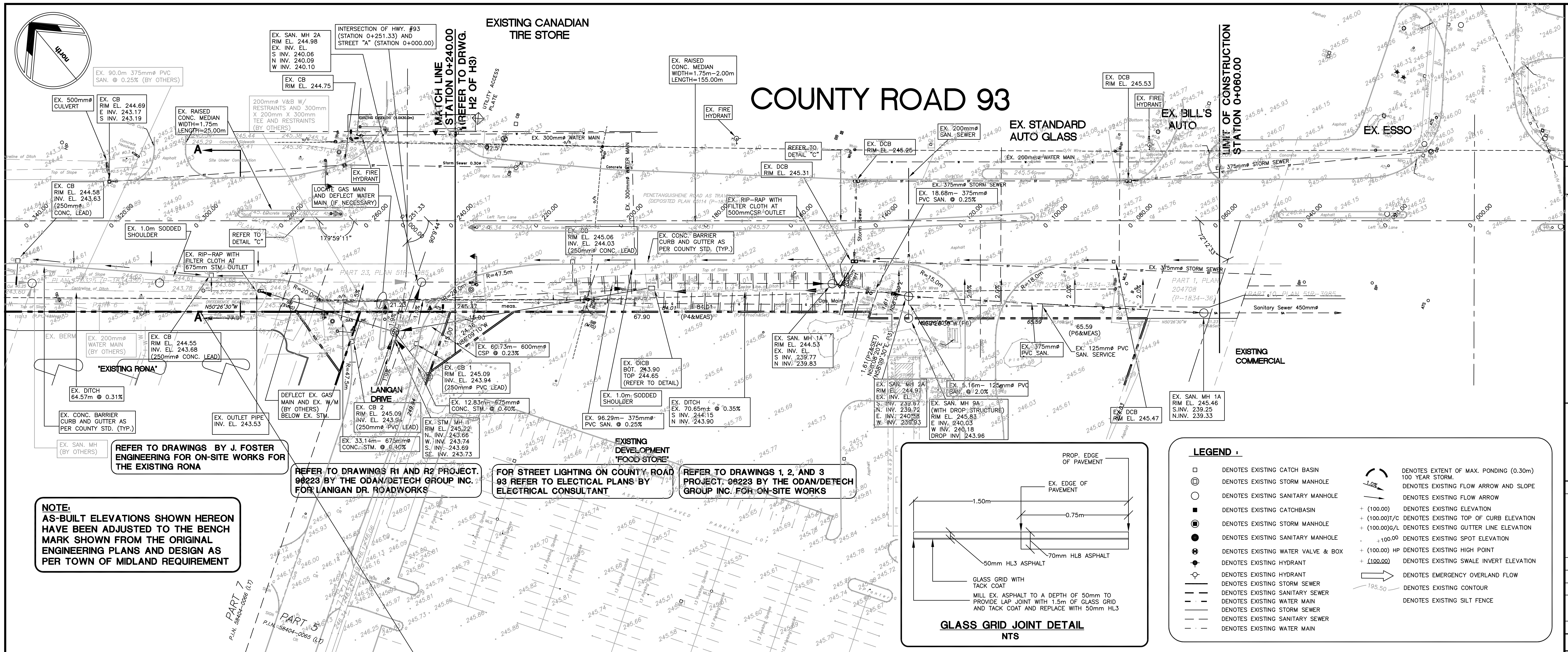
CLIENT :
LOBLAW PROPERTIES LIMITED
1 PRESIDENT'S CHOICE CIRCLE
BRAMPTON, ONTARIO L6Y 5S5

PROJECT :
EXISTING FOOD STORE
MIDLAND, ON

ODAN DETECH
THE ODAN/DETECH GROUP • CONSULTING ENGINEERS
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO L7L 5K2
OFF: (905) 632-3811 FAX: (905) 632-3363

SCALE :	PROJ. NO.:	DATE:	DESIGN BY:
1 : 500	96223	JAN/07	J.K.
			DRAWN BY: M.H.H.
96223–1AB.DWG			CHECKED BY: D.C.S.
			APPROVED BY: J.K.
FILE NUMBER	ENGINEER		DRWG. NO.: 1 OF 3

I. KRPAN
NOV–12–08



GLASS GRID JOINT DETAIL
NTS

REFER TO DRAWINGS BY J. FOSTER ENGINEERING FOR ON-SITE WORKS FOR THE EXISTING RONA

REFER TO DRAWINGS R1 AND R2 PROJECT. 96223 BY THE ODAN/DETECH GROUP INC. FOR LANIGAN DR. ROADWORKS

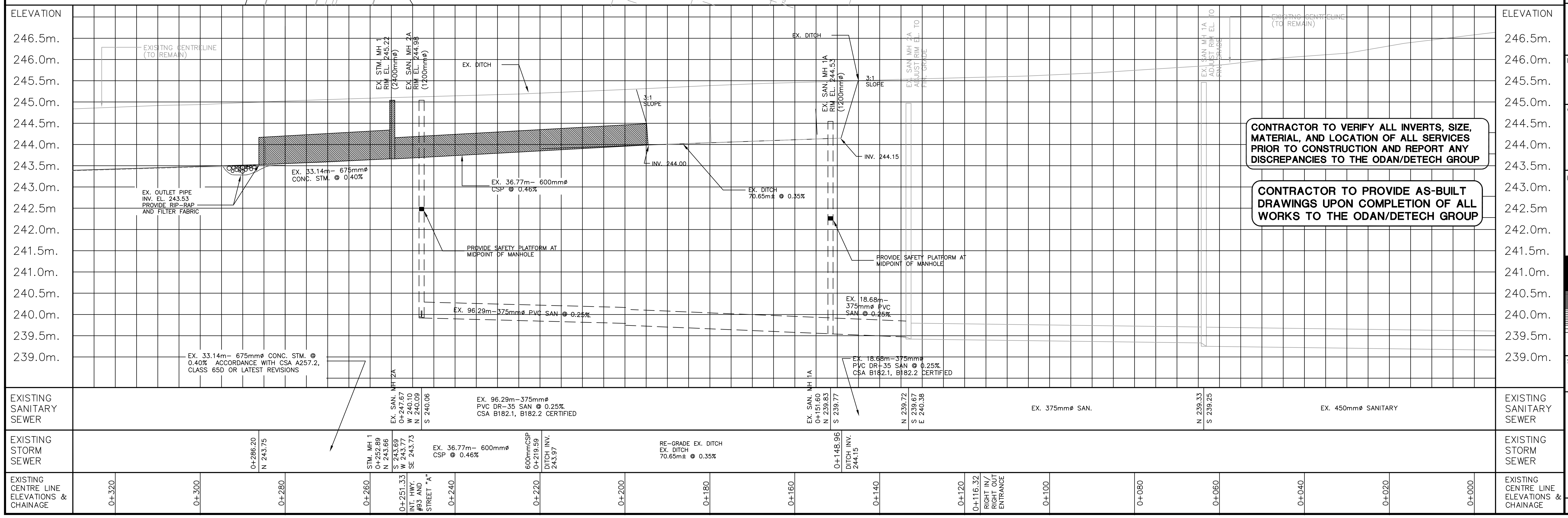
FOR STREET LIGHTING ON COUNTY ROAD 93 REFER TO ELECTICAL PLANS BY ELECTRICAL CONSULTANT

REFER TO DRAWINGS 1, 2, AND 3 PROJECT. 96223 BY THE ODAN/DETECH GROUP INC. FOR ON-SITE WORKS

NOTE:
AS-BUILT ELEVATIONS SHOWN HEREON HAVE BEEN ADJUSTED TO THE BENCH MARK SHOWN FROM THE ORIGINAL ENGINEERING PLANS AND DESIGN AS PER TOWN OF MIDLAND REQUIREMENT

LEGEND :

□	DENOTES EXISTING CATCH BASIN
⊡	DENOTES EXISTING STORM MANHOLE
○	DENOTES EXISTING SANITARY MANHOLE
■	DENOTES EXISTING CATCHBASIN
◙	DENOTES EXISTING STORM MANHOLE
●	DENOTES EXISTING SANITARY MANHOLE
⊗	DENOTES EXISTING WATER VALVE & BOX
⊕	DENOTES EXISTING HYDRANT
⊕	DENOTES EXISTING HYDRANT
━━	DENOTES EXISTING STORM SEWER
━ ━	DENOTES EXISTING SANITARY SEWER
━ · ━	DENOTES EXISTING WATER MAIN
——	DENOTES EXISTING STORM SEWER
— —	DENOTES EXISTING SANITARY SEWER
— · —	DENOTES EXISTING WATER MAIN
	DENOTES EXTENT OF MAX. PONDING (0.30m) 100 YEAR STORM.
1.0% →	DENOTES EXISTING FLOW ARROW AND SLOPE
→	DENOTES EXISTING FLOW ARROW
+ (100.00)	DENOTES EXISTING ELEVATION
+ (100.00)T/C	DENOTES EXISTING TOP OF CURB ELEVATION
+ (100.00)G/L	DENOTES EXISTING GUTTER LINE ELEVATION
+100.00	DENOTES EXISTING SPOT ELEVATION
+ (100.00) HP	DENOTES EXISTING HIGH POINT
+ (100.00)	DENOTES EXISTING SWALE INVERT ELEVATION
⇨	DENOTES EMERGENCY OVERLAND FLOW
195.50	DENOTES EXISTING CONTOUR
	DENOTES EXISTING SILT FENCE



CONTRACTOR TO VERIFY ALL INVERTS, SIZE, MATERIAL, AND LOCATION OF ALL SERVICES PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE ODAN/DETECH GROUP

CONTRACTOR TO PROVIDE AS-BUILT DRAWINGS UPON COMPLETION OF ALL WORKS TO THE ODAN/DETECH GROUP

NOTE :

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

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BOUNDARY DATA DERIVED FROM INFORMATION FROM SPEIGHT, VAN NOSTRAND AND GIBSON LIMITED.

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LOCATION :
ON TRAFFIC LIGHT POLE SOUTH OF CENTRE MEDIAM OF
HUGEL ROAD AND HIGHWAY No.93 NORTH WEST BOLT TOP.
ELEVATION:
PUBLISHED ELEVATION = 247.055 metres.

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

NO.	REVISIONS	DATE	BY
9	AS-BUILTS	NOV-12-08	MHH
8	CHANGES AS PER COUNTY COMMENTS – ADDED DICB SOUTH EAST OF EX. STM. MH 1 – RIP-RAP PROVIDED AT 500mm CUL. – SECTION A-A, MODIFIED BOULEVARD – ADD Rb-25 SIGN AT EAST END OF STREET "A" CONC. MEDIAN	NOV-25-02	MHH
7	CHANGES AS PER COUNTY COMMENTS	OCT-29-02	MHH
6	CHANGES AS PER COUNTY COMMENTS	SEP-26-02	MHH
5	AS PER ARCHITECT/TOWN CHANGES	SEP-11-02	MHH
4	AS PER TRAFFIC SIGNAL DRAWINGS, COUNTY COMMENTS AND SITE PLAN CHANGES	JUL-23-02	MHH
3	ADD GAS BAR AS PER SITE PLAN	MAY-15-02	MHH

SCALE:
0 5 10 15 20 25 30 35 40 45 50

DRAWING :
PLAN & PROFILE
COUNTY ROAD 93 IMPROVEMENTS
STATION 0+000.00 TO 0+340.00

CLIENT :
LOBLAW PROPERTIES LIMITED
22 ST. CLAIR AVENUE EAST
TORONTO, ONTARIO M4T 2S5

PROJECT :
EXISTING FOOD STORE
MIDLAND, ON

THE ODAN/DETECH GROUP • CONSULTING ENGINEERS
5230 SOUTH SERVICE ROAD, BURLINGTON, ONTARIO L7L 5K2
OFF: (905) 632-3811 FAX: (905) 632-3363

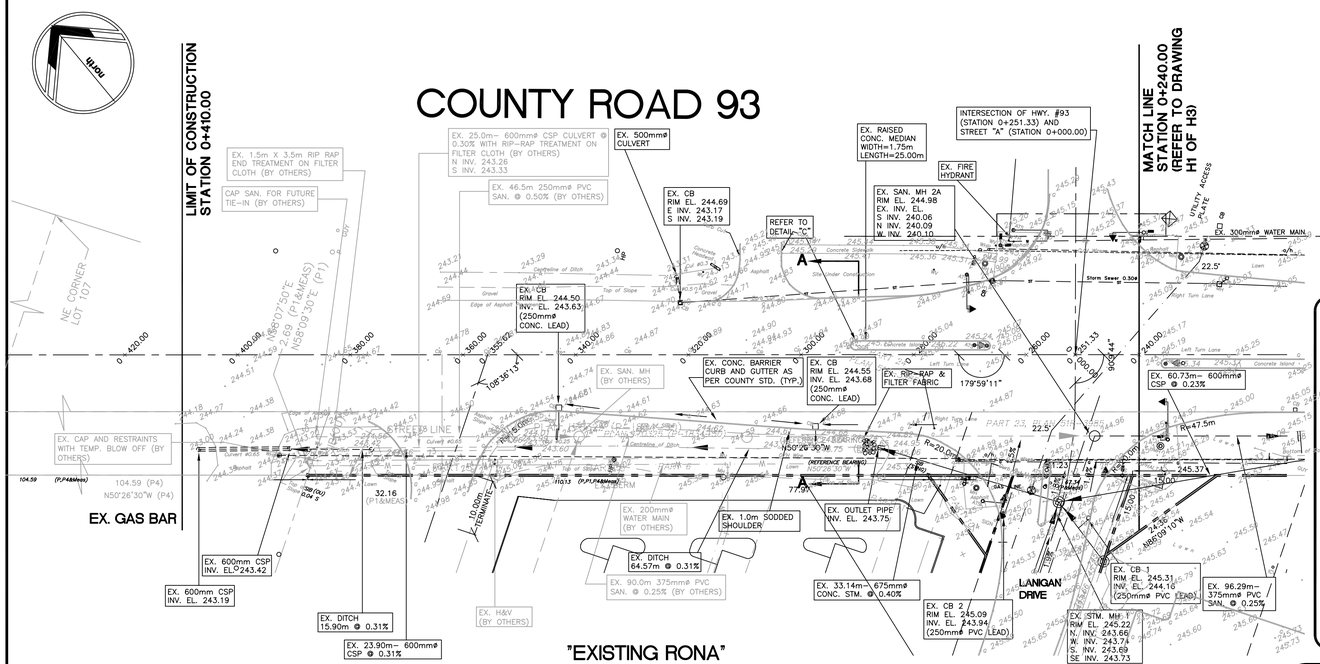
SCALE :	PROJ. NO.:	DATE:	DESIGN BY:
1 : 500 H 1 : 50 V	96223	JULY/01	J.K.

96223-H1AB.DWG

I. KRPAN
NOV-12-08

DRAWN BY:	M.H.H.
CHECKED BY:	D.C.S
APPROVED BY:	J.K.
DRWG. NO.:	H1 OF H3

FILE NUMBER
ENGINEER


COUNTY ROAD 93
LIMIT OF CONSTRUCTION STATION 0+410.00
MATCH LINE STATION 0+240.00 (REFER TO DRAWING H1 OF H3)
EX. 1.5m X 3.5m RIP RAP END TREATMENT ON FILTER CLOTH (BY OTHERS)
CAP SAN. FOR FUTURE TIE-IN (BY OTHERS)
EX. 25.0m- 600mmø CSP CULVERT @ 0.30% WITH RIP-RAP TREATMENT ON FILTER CLOTH (BY OTHERS)
N INV. 243.26
S INV. 243.33
EX. 46.5m 250mmø PVC SAN. @ 0.50% (BY OTHERS)
EX. 500mmø CULVERT
EX. CB
RIM EL. 244.69
E INV. 243.17
S INV. 243.19
REFER TO DETAIL "C"
INTERSECTION OF HWY. #93 (STATION 0+251.33) AND STREET "A" (STATION 0+000.00)
EX. RAISED CONC. MEDIAN WIDTH=1.75m LENGTH=25.00m
EX. FIRE HYDRANT
EX. SAN. MH 2A
RIM EL. 244.98
EX. INV. EL.
S INV. 240.06
N INV. 240.09
W. INV. 240.10
EX. 300mmø WATER MAIN
EX. CB
RIM EL. 244.50
INV. EL. 243.63
(250mmø CONC. LEAD)
EX. SAN. MH (BY OTHERS)
EX. CONC. BARRIER CURB AND GUTTER AS PER COUNTY STD. (TYP.)
EX. CB
RIM EL. 244.55
INV. EL. 243.68
(250mmø CONC. LEAD)
EX. RIP-RAP & FILTER FABRIC
EX. 60.73m- 600mmø CSP @ 0.23%
EX. CAP AND RESTRAINTS WITH TEMP. BLOW OFF (BY OTHERS)
EX. GAS BAR
EX. 600mm CSP INV. EL. 243.42
EX. 600mm CSP INV. EL. 243.19
EX. DITCH 15.90m @ 0.31%
EX. 23.90m- 600mmø CSP @ 0.31%
EX. DITCH 64.57m @ 0.31%
EX. 200mmø WATER MAIN (BY OTHERS)
EX. 1.0m SODDED SHOULDER
EX. 90.0m 375mmø PVC SAN. @ 0.25% (BY OTHERS)
EX. H&V (BY OTHERS)
EX. OUTLET PIPE INV. EL. 243.75
EX. 33.14m- 675mmø CONC. STM. @ 0.40%
EX. CB 2
RIM EL. 245.09
INV. EL. 243.94
(250mmø PVC LEAD)
EX. STM. MH 1
RIM EL. 245.22
N. INV. 243.66
W. INV. 243.74
S. INV. 243.69
SE INV. 243.73
EX. CB 1
RIM EL. 245.31
INV. EL. 244.16
(250mmø PVC LEAD)
EX. 96.29m- 375mmø PVC SAN. @ 0.25%
LANIGAN DRIVE
"EXISTING RONA"
WEST STREET LINE
Storm Sewer, 0.30ø
Concrete Sidewalk
Asphalt
Top of Slope
Edge of Asphalt
Centreline of Ditch
Left Turn Lane
Right Turn Lane
Concrete Island
Culvert #2.0
Culvert #3.0
Culvert #4.0
Culvert #5.0
Culvert #6.0
Culvert #7.0
Culvert #8.0
Culvert #9.0
Culvert #10.0
Culvert #11.0
Culvert #12.0
Culvert #13.0
Culvert #14.0
Culvert #15.0
Culvert #16.0
Culvert #17.0
Culvert #18.0
Culvert #19.0
Culvert #20.0
Culvert #21.0
Culvert


Georgian Bay
District Municipality Of Muskoka
PENETANGUISHENE
MIDLAND
TAY
TINY
SEVERN
City Of Kawartha Lakes
RAMARA
ORILLIA
ORO-MEDONTE
WASAGA BEACH
COLLINGWOOD
SPRINGWATER
CLEARVIEW
BARRIE
INNISFIL
CFB BORDEN
ESSA
ADJALA-TOSORONTIO
NEW TECUMSETH
BRADFORD WEST GWILLIMBURY
County Of Grey
County Of Dufferin
Regional Municipality Of Peel
Regional Municipality Of York
Regional Municipality Of Durham
Upper Big Chute Rd.
Coopers Falls Rd.
Rue Lafontaine Rd.
Old Fort Rd.
Vasey Rd.
Moonstone Rd. E.
South Orr Lake Rd.
Queen St. W.
Crossland Rd.
Highway 27
Horseshoe Valley Rd. W.
Horseshoe Valley Rd. E.
Old Barrie Rd. E.
Old Barrie Rd. W.
Penetanguishene Rd.
Ridge Rd. E.
Sunnidale Rd. S.
Sunnidale Rd.
George Johnston Rd.
Snow Valley Rd.
Quarry Rd.
New Lowell Rd.
Creemore Rd.
Airport Rd.
Mill St.
Highway 90
Innisfil Beach Rd.
Murphy Rd.
4th Con. Essa
7th Con. Essa
Shore Acres Dr.
Yonge St.
Tottenham Rd.
8th Line
Highway 88
Canal Rd.
10 Sdrd
Adjala
Monck Rd.
Rama Rd.
Rama Dalton Boundary Rd.
Highway 169
Kirkfield Rd.
Con Rd. 11
Brechin Rd.
Mara-Gardner Boundary Rd.
Osler Bluff Rd.
Grey Rd. 19
Sixth St.
Osprey-Clearview Townline
0 5 10 20 km
N
County Road System
Provincial Roads
County Roads
Local Roads
COUNTY OF SIMCOE
For the Greater Good
TRANSPORTATION AND ENGINEERING
GIS GEOGRAPHICAL INFORMATION SYSTEMS

Appendix B

Supporting Storm Information

- Storm Sewer Design Sheet

TOWN OF MIDLAND

STORM SEWER DESIGN SHEET

Jones Consulting Project No.: PIN-19037

Pine Valley Estates

R.P. No.:

5 Year Storm Sewer Sizing

Area ID#	Street / Location	Maintenance Hole		Length (m)	Increment			Total CA	Flow Time (min)		I (mm/hr)	Total Q (cms)	S (%)	DIA (mm)	Q Full (cms)	V Full (m/s)	Percent Capacity (%)
		From	To		C	A	CA		To	In							
401	Lane F	MH70	CBMH69	**50.7**	0.65	0.46	0.30	0.30	15.00	0.53	83	0.069	**1.00**	**375**	0.18	1.6	39%
402	Lane A	CBMH69	MH67	**14.8**	0.65	0.10	0.07	0.36	15.53	0.22	81	0.082	**0.50**	**375**	0.12	1.1	66%
403	Lane G	CBMH68	MH67	**10.1**	0.65	0.47	0.31	0.31	15.00	0.15	83	0.070	**0.50**	**375**	0.12	1.1	57%
	Lane A	MH67	CBMH66	**55.1**				0.67	15.75	0.72	81	0.150	**0.50**	**450**	0.20	1.3	74%
404	Lane A	CBMH66	MH64	**15.6**	0.65	0.18	0.12	0.79	16.48	0.21	78	0.171	**0.50**	**450**	0.20	1.3	85%
405	Lane H	CBMH65	MH64	**10.1**	0.65	0.31	0.20	0.20	15.00	0.17	83	0.046	**0.50**	**300**	0.07	1.0	68%
	Lane A	MH64	CBMH63	**43.0**				0.99	16.68	0.51	78	0.214	**0.50**	**525**	0.30	1.4	70%
406	Lane A	CBMH63	CBMH62	**16.8**	0.65	0.18	0.12	1.11	17.19	0.20	77	0.235	**0.50**	**525**	0.30	1.4	77%
407	Lane I	CBMH62	CBMH61	**51.6**	0.65	0.09	0.06	1.16	17.39	0.61	76	0.246	**0.50**	**525**	0.30	1.4	81%
408	Lane I	CBMH61	MH48	**7.6**	0.65	0.33	0.21	1.38	18.00	0.09	75	0.285	**0.50**	**525**	0.30	1.4	94%
409	Lane B	MH60	CBMH59	**50.7**	0.65	0.69	0.45	0.45	15.00	0.53	83	0.103	**1.00**	**375**	0.18	1.6	59%
410	Lane B	CBMH59	MH56	**14.8**	0.65	0.09	0.06	0.51	15.53	0.22	81	0.114	**0.50**	**375**	0.12	1.1	92%
412	Lane G	CBMH58	MH56	**14.8**	0.65	0.37	0.24	0.24	15.00	0.25	83	0.055	**0.50**	**300**	0.07	1.0	81%
411	Lane G	CBMH57	MH56	**7.6**	0.65	0.40	0.26	0.50	15.00	0.11	83	0.115	**0.50**	**375**	0.12	1.1	93%
	Lane B	MH56	CBMH55	**53.6**				1.01	15.75	0.64	81	0.225	**0.50**	**525**	0.30	1.4	74%
413	Lane B	CBMH55	MH53	**17.1**	0.65	0.27	0.18	1.18	16.39	0.20	79	0.259	**0.50**	**525**	0.30	1.4	85%
414	Lane H	CBMH54	MH53	**7.8**	0.65	0.27	0.18	0.50	15.00	0.12	83	0.115	**0.50**	**375**	0.12	1.1	93%
	Lane B	MH53	CBMH52	**45.2**				1.36	16.59	0.49	78	0.295	**0.50**	**600**	0.43	1.5	68%
415	Lane B	CBMH52	MH51	**14.6**	0.65	0.23	0.15	1.51	17.08	0.16	77	0.322	**0.50**	**600**	0.43	1.5	74%
	Lane I	MH51	CBMH50	**14.1**				1.51	17.24	0.15	76	0.320	**0.50**	**600**	0.43	1.5	74%

TOWN OF MIDLAND

STORM SEWER DESIGN SHEET

Jones Consulting Project No.: PIN-19037

Pine Valley Estates

R.P. No.:

5 Year Storm Sewer Sizing

Area ID#	Street / Location	Maintenance Hole		Length (m)	Increment			Total CA	Flow Time (min)		I (mm/hr)	Total Q (cms)	S (%)	DIA (mm)	Q Full (cms)	V Full (m/s)	Percent Capacity (%)
		From	To		C	A	CA		To	In							
416	Lane I	CBMH50	CBMH49	**57.0**	0.65	0.09	0.06	1.57	17.39	0.62	76	0.331	**0.50**	**600**	0.43	1.5	76%
417	Lane I	CBMH49	MH48	**15.0**	0.65	0.43	0.28	1.85	18.01	0.16	74	0.382	**0.50**	**600**	0.43	1.5	88%
	Lane M	MH48	CBMH47	**29.4**				3.22	18.17	0.27	74	0.664	**0.50**	**750**	0.79	1.8	84%
418	Lane M	CBMH47	MH9	**15.8**	0.65	0.07	0.05	3.27	18.45	0.15	73	0.667	**0.50**	**750**	0.79	1.8	85%
419	Lane F	CBMH46	MH45	**8.3**	0.65	0.13	0.08	0.08	15.00	0.10	83	0.019	**1.00**	**300**	0.10	1.4	20%
	Lane C	MH45	CBMH44	**7.8**				0.08	15.10	0.13	82	0.019	**0.50**	**300**	0.07	1.0	28%
	Lane C	CBMH44	CBMH43	**42.8**				0.08	15.24	0.74	82	0.019	**0.50**	**300**	0.07	1.0	28%
420	Lane C	CBMH43	CBMH42	**66.2**	0.65	0.11	0.07	0.16	15.97	1.14	80	0.035	**0.50**	**300**	0.07	1.0	51%
421	Lane C	CBMH42	MH40	**4.7**	0.65	0.21	0.14	0.29	17.11	0.08	77	0.062	**0.50**	**300**	0.07	1.0	91%
303	Street B				0.08	1.62	0.13	0.13	15.00		137	0.049					
422	Street B	HW4	MH41	**47.1**	0.44	0.32	0.14	0.27	15.00	0.49	137	0.103	**1.00**	**375**	0.18	1.6	59%
423	Street B				0.65	0.27	0.18	0.18	15.00		83	0.040					
	Street B	MH41	MH40	**33.7**				0.45	15.49	0.44	81	0.143	**0.50**	**450**	0.20	1.3	71%
	Street B	MH40	MH39	**33.6**				0.74	17.19	0.40	77	0.203	**0.50**	**525**	0.30	1.4	67%
424	Street B	MH39	CBMH38	**33.6**	0.65	0.40	0.26	1.00	17.59	0.40	76	0.256	**0.50**	**525**	0.30	1.4	84%
425	Street B	CBMH38	MH22	**67.0**	0.65	0.25	0.16	1.16	17.99	0.73	75	0.288	**0.50**	**600**	0.43	1.5	66%
428	High Density Blk	CB1	CBMH32	**53.2**	0.65	0.10	0.07	0.07	15.00	1.04	83	0.015	**0.50**	**250**	0.04	0.9	36%
429	High Density Blk	BLDG 1	CBMH32	**16.7**	0.95	0.20	0.19	0.19	15.00	0.29	83	0.044	**0.50**	**300**	0.07	1.0	64%
430	High Density Blk	CBMH32	MH72	**43.8**	0.65	0.25	0.16	0.42	16.04	0.65	80	0.092	**0.50**	**375**	0.12	1.1	75%

TOWN OF MIDLAND

STORM SEWER DESIGN SHEET

Jones Consulting Project No.: PIN-19037

Pine Valley Estates

R.P. No.:

5 Year Storm Sewer Sizing

Area ID#	Street / Location	Maintenance Hole		Length (m)	Increment			Total CA	Flow Time (min)		I (mm/hr)	Total Q (cms)	S (%)	DIA (mm)	Q Full (cms)	V Full (m/s)	Percent Capacity (%)
		From	To		C	A	CA		To	In							
461	High Density Blk	MH72	MH73	**52.3**	0.65	0.15	0.10	0.52	16.69	0.78	78	0.111	**0.50**	**375**	0.12	1.1	90%
462	High Density Blk	CB9	CBMH33	**70.7**	0.65	0.05	0.03	0.03	15.00	1.22	83	0.007	**0.50**	**300**	0.07	1.0	11%
432	High Density Blk	BLDG 2	CBMH33	**16.7**	0.95	0.20	0.19	0.19	15.00	0.29	83	0.044	**0.50**	**300**	0.07	1.0	64%
433	High Density Blk	CBMH33	MH73	**26.2**	0.65	0.31	0.20	0.39	16.22	0.39	79	0.086	**0.50**	**375**	0.12	1.1	69%
	High Density Blk	MH73	CBMH75	**6.0**				0.94	17.46	0.07	76	0.198	**0.50**	**525**	0.30	1.4	65%
431	High Density Blk	CBMH75	CBMH76	**34.9**	0.65	0.46	0.30	1.24	17.53	0.41	76	0.260	**0.50**	**525**	0.30	1.4	86%
434	High Density Blk	CBMH76	MH74	**25.9**	0.65	0.13	0.08	1.32	17.95	0.31	75	0.274	**0.50**	**525**	0.30	1.4	90%
426	Lane E	CBMH35	CBMH34	**39.9**	0.65	0.21	0.14	0.14	15.00	0.49	83	0.031	**1.00**	**300**	0.10	1.4	32%
427	Lane L				0.65	0.15	0.10	0.23									
435	Lane L	CBMH34	MH29	**40.3**	0.65	0.05	0.03	0.27	15.49	0.69	81	0.060	**0.50**	**300**	0.07	1.0	88%
460	Lane D	CBMH37	CBMH36	**67.8**	0.65	0.13	0.08	0.08	15.00	0.83	83	0.019	**1.00**	**300**	0.10	1.4	20%
437	Lane D	CBMH36	MH29	**14.9**	0.65	0.37	0.24	0.33	15.83	0.22	80	0.073	**0.50**	**375**	0.12	1.1	58%
	Lane L	MH29	CBMH28	**10.3**				0.59	16.18	0.14	79	0.130	**0.50**	**450**	0.20	1.3	65%
436	Lane L	CBMH28	DCBMH27	**56.8**	0.65	0.09	0.06	0.65	16.32	0.75	79	0.143	**0.50**	**450**	0.20	1.3	71%
438	Lanigan Drive				0.65	0.35	0.23	0.88	17.06		77	0.187					
439	Lanigan Drive	DCBMH27	MH22	**29.2**	0.65	0.31	0.20	1.08	17.06	0.35	77	0.230	**0.50**	**525**	0.30	1.4	76%
440	Lanigan Drive	MH23	MH74	**21.7**	0.65	0.31	0.20	0.20	15.00	0.26	83	0.046	**1.00**	**300**	0.10	1.4	48%
	Lanigan Drive	MH74	MH22	**40.2**				1.52	18.25	0.44	74	0.313	**0.50**	**600**	0.43	1.5	72%
	Lanigan Drive	MH22	MH21	**32.5**				3.76	17.41	0.29	76	0.841	**0.50**	**825**	1.02	1.9	83%
441	Lanigan Drive	MH21	MH20	**32.4**	0.65	0.36	0.23	4.00	17.69	0.28	75	0.883	**0.50**	**825**	1.02	1.9	87%
442	Lanigan Drive	MH20	MH19	**48.7**	0.65	0.18	0.12	4.11	17.98	0.43	75	0.900	**0.50**	**825**	1.02	1.9	89%
443	Lanigan Drive	MH19	MH9	**15.4**	0.65	0.28	0.18	4.30	18.41	0.14	74	0.926	**0.50**	**825**	1.02	1.9	91%
444	High Density Blk	CB2	CBMH18	**25.8**	0.65	0.05	0.03	0.03	15.00	0.50	83	0.007	**0.50**	**250**	0.04	0.9	18%

TOWN OF MIDLAND

STORM SEWER DESIGN SHEET

Jones Consulting Project No.: PIN-19037

Pine Valley Estates

R.P. No.:

5 Year Storm Sewer Sizing

Area ID#	Street / Location	Maintenance Hole		Length (m)	Increment			Total CA	Flow Time (min)		I (mm/hr)	Total Q (cms)	S (%)	DIA (mm)	Q Full (cms)	V Full (m/s)	Percent Capacity (%)
		From	To		C	A	CA		To	In							
445	High Density Blk	CBMH18	CBMH17	**70.0**	0.65	0.05	0.03	0.07	15.50	1.21	81	0.015	**0.50**	**300**	0.07	1.0	21%
447	High Density Blk	BLDG 3	CBMH17	**16.9**	0.95	0.20	0.19	0.19	15.00	0.29	83	0.044	**0.50**	**300**	0.07	1.0	64%
446	High Density Blk	CBMH17	CBMH16	**16.7**	0.65	0.25	0.16	0.42	16.71	0.25	78	0.090	**0.50**	**375**	0.12	1.1	73%
448	Lane J	CBMH16	CBMH13	**35.2**	0.65	0.17	0.11	0.53	16.96	0.52	77	0.113	**0.50**	**375**	0.12	1.1	91%
450	High Density Blk	CBMH15	CBMH14	**70.3**	0.65	0.18	0.12	0.12	15.00	1.21	83	0.027	**0.50**	**300**	0.07	1.0	39%
451	High Density Blk	CBMH14	CBMH13	**16.7**	0.65	0.35	0.23	0.34	16.21	0.25	79	0.076	**0.50**	**375**	0.12	1.1	61%
449	Lane J	CBMH13	MH11	**33.0**	0.65	0.11	0.07	0.94	17.48	0.39	76	0.199	**0.50**	**525**	0.30	1.4	65%
452	Lane J	CBMH12	MH11	**22.3**	0.65	0.16	0.10	0.10	15.00	0.38	83	0.024	**0.50**	**300**	0.07	1.0	35%
	Lane M	MH11	CBMH10	**29.0**				1.05	17.87	0.34	75	0.218	**0.50**	**525**	0.30	1.4	72%
453	Lane M	CBMH10	MH9	**10.3**	0.65	0.18	0.12	1.17	18.21	0.12	74	0.239	**0.50**	**525**	0.30	1.4	79%
	Lanigan Drive	MH9	MH8	**56.8**				8.73	18.54	0.42	73	1.824	**0.50**	**1050**	1.93	2.2	94%
454	Lanigan Drive	MH8	MH7	**33.1**	0.65	0.37	0.24	8.97	18.97	0.25	72	1.849	**0.50**	**1050**	1.93	2.2	96%
	Lanigan Drive	MH7	MH6	**33.4**				8.97	19.21	0.25	72	1.835	**0.50**	**1050**	1.93	2.2	95%
455	Lanigan Drive	MH6	MH71	**60.5**	0.65	0.27	0.18	9.15	19.46	0.45	71	1.856	**0.50**	**1050**	1.93	2.2	96%
	Lanigan Drive	MH71	DCBMH4	**11.4**				9.15	19.92	0.07	70	1.832	**0.70**	**1050**	2.28	2.6	80%
	Lanigan Drive	DCBMH4	MH5	**21.1**	0.41	0.33	0.14	9.28	19.99	0.13	117	3.008	**0.50**	**1350**	3.77	2.6	80%
	Lanigan Drive	MH71	OGS	**22.1**	*25mm Event Flow Taken from OTTHYMO Model:*							0.642	**0.50**	**750**	0.79	1.8	82%
	SWM Block	OGS	MH5	**5.3**	*25mm Event Flow Taken from OTTHYMO Model:*							0.642	**0.50**	**750**	0.79	1.8	82%
206	East Boundary	HW3	MH24	**7.1**	0.44	0.57	0.25	0.25	15.00	0.03	137	0.096	**5.00**	**375**	0.39	3.5	24%
	East Boundary	MH24	MH25	**38.8**				0.25	15.03	0.58	137	0.096	**0.50**	**375**	0.12	1.1	77%
	East Boundary	MH25	MH26	**110.0**				0.25	15.61	1.63	135	0.094	**0.50**	**375**	0.12	1.1	76%

TOWN OF MIDLAND

STORM SEWER DESIGN SHEET

Jones Consulting Project No.: PIN-19037

Pine Valley Estates

R.P. No.:

5 Year Storm Sewer Sizing

Area ID#	Street / Location	Maintenance Hole		Length (m)	Increment			Total CA	Flow Time (min)		I (mm/hr)	Total Q (cms)	S (%)	DIA (mm)	Q Full (cms)	V Full (m/s)	Percent Capacity (%)
		From	To		C	A	CA		To	In							
507	East Boundary				0.41	0.05	0.02	0.02	15.00		137	0.008					
459	East Boundary	CB3	MH26	**4.6**	0.05	0.03	0.00	0.02	15.00	0.08	137	0.008	**0.70**	**250**	0.05	1.0	17%
	East Boundary	MH26	LID	**55.9**				0.27	17.24	0.83	127	0.096	**0.50**	**375**	0.12	1.1	78%
457	Lanigan Drive	CBMH1	DCBMH2	**56.3**	0.41	0.37	0.15	0.15	15.00	0.97	83	0.035	**0.50**	**300**	0.07	1.0	51%
458	Lanigan Drive	DCBMH2	HW2	**3.8**	0.95	0.08	0.08	0.23	15.97	0.07	80	0.051	**0.50**	**300**	0.07	1.0	74%

Note: Values in red include the 100-year flow/intensity generated by Catchments 303 & 422 and Catchments 206, 507 & 459.

Note: Values in orange are taken from the OTTHYMO model to size stm sewers for the 25mm Water Quality Event

Note: Values in blue represent the equivalent nominal pipe size for a 1725mm x 1090mm elliptical pipe

Note: Cells highlighted in green represent pipes sized for the 100-year event

Stormwater Information:

$I = A/(tc + B)^C$

A = 5 Year-1135.40, 100 Year-2193.10

B = 5 Year-7.5, 100 Year-9.04

C= 5 Year-0.841, 100 Year-0.871

t_c = Time of Concentration (mins.)

Q = (C*I*A)/360 (cms)

C: Runoff Coefficiant

I: Rainfall Intensity (mm/hr)(See IDF Curve for the 5-year storm)

A: Area (ha)

Town of Midland IDF data taken from Section 5.2.5: Orillia Atmospheric Envirnoment Weather Station

**Equivalent Diameter Used

Date: 6-May-26

Calculated By: KR

Checked By: JWI

Appendix C

Supporting Water Servicing Information

- FUS Sample Buildings Plan
- Sample FUS Calculations

UNITS BREAKDOWN

PHASE	APARTMENT UNITS	REAR LANE UNITS	STACKED TOWNS	3 STOREY TOWNS	2 STOREY TOWNS	TOTAL NUMBER OF UNITS
PHASE 1	288	0	0	0	0	288
PHASE 2	0	48	32	0	0	80
PHASE 3	0	45	224	120	41	430
PHASE 4	144	45	32	0	0	221
FREEHOLD	0	0	0	18	14	32
TOTAL	432	138	288	138	55	1051

UNIT LEGEND

	# units
21' (6.4m) 2 STOREY TOWN	55 units
16' -6" (5.0m) 3 STOREY TOWN	138 units
20'-10"(6.3m) 3.5 STOREY STACKED TOWN	288 units
33' -7" (10.2m) 3 STOREY STACKED REAR LANE TOWN	138 units
6 STOREY APARTMENT BUILDING	432 units
TOTAL UNITS =	1051 units

COMMUNITY TRAIL / LINEAR PARK

PARKING CALCULATIONS

PHASE	NUMBER OF UNITS	REQUIRED PARKING SPACES	REQUIRED VISITOR SPACES (25% OF REGULAR SPACES)(NOT ADDITIONAL)	PROVIDED PARKING SPACES
PHASE 1	288	288 x 1.5 = 432	108	441
PHASE 2	98	98 x 1.5 = 147	37	159
PHASE 3	432	432 x 1.5 = 648	162	697
PHASE 4	224	224 x 1.5 = 336	84	378
TOTAL	1042	1042 x 1.5= 1563	391	1675

P:\1-Projects\Pine Valley Homes\16142_9332 County Road 93, Midland\2-Drawings\

North Arrow

True North:

ORCHARD DESIGN STUDIO INC.
marketingmeetsarchitecture

Project Information

PINE VALLEY HOMES

PINE VALLEY ESTATES
9332 County Road 93, Midland ON

Set Issuance

No.	Date	Description

Sheet Information

SITE PLAN

Project No. 16142
Project Start Date: 2025-10-16
File: 9332 County Road 93 - Site Plan.dwg
Drawn by: MGL
Scale: 1:1000

PRELIMINARY

A1.01

Plot Date|Time - 12/12/2025 12:14:45 PM

Project:	Pine Valley Homes Limited	Date:	May 2026	
File No.:	PIN-19037	Designed:	WS	
Subject:	Proposed Building - Fire Flow Calculations - 2 Storey Townhouses	Checked:	JI	
Revisions:				

Fire flow demands for the FUS method is based on information and guidance provided in Part 2 of the "Water Supply for Public Fire Protection" (Fire Underwriters Survey, 2020)

An estimate of the fire flow required is given by the following formula:

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

where:

F = the required fire flow in litres per minute (Rounded to nearest 1000 L/min)

C = coefficient related to the type of construction

= 1.5 for wood frame construction (structure essentially all combustible).

= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)

= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls)

= 0.6 for fire-resistive construction (fully protected frame, floors, roof)

Note: For types of construction that do not fall within the categories given, coefficients shall not be grrater than 1.5 nor less than 0.6 and may be determined by interpolation between consecutive construction types as listed above

A = Total floor area in square meters (including all storeys, but excluding basements at least 50% below grade) in the building being considered.

Adjustments to the calculated fire flow can be made based on occupancy, sprinkler protection and exposure to other structures. The table below summarizes the adjustments made to the basic fire flow demand.

			(1)		(2)		(3)		(4)		Final Adjustment	
Building	GFA	C	Fire Flow "F"		Occupancy Contents		Sprinkler		Exposure		Fire Flow	
	(m²)		(L/min)	(L/s)	(%)	Adjusted Fire Flow (L/min)	%	Adjustment (L/min)	%	Adjustment (L/min)	(L/min)	(L/s)
2 Storey	1078.948	1.5	11,000	183	-15	9,350	0	0	48.42	4,527	14,000	233

Note: Based on Pine Valley Estates Conceptual Site Plan prepared by Orchard Design Studio, dated October 16th, 2025

(2) Occupancy Contents

Non-Combustible	-25%
Limited Combustible	-15%
Combustible	No Charge
Free Burning	15%
Rapid Burning	25%

(3) Sprinkler

30% credit for adequately designed system per NFPA 13. Additional 10% if water supply standard for both the system and fire department hose lines required. Additional credit of up to 10% given for a fully supervised system.

(4) Exposure

0 to 3m	25% to 20%	Max exposure determined by
3 to 10m	20% to 15%	Linear Interpolation of distance
10 to 20m	15% to 10%	and is calculated for all sides.
20 to 30m	10% to 5%	Max total charge shall not
30 to 45m	5% to 0%	exceed 75%.

Note: 10% Exposure charge applied to adjacent floor area separated by a fire wall or unpearced party wall.

Max charge percentage is outlined above. Max should only be used if exposed building meets all of the following conditions:

a) Same or poorer type of construction than fire building

b) Same or greater height than the fire building

c) Contains unprotected exposed openings

d) Unsprinklered

(each true condition accounts for 1/4 of the max charge percentage)

Calculations :

(1) Basic Required Fire Flow (F) = 183 L/s

(2) Building Occupancy Contents = -15 % Reduction

(3) Sprinkler System Credit = 0 % No Charge

(4) Exposure to building = 48.42 % Increase [See Calculation Below]

	Dist. (m)	Max Charge %	Adjusted Charge %	Notes:
North	3.1	19.93	19.93	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
South	3.1	19.93	19.93	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
East	22.9	8.56	8.56	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
West	> 45	0.00	0.00	Exposure Greater than 45m; No Charge Assigned
		Total:	48.42	

Assumptions

-All Townhouses are Wood-Frame Construction

-All Townhouses are Limited Combustible

-All Townhouses are Unsprinklered

-All Townhouses contain exposed openings

Final Adjusted Fire Flow = **Adjustment Flow from (2) + Sprinkler Adjustment (3) + Exposure Adjusment (4)**

= **14000 L/min** or **233 L/s**

Project:	Pine Valley Homes Limited	Date:	May 2026	
File No.:	PIN-19037	Designed:	WS	
Subject:	Proposed Building - Fire Flow Calculations - 3 Storey Townhouses	Checked:	JI	
Revisions:				

Fire flow demands for the FUS method is based on information and guidance provided in Part 2 of the "Water Supply for Public Fire Protection" (Fire Underwriters Survey, 2020)

An estimate of the fire flow required is given by the following formula:

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

where:

F = the required fire flow in litres per minute (Rounded to nearest 1000 L/min)

C = coefficient related to the type of construction

= 1.5 for wood frame construction (structure essentially all combustible).

= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)

= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls)

= 0.6 for fire-resistive construction (fully protected frame, floors, roof)

Note: For types of construction that do not fall within the categories given, coefficients shall not be grrater than 1.5 nor less than 0.6 and may be determined by interpolation between consecutive construction types as listed above

A = Total floor area in square meters (including all storeys, but excluding basements at least 50% below grade) in the building being considered.

Adjustments to the calculated fire flow can be made based on occupancy, sprinkler protection and exposure to other structures. The table below summarizes the adjustments made to the basic fire flow demand.

			(1)		(2)		(3)		(4)		Final Adjustment	
Building	GFA	C	Fire Flow "F"		Occupancy Contents		Sprinkler		Exposure		Fire Flow	
	(m^2)		(L/min)	(L/s)	(%)	Adjusted Fire Flow (L/min)	%	Adjustment (L/min)	%	Adjustment (L/min)	(L/min)	(L/s)
3 Storey	1170.144	1.5	11,000	183	-15	9,350	0	0	53.49	5,001	**14,000**	**233**

Note: Based on Pine Valley Estates Conceptual Site Plan prepared by Orchard Design Studio, dated October 16th, 2025

(2) Occupancy Contents

Non-Combustible	-25%
Limited Combustible	-15%
Combustible	No Charge
Free Burning	15%
Rapid Burning	25%

(3) Sprinkler

30% credit for adequately designed system per NFPA 13. Additional 10% if water supply standard for both the system and fire department hose lines required. Additional credit of up to 10% given for a fully supervised system.

(4) Exposure

0 to 3m	25% to 20%	Max exposure determined by
3 to 10m	20% to 15%	Linear Interpolation of distance
10 to 20m	15% to 10%	and is calculated for all sides.
20 to 30m	10% to 5%	Max total charge shall not
30 to 45m	5% to 0%	exceed 75%.

Note: 10% Exposure charge applied to adjacent floor area separated by a fire wall or unpearced party wall.

Max charge percentage is outlined above. Max should only be used if exposed building meets all of the following conditions:

a) Same or poorer type of construction than fire building

b) Same or greater height than the fire building

c) Contains unprotected exposed openings

d) Unsprinklered

(each true condition accounts for 1/4 of the max charge percentage)

Calculations :

(1) Basic Required Fire Flow (F) = 183 L/s

(2) Building Occupancy Contents = -15 % Reduction

(3) Sprinkler System Credit = 0 % No Charge

(4) Exposure to building = 53.49 % Increase [See Calculation Below]

	Dist. (m)	Max Charge %	Adjusted Charge %	Notes:
North	22.6	8.68	8.68	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
South	3.1	19.93	19.93	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
East	9.5	15.33	15.33	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
West	20.9	9.55	9.55	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
		Total:	53.49	

Assumptions

-All Townhouses are Wood-Frame Construction

-All Townhouses are Limited Combustible

-All Townhouses are Unsprinklered

-All Townhouses contain exposed openings

Final Adjusted Fire Flow = Adjustment Flow from (2) + Sprinkler Adjustment (3) + Exposure Adjusment (4)

= **14000 L/min** or **233 L/s**

Project:	Pine Valley Homes Limited	Date:	May 2026	
File No.:	PIN-25033	Designed:	WS	
Subject:	Proposed Building - Fire Flow Calculations - 3 Storey Stacked Rear Lane Townhouses	Checked:	JI	
Revisions:				

Fire flow demands for the FUS method is based on information and guidance provided in Part 2 of the "Water Supply for Public Fire Protection" (Fire Underwriters Survey, 2020)

An estimate of the fire flow required is given by the following formula:

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

where:

F = the required fire flow in litres per minute (Rounded to nearest 1000 L/min)

C = coefficient related to the type of construction

= 1.5 for wood frame construction (structure essentially all combustible).

= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)

= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls)

= 0.6 for fire-resistive construction (fully protected frame, floors, roof)

Note: For types of construction that do not fall within the categories given, coefficients shall not be grrater than 1.5 nor less than 0.6 and may be determined by interpolation between consecutive construction types as listed above

A = Total floor area in square meters (including all storeys, but excluding basements at least 50% below grade) in the building being considered.

Adjustments to the calculated fire flow can be made based on occupancy, sprinkler protection and exposure to other structures. The table below summarizes the adjustments made to the basic fire flow demand.

			(1)		(2)		(3)		(4)		**Final Adjustment**	
Building	GFA	C	Fire Flow "F"		Occupancy Contents		Sprinkler		Exposure		**Fire Flow**	
	(m^2)		(L/min)	(L/s)	(%)	Adjusted Fire Flow (L/min)	%	Adjustment (L/min)	%	Adjustment (L/min)	**(L/min)**	**(L/s)**
3 Storey Stacked	1740.81	1.5	14,000	233	-15	11,900	0	0	41.27	4,911	**17,000**	**283**

Note: Based on Pine Valley Estates Conceptual Site Plan prepared by Orchard Design Studio, dated October 16th, 2025

(2) Occupancy Contents

Non-Combustible	-25%
Limited Combustible	-15%
Combustible	No Charge
Free Burning	15%
Rapid Burning	25%

(3) Sprinkler

30% credit for adequately designed system per NFPA 13. Additional 10% if water supply standard for both the system and fire department hose lines required. Additional credit of up to 10% given for a fully supervised system.

(4) Exposure

0 to 3m	25% to 20%	Max exposure determined by
3 to 10m	20% to 15%	Linear Interpolation of distance
10 to 20m	15% to 10%	and is calculated for all sides.
20 to 30m	10% to 5%	Max total charge shall not
30 to 45m	5% to 0%	exceed 75%.

Note: 10% Exposure charge applied to adjacent floor area separated by a fire wall or unpearced party wall.

Max charge percentage is outlined above. Max should only be used if exposed building meets all of the following conditions:

a) Same or poorer type of construction than fire building

b) Same or greater height than the fire building

c) Contains unprotected exposed openings

d) Unsprinklered

(each true condition accounts for 1/4 of the max charge percentage)

Calculations :

(1) Basic Required Fire Flow (F) = 233 L/s

(2) Building Occupancy Contents = -15 % Reduction

(3) Sprinkler System Credit = 0 % No Charge

(4) Exposure to building = 41.27 % Increase [See Calculation Below]

	Dist. (m)	Max Charge %	Adjusted Charge %	Notes:
North	22.2	8.92	8.92	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
South	21.0	9.51	9.51	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
East	4.1	19.21	19.21	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
West	30.5	4.83	3.63	Conditions a), c) and d) are True; Assign 3/4 of Max Charge
		Total:	41.27	

Assumptions

-All Townhouses are Wood-Frame Construction

-All Townhouses are Limited Combustible

-All Townhouses are Unsprinklered

-All Townhouses contain exposed openings

Final Adjusted Fire Flow = **Adjustment Flow from (2) + Sprinkler Adjustment (3) + Exposure Adjusment (4)**

= **17000 L/min** or **283 L/s**

Project:	Pine Valley Homes Limited		Date:	May 2026
File No.:	PIN-19037		Designed:	WS
Subject:	Proposed Building - Fire Flow Calculations - 3.5 Storey Stacked Townhouses		Checked:	JI
Revisions:				

Fire flow demands for the FUS method is based on information and guidance provided in Part 2 of the "Water Supply for Public Fire Protection" (Fire Underwriters Survey, 2020)

An estimate of the fire flow required is given by the following formula:

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

where:

F = the required fire flow in litres per minute (Rounded to nearest 1000 L/min)

C = coefficient related to the type of construction

= 1.5 for wood frame construction (structure essentially all combustible).

= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)

= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls)

= 0.6 for fire-resistive construction (fully protected frame, floors, roof)

Note: For types of construction that do not fall within the categories given, coefficients shall not be grrater than 1.5 nor less than 0.6 and may be determined by interpolation between consecutive construction types as listed above

A = Total floor area in square meters (including all storeys, but excluding basements at least 50% below grade) in the building being considered.

Adjustments to the calculated fire flow can be made based on occupancy, sprinkler protection and exposure to other structures. The table below summarizes the adjustments made to the basic fire flow demand.

			(1)		(2)		(3)		(4)		Final Adjustment	
Building	GFA	C	Fire Flow "F"		Occupancy Contents		Sprinkler		Exposure		Fire Flow	
	(m²)		(L/min)	(L/s)	(%)	Adjusted Fire Flow (L/min)	%	Adjustment (L/min)	%	Adjustment (L/min)	(L/min)	(L/s)
3.5 Storey Stacked	1373.46	1.5	12,000	200	-15	10,200	0	0	56.96	5,810	**16,000**	**267**

Note: Based on Pine Valley Estates Conceptual Site Plan prepared by Orchard Design Studio, dated October 16th, 2025

(2) Occupancy Contents

Non-Combustible	-25%
Limited Combustible	-15%
Combustible	No Charge
Free Burning	15%
Rapid Burning	25%

(3) Sprinkler

30% credit for adequately designed system per NFPA 13. Additional 10% if water supply standard for both the system and fire department hose lines required. Additional credit of up to 10% given for a fully supervised system.

(4) Exposure

0 to 3m	25% to 20%	Max exposure determined by
3 to 10m	20% to 15%	Linear Interpolation of distance
10 to 20m	15% to 10%	and is calculated for all sides.
20 to 30m	10% to 5%	Max total charge shall not
30 to 45m	5% to 0%	exceed 75%.

Note: 10% Exposure charge applied to adjacent floor area separated by a fire wall or unpearced party wall.

Max charge percentage is outlined above. Max should only be used if exposed building meets all of the following conditions:

a) Same or poorer type of construction than fire building

b) Same or greater height than the fire building

c) Contains unprotected exposed openings

d) Unsprinklered

(each true condition accounts for 1/4 of the max charge percentage)

Calculations :

(1) Basic Required Fire Flow (F) = 200 L/s

(2) Building Occupancy Contents = -15 % Reduction

(3) Sprinkler System Credit = 0 % No Charge

(4) Exposure to building = 56.96 % Increase [See Calculation Below]

	Dist. (m)	Max Charge %	Adjusted Charge %	Notes:
North	7.3	16.90	16.90	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
South	5.0	18.57	18.57	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
East	12.0	14.00	14.00	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
West	25.0	7.50	7.50	Conditions a), b), c) and d) are True; Assign 4/4 of Max Charge
		Total:	56.96	

Assumptions

-All Townhouses are Wood-Frame Construction

-All Townhouses are Limited Combustible

-All Townhouses are Unsprinklered

-All Townhouses contain exposed openings

Final Adjusted Fire Flow = **Adjustment Flow from (2) + Sprinkler Adjustment (3) + Exposure Adjusment (4)**

= **16000 L/min** or **267 L/s**

Project:	Pine Valley Homes Limited	Date:	May 2026	
File No.:	PIN-19037	Designed:	WS	
Subject:	Proposed Building - Fire Flow Calculations - 6 Storey Apartment	Checked:	MF	
Revisions:				

Fire flow demands for the FUS method is based on information and guidance provided in Part 2 of the "Water Supply for Public Fire Protection" (Fire Underwriters Survey, 2020)

An estimate of the fire flow required is given by the following formula:

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

where:

F = the required fire flow in litres per minute (Rounded to nearest 1000 L/min)

C = coefficient related to the type of construction

= 1.5 for wood frame construction (structure essentially all combustible).

= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)

= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls)

= 0.6 for fire-resistive construction (fully protected frame, floors, roof)

Note: For types of construction that do not fall within the categories given, coefficients shall not be grrater than 1.5 nor less than 0.6 and may be determined by interpolation between consecutive construction types as listed above

A = Total floor area in square meters (including all storeys, but excluding basements at least 50% below grade) in the building being considered.

Adjustments to the calculated fire flow can be made based on occupancy, sprinkler protection and exposure to other structures. The table below summarizes the adjustments made to the basic fire flow demand.

			(1)		(2)		(3)		(4)		Final Adjustment	
Building	GFA	C	Fire Flow "F"		Occupancy Contents		Sprinkler		Exposure		Fire Flow	
	(m^2)		(L/min)	(L/s)	(%)	Adjusted Fire Flow (L/min)	%	Adjustment (L/min)	%	Adjustment (L/min)	(L/min)	(L/s)
6 Storey Apartment	12150	1.0	24,000	400	-15	20,400	-50	-10,200	4.05	827	**11,000**	**183**

Note: Based on Pine Valley Estates Conceptual Site Plan prepared by Orchard Design Studio, dated October 16th, 2025

(2) Occupancy Contents

Non-Combustible	-25%
Limited Combustible	-15%
Combustible	No Charge
Free Burning	15%
Rapid Burning	25%

(3) Sprinkler

30% credit for adequately designed system per NFPA 13. Additional 10% if water supply standard for both the system and fire department hose lines required. Additional credit of up to 10% given for a fully supervised system.

(4) Exposure

0 to 3m	25% to 20%	Max exposure determined by
3 to 10m	20% to 15%	Linear Interpolation of distance
10 to 20m	15% to 10%	and is calculated for all sides.
20 to 30m	10% to 5%	Max total charge shall not
30 to 45m	5% to 0%	exceed 75%.

Note: 10% Exposure charge applied to adjacent floor area separated by a fire wall or unpearced party wall.

Max charge percentage is outlined above. Max should only be used if exposed building meets all of the following conditions:

a) Same or poorer type of construction than fire building

b) Same or greater height than the fire building

c) Contains unprotected exposed openings

d) Unsprinklered

(each true condition accounts for 1/4 of the max charge percentage)

Calculations :

(1) Basic Required Fire Flow (F) = 400 L/s

(2) Building Occupancy Contents = -15 % Reduction

(3) Sprinkler System Credit = -50 % Reduction

(4) Exposure to building = 4.05 % Increase [See Calculation Below]

	Dist. (m)	Max Charge %	Adjusted Charge %	Notes:
North	> 45	0.00	0.00	Exposure Greater than 45m; No Charge Assigned
South	44.0	0.33	0.25	Conditions a), b) and c) are True; Assign 3/4 of Max Charge
East	> 45	0.00	0.00	Exposure Greater than 45m; No Charge Assigned
West	24.8	7.61	3.80	Conditions a) and c) are True; Assign 2/4 of Max Charge
		Total:	4.05	

Assumptions

-All Apartments are Ordinary Construction

-All Apartments are Limited Combustible

-All Apartments have adequately designed system per NAPA 13

-Standard water supply for system and fire department

-Fully supervised system

-All Apartments contain exposed openings

Final Adjusted Fire Flow = **Adjustment Flow from (2) + Sprinkler Adjustment (3) + Exposure Adjusment (4)**

= **11000 L/min** or **183 L/s**

Appendix D

Supporting Sanitary Information

- Sanitary Sewer Design Sheet

Pine Valley Homes - 9332 County Road 93
SANITARY SEWER DESIGN
Development Details Basis

CLIENT: Pine Valley Homes

PROJECT: Pine Valley Estates Midland

FILE: PIN-19037 (50)

DATE: May 2026

DESIGN: WS

CHECKED: JI

n ≥ 0.013

M = 1+[14/(4+P^0.5)] (Harmon peaking factor where; 2 ≤ M ≤ 4)

Q_p = P*q*M/86.4 (Peak population flow where; q = 450 L/day/person; P = population in thousands)

Q_i = I*A (Peak extraneous flow: I= 0.23L/s/ha over development area)

$Q_{tot} = Q_p + Q_i$ (Total peak flow as the sum of peak population flow and peak extraneous flow)

FILE NO PIN-19037

CONTRACT / PROJECT Pine Valley Homes

CATCHMENT ID	MAINTENANCE HOLE FROM	MAINTENANCE HOLE TO	DWELL UNITS	DENSITY P.P.U.	POP. (P)	POP. (ACC)	M PEAKING FACTOR	Q_p (Peak Residential Flow) (L/S)	AREA (ha)	AREA (ACC) (ha)	Q_i (Infiltration Flow) (L/S)	Q_{tot} (Total Peak Flow) (L/S)	L (m)	D (mm)	S (%)	Q Full (L/S)	V Full (m/s)	V Partial (m/s)	Velocity > 0.6 (m/s)	Velocity < 4.0 (m/s)
1	SANMH25	SANMH24	3	2.5	8	8	4.00	0.156	0.12	0.12	0.028	0.184	19.6	200	1.00	32.80	1.04	0.265	Ok	Ok
2	SANMH26	SANMH24	25	2.5	63	63	4.00	1.302	0.53	0.53	0.123	1.425	81.4	200	1.00	32.80	1.04	0.508	Ok	Ok
3	SANMH24	SANMH23	9	2.5	23	93	4.00	1.927	0.21	0.86	0.199	2.126	65.5	250	0.50	42.05	0.86	0.434	Ok	Ok
4	SANMH34A	SANMH23A	72	2.5	180	180	4.00	3.750	0.54	0.54	0.123	3.873	84.3	200	1.00	32.80	1.04	0.694	Ok	Ok
5	SANMH23A	SANMH22A	13	2.5	33	305	4.00	6.354	0.29	1.69	0.388	6.742	70.7	250	0.50	42.05	0.86	0.616	Ok	Ok
6	SANMH35A	SANMH22A	36	2.5	90	90	4.00	1.875	0.35	0.35	0.081	1.956	84.3	200	1.00	32.80	1.04	0.566	Ok	Ok
7	SANMH22A	SANMH20A	24	2.5	60	455	3.99	9.467	0.29	2.32	0.534	10.001	59.8	250	0.50	42.05	0.86	0.691	Ok	Ok
8	SANMH21A	SANMH20A	6	2.5	15	15	4.00	0.313	0.16	0.16	0.038	0.350	19.0	200	1.00	32.80	1.04	0.327	Ok	Ok
9	SANMH20A	SANMH19A	15	2.5	38	508	3.97	10.496	0.46	2.94	0.677	11.173	66.2	250	0.50	42.05	0.86	0.711	Ok	Ok
10	SANMH26A	SANMH27A	21	2.5	53	53	4.00	1.094	0.44	0.44	0.101	1.195	71.0	200	1.00	32.80	1.04	0.482	Ok	Ok
11	SANMH28A	SANMH27A	23	2.5	58	58	4.00	1.198	0.50	0.50	0.115	1.313	81.8	200	1.00	32.80	1.04	0.494	Ok	Ok
12	SANMH27A	SANMH32A	0	0.0	0	110	4.00	2.292	0.08	1.02	0.234	2.526	65.5	250	0.50	42.05	0.86	0.457	Ok	Ok
13	SANMH34A	SANMH32A	56	2.5	140	140	4.00	2.917	0.40	0.40	0.091	3.008	68.1	200	1.00	32.80	1.04	0.644	Ok	Ok
14	SANMH33A	SANMH32A	24	2.5	60	60	4.00	1.250	0.48	0.48	0.111	1.361	81.8	200	1.00	32.80	1.04	0.501	Ok	Ok
15	SANMH32A	SANMH31A	6	2.5	15	325	4.00	6.771	0.19	2.09	0.480	7.251	70.7	250	0.50	42.05	0.86	0.628	Ok	Ok
16	SANMH35A	SANMH31A	28	2.5	70	70	4.00	1.458	0.27	0.27	0.062	1.520	68.1	200	1.00	32.80	1.04	0.524	Ok	Ok
17	SANMH31A	SANMH30A	22	2.5	55	450	4.00	9.369	0.29	2.65	0.610	9.979	59.8	250	0.50	42.05	0.86	0.689	Ok	Ok
18	SANMH30A	SANMH19A	0	0.0	0	450	4.00	9.369	0.35	3.00	0.691	10.059	86.2	250	0.50	42.05	0.86	0.689	Ok	Ok
19	SANMH19A	SANMH13A	0	0.0	0	958	3.81	19.011	0.04	5.99	1.377	20.388	45.2	250	0.50	42.05	0.86	0.835	Ok	Ok
20	BLDG3	SANMH17A	144	2.0	288	288	4.00	6.000	0.22	0.22	0.050	6.050	13.3	200	1.00	32.8	1.044	0.794	Ok	Ok
21	SANMH17A	SANMH16A	0	0.0	0	288	4.00	6.000	0.14	0.35	0.082	6.082	62.9	200	1.00	32.80	1.04	0.794	Ok	Ok
22	SANMH18A	SANMH16A	32	2.5	80	80	4.00	1.667	0.94	0.94	0.216	1.883	88.9	200	1.00	32.80	1.04	0.546	Ok	Ok
23	SANMH16A	SANMH14A	0	0.0	0	368	4.00	7.667	0.01	1.30	0.300	7.967	32.5	200	0.50	23.19	0.74	0.662	Ok	Ok
24	SANMH15A	SANMH14A	21	2.5	53	53	4.00	1.094	0.49	0.49	0.113	1.207	85.0	200	1.00	32.80	1.04	0.482	Ok	Ok
25	SANMH14A	SANMH13A	0	0.0	0	421	4.00	8.760	0.04	1.84	0.422	9.183	46.2	200	0.50	23.19	0.74	0.686	Ok	Ok
26	SANMH13A	SANMH12A	39	2.5	98	1476	3.68	28.317	0.52	8.35	1.920	30.236	64.2	250	0.50	42.05	0.86	0.919	Ok	Ok
27	SANMH12A	SANMH2A	9	2.5	23	1498	3.68	28.711	0.26	8.60	1.979	30.690	64.7	250	0.50	42.05	0.86	0.922	Ok	Ok
28	SANMH29A	SANMH28A	5	2.5	13	13	4.00	0.260	0.12	0.12	0.029	0.289	25.1	200	1.00	32.80	1.04	0.312	Ok	Ok
29	SANMH28A	SANMH33A	10	2.5	25	38	4.00	0.781	0.21	0.33	0.077	0.858	65.5	250	0.50	42.05	0.86	0.330	Ok	Ok
30	SANMH33A	SANMH5A	8	2.5	20	58	4.00	1.198	0.20	0.53	0.123	1.321	62.7	250	0.50	42.05	0.86	0.375	Ok	Ok
31	SANMH7A	SANMH6A	10	2.5	25	25	4.00	0.521	0.40	0.40	0.093	0.613	64.8	200	1.00	32.80	1.04	0.383	Ok	Ok
32	SANMH6A	SANMH5A	10	2.5	25	50	4.00	1.042	0.30	0.70	0.162	1.204	57.7	250	0.50	42.05	0.86	0.361	Ok	Ok
33	SANMH5A	SANMH4A	6	2.5	15	123	4.00	2.552	0.41	1.65	0.380	2.932	45.6	250	0.50	42.05	0.86	0.473	Ok	Ok
34	SANMH4A	SANMH3A	3	2.5	8	130	4.00	2.708	0.13	1.78	0.409	3.117	32.6	250	0.50	42.05	0.86	0.480	Ok	Ok
35	SANMH3A	SANMH2A	3	2.5	8	138	4.00	2.865	0.30	2.08	0.478	3.343	49.2	250	0.50	42.05	0.86	0.488	Ok	Ok
36	SANMH10A	SANMH9A	24	2.5	60	60	4.00	1.250	0.40	0.40	0.092	1.342	103.4	200	1.00	32.80	1.04	0.501	Ok	Ok
37	SANMH9A	SANMH8A	0	0.0	0	60	4.00	1.250	0.14	0.54	0.124	1.374	40.3	250	0.50	42.05	0.86	0.381	Ok	Ok
38	SANMH38A	SANMH8A	56	2.5	140	200	4.00	4.167	0.65	0.65	0.151	4.317	103.0	200	1.00	32.80	1.04	0.715	Ok	Ok
39	SANMH8A	SANMH2A	0	0.0	0	200	4.00	4.167	0.33	1.52	0.350	4.516	96.3	250	0.50	42.05	0.86	0.545	Ok	Ok
40	SANMH2A	SANMH36A	0	0.0	0	1836	3.61	34.554	0.25	12.45	2.863	37.417	49.5	250	0.50	42.05	0.86	0.956	Ok	Ok
41	BLDG1	SANMH11A	144	2.0	288	288	4.00	6.000	0.22	0.22	0.049	6.049	10.1	200	1.00	32.80	1.04	0.794	Ok	Ok
42	SANMH11A	SANMH37A	0	0.0	0	288	4.00	6.000	0.18	0.39	0.090	6.090	34.8	200	0.50	23.19	0.74	0.620	Ok	Ok
43	SANMH37A	SANMH39A	0	0.0	0	288	4.00	6.000	0.26	0.65	0.149	6.149	76.0	200	0.50	23.19	0.74	0.620	Ok	Ok
44	BLDG2	SANMH39A	144	2.0	288	576	3.94	11.825	1.23	1.23	0.283	12.108	10.1	200	1.00	32.80	1.04	0.959	Ok	Ok
45	SANMH39	SANMH36A	0	0.0	0	576	3.94	11.825	0.03	1.91	0.439	12.264	34.0	200	0.50	23.19	0.74	0.741	Ok	Ok
46	SANMH36A	SANMH1A	0	0.0	0	2412	3.52	44.226	0.24	14.60	3.358	47.584	50.8	300	0.50	68.38	0.97	1.028	Ok	Ok
47	SANMH1A	EX. SANMH1	0	0.0	0	2412	3.52	44.226	0.27	14.87	3.420	47.646	66.7	300	0.50	68.38	0.97	1.028	Ok	Ok
EXT	EX. SANMH1	EX. SANMH2	0	0.0	0	2412	3.52	44.226	0.00	14.87	3.420	47.646	18.1	300	0.50	68.38	0.97	1.028	Ok	Ok

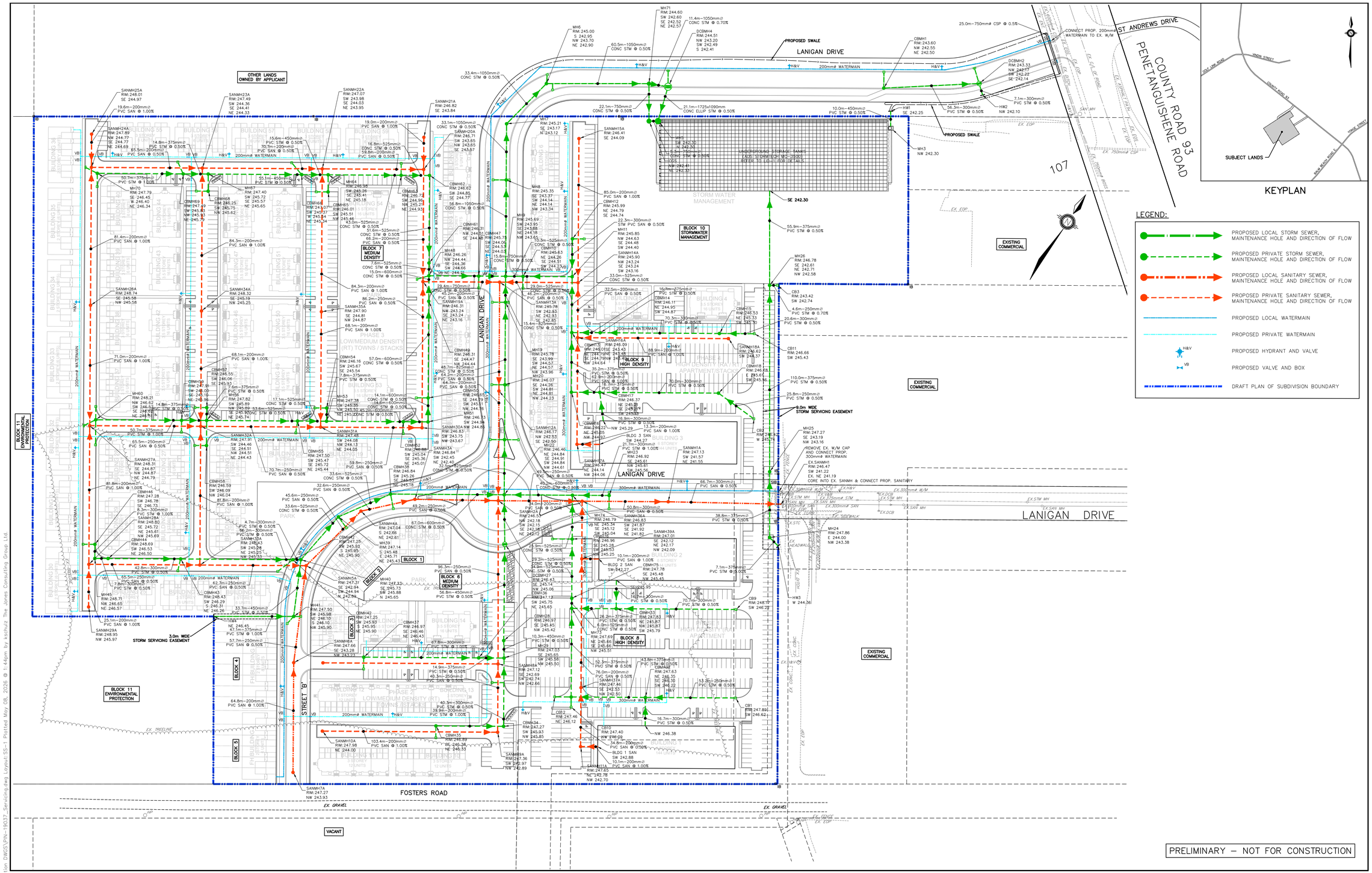
DATE: 26-05-07 CALCULATED BY: WS CHECKED BY: JI

Appendix E

Engineering Drawings

Stamped May 2026:

- SS-1 Site Servicing Plan
- GP-1 Grading Plan
- GP-2 Grading Plan & Sections
- PP-1 Lanigan Drive, Plan and Profile, STA. 0+000 to STA 0+300
- PP-2 Lanigan Drive, Plan and Profile, STA 0+300 to STA+602
- PP-3 Street 'B' & Lanigan Drive, Plan and Profile, STA 0+000 to STA 0+200
- PP-4 Street 'B' & Lanigan Drive, Plan and Profile, STA 0+200 to STA 0+456
- SAN-1 Sanitary Sewer Subcatchment Plan
- STM-1 Storm Sewer Subcatchment Plan
- DS-1 Design Sheets
- SWM-1 Stormwater Management Plan, Pre-Development Conditions
- SWM-2 Stormwater Management Plan, Post-Development Conditions
- LID-1 LID Sections & Details, Below Grade SWM Facility



PRELIMINARY – NOT FOR CONSTRUCTION

BENCHMARK:

ELEVATIONS ARE GEODETIC AND DERIVED BY REAL TIME NETWORK OBSERVATIONS, USING THE CAN-NET NETWORK, UTM ZONE 17, NAD83(CSRS),(2020).

NO.	REVISIONS	DATE	INITIAL
1.	ZBA & DPA SUBMISSION	MAY 2026	JW

LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 26-05-08 PROVINCE OF ONTARIO

PINE VALLEY HOMES LIMITED
9332 COUNTY ROAD 93
TOWN OF MIDLAND

SITE SERVICING PLAN

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	KS/JW	SCALE: 1:1000	DATE FEBRUARY 2026
DRAWN	KS	PROJECT PIN-19037	DWG. Nº SS-1
CHECKED	JW		

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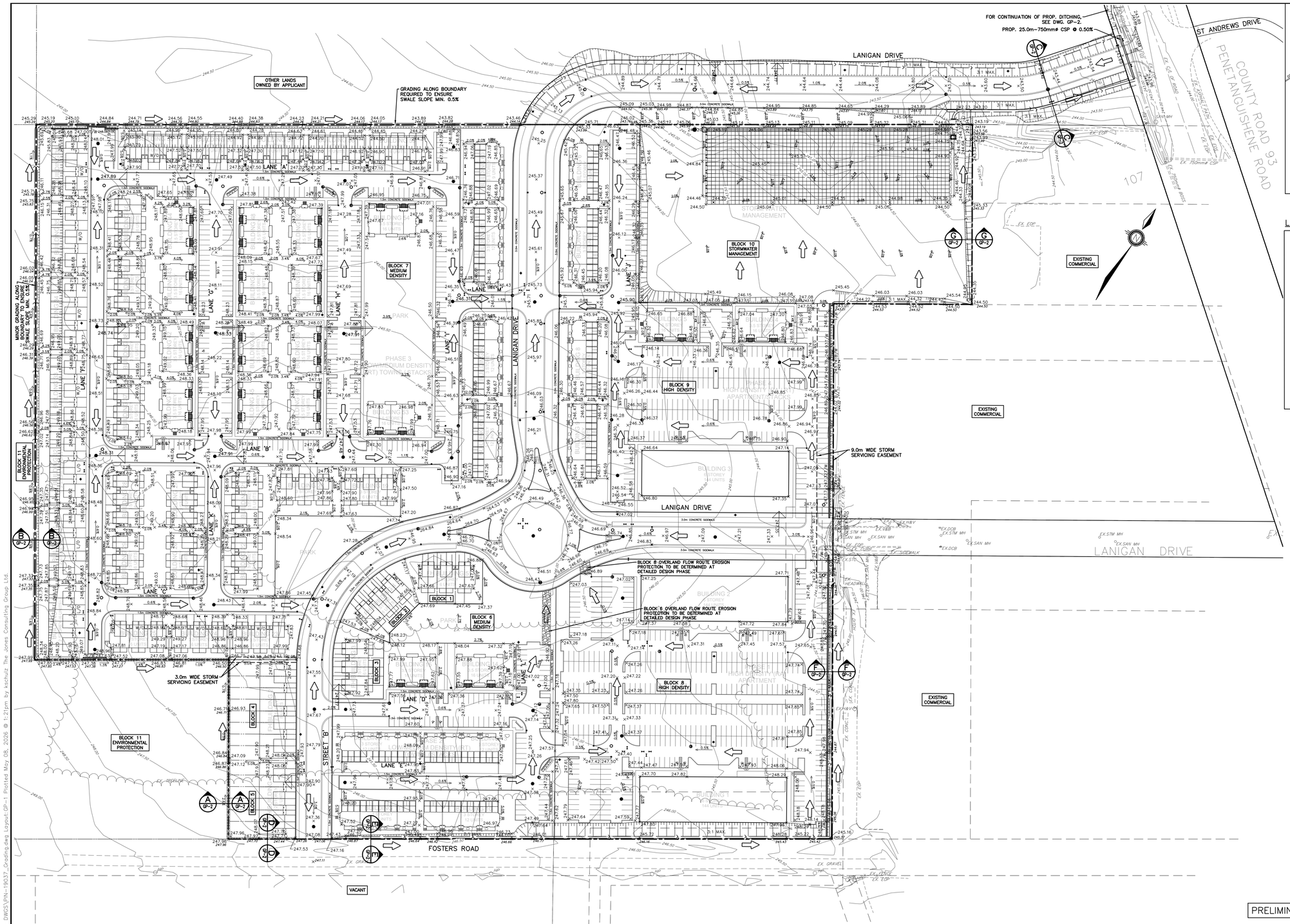
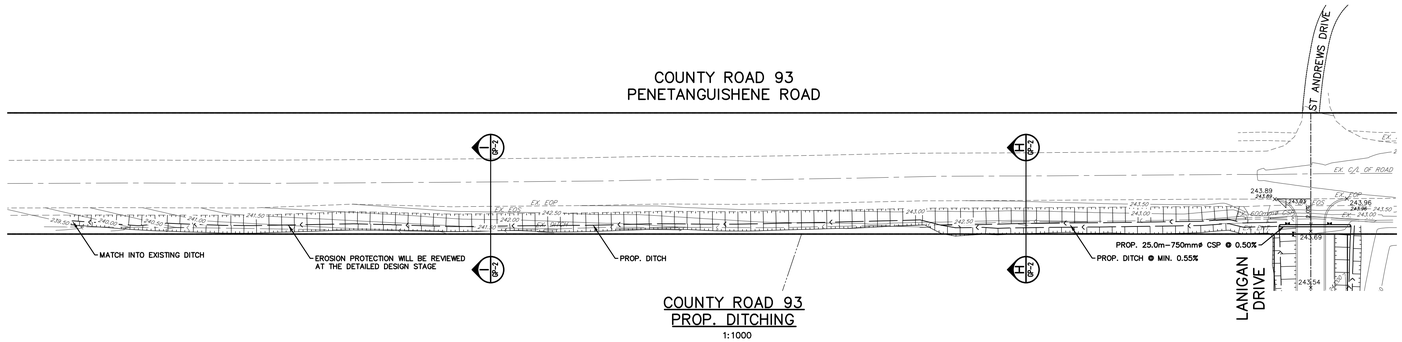
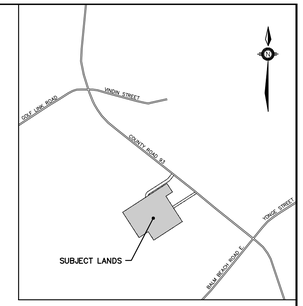
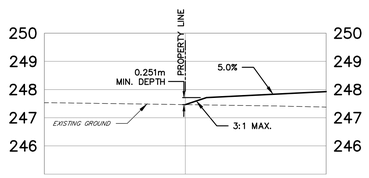

FOR CONTINUATION OF PROP. DITCHING, SEE DWG. GP-2.
PROP. 25.0m-750mmø CSP @ 0.50%
LANIGAN DRIVE
ST ANDREWS DRIVE
COUNTY ROAD 93
PENETANGUISHENE ROAD
OTHER LANDS OWNED BY APPLICANT
GRADING ALONG BOUNDARY REQUIRED TO ENSURE SWALE SLOPE MIN. 0.5%
WIDE GRADING ALONG BOUNDARY TO ENSURE SWALE SLOPE MIN. 0.5%
BLOCK 11 ENVIRONMENTAL PROTECTION
BLOCK 7 MEDIUM DENSITY
BLOCK 10 STORMWATER MANAGEMENT
BLOCK 9 HIGH DENSITY
BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
BLOCK 6 MEDIUM DENSITY
BLOCK 8 HIGH DENSITY
EXISTING COMMERCIAL
9.0m WIDE STORM SERVICING EASEMENT
3.0m WIDE STORM SERVICING EASEMENT
BLOCK 8 OVERLAND FLOW ROUTE EROSION PROTECTION TO BE DETERMINED AT DETAILED DESIGN PHASE
BLOCK 6 OVERLAND FLOW ROUTE EROSION PROTECTION TO BE DETERMINED AT DETAILED DESIGN PHASE
LANE 'A'
LANE 'B'
LANE 'C'
LANE 'D'
LANE 'E'
LANE 'F'
LANE 'G'
LANE 'H'
LANE 'I'
LANE 'J'
LANE 'K'
STREET 'B'
FOSTERS ROAD
VACANT
PARK
PHASE 3 MEDIUM DENSITY (STACKED TOWNHOUSES)
PHASE 4 HIGH DENSITY APARTMENTS/STACKS
BUILDING 1 6 STOREY 164 UNITS
BUILDING 2 6 STOREY 164 UNITS
BUILDING 3 6 STOREY 164 UNITS
BUILDING 4 6 STOREY 164 UNITS
BUILDING 5 6 STOREY 164 UNITS
BUILDING 6 6 STOREY 164 UNITS
BUILDING



COUNTY ROAD 93
PROP. DITCHING
1:1000



KEYPLAN



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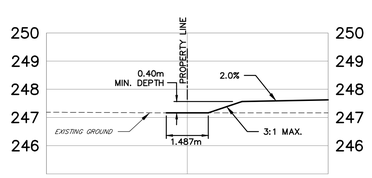

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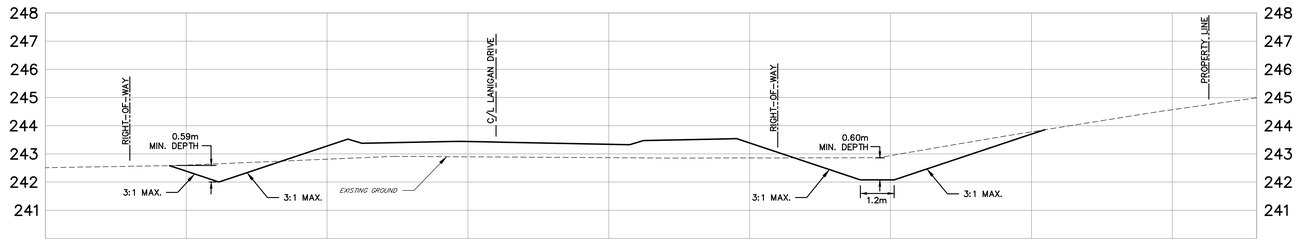

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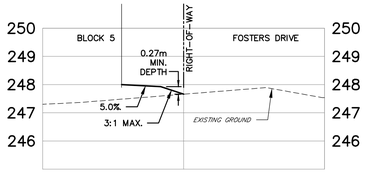

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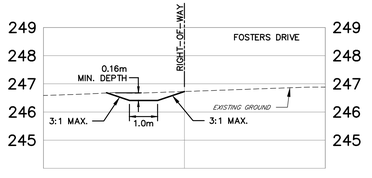

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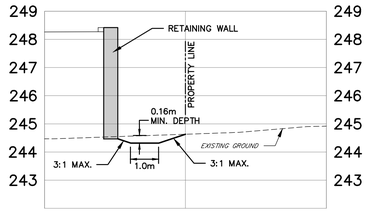

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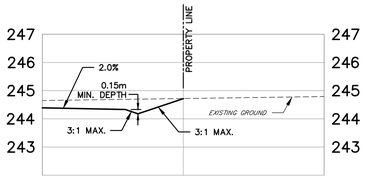

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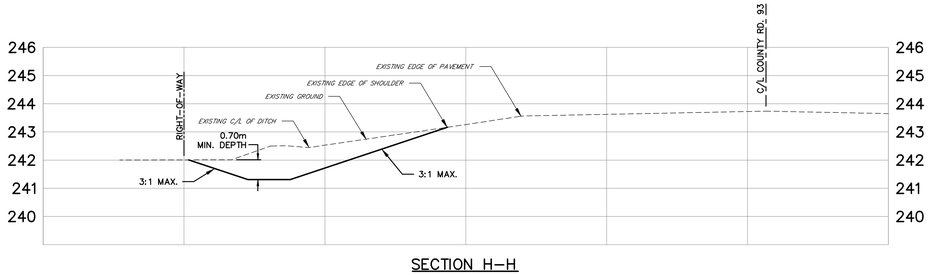

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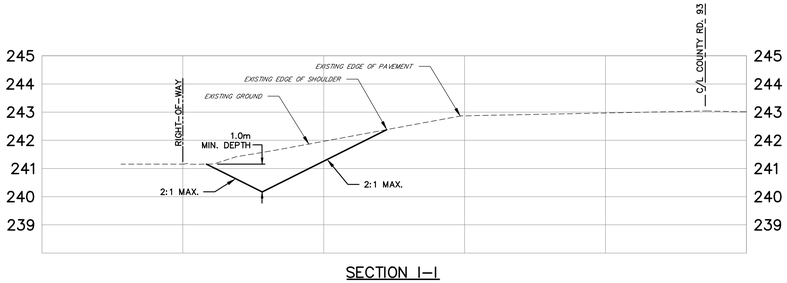

SECTION I–I
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PRELIMINARY – NOT FOR CONSTRUCTION

BENCHMARK:

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NO.	REVISIONS	DATE	INITIAL
1.	ZBA & DPA SUBMISSION	MAY 2026	JWI

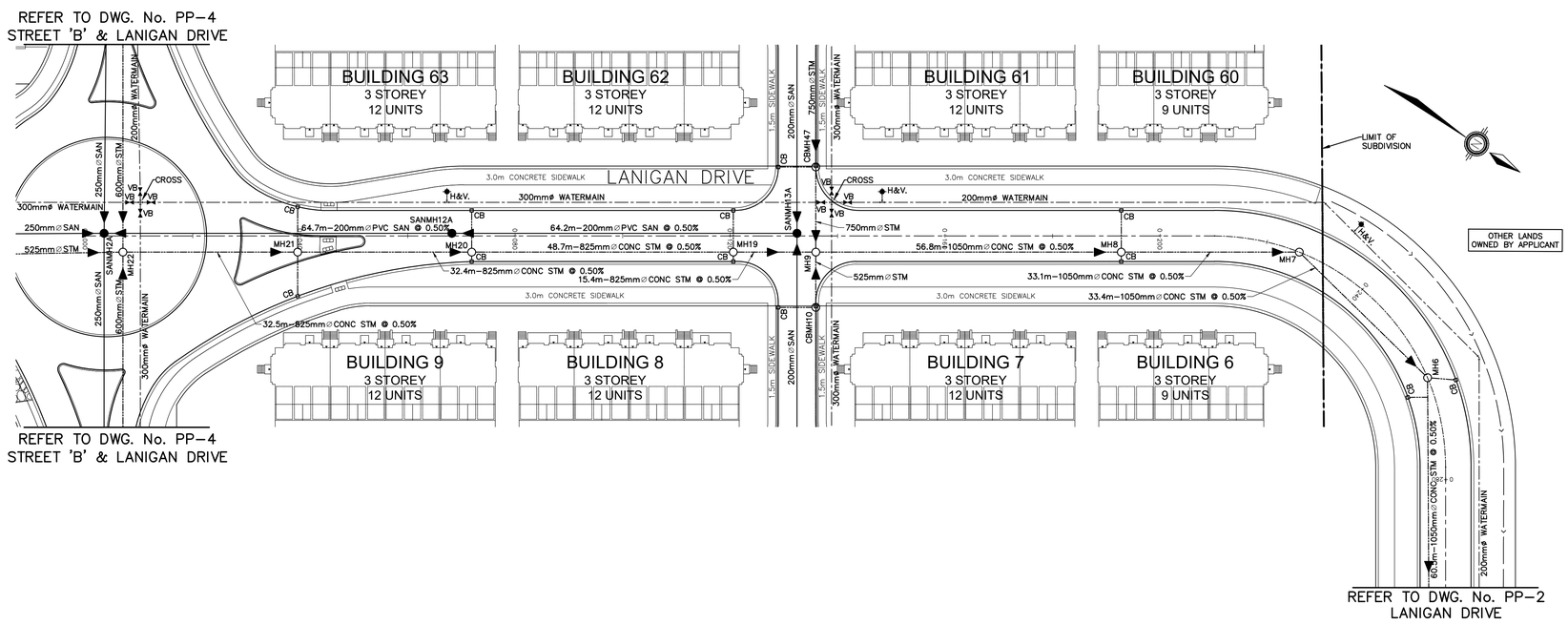
LICENCED PROFESSIONAL ENGINEER
J. W. INGRAM
100143779
26-05-08
PROVINCE OF ONTARIO

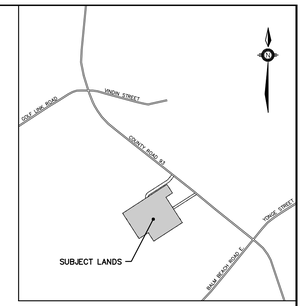
PINE VALLEY HOMES LIMITED
9332 COUNTY ROAD 93
TOWN OF MIDLAND

GRADING PLAN
& SECTIONS

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	KS/JWI	SCALE: AS NOTED	DATE APRIL 2026
DRAWN	KS	PROJECT PIN-19037	DWG. Nº GP-2
CHECKED	JWI		

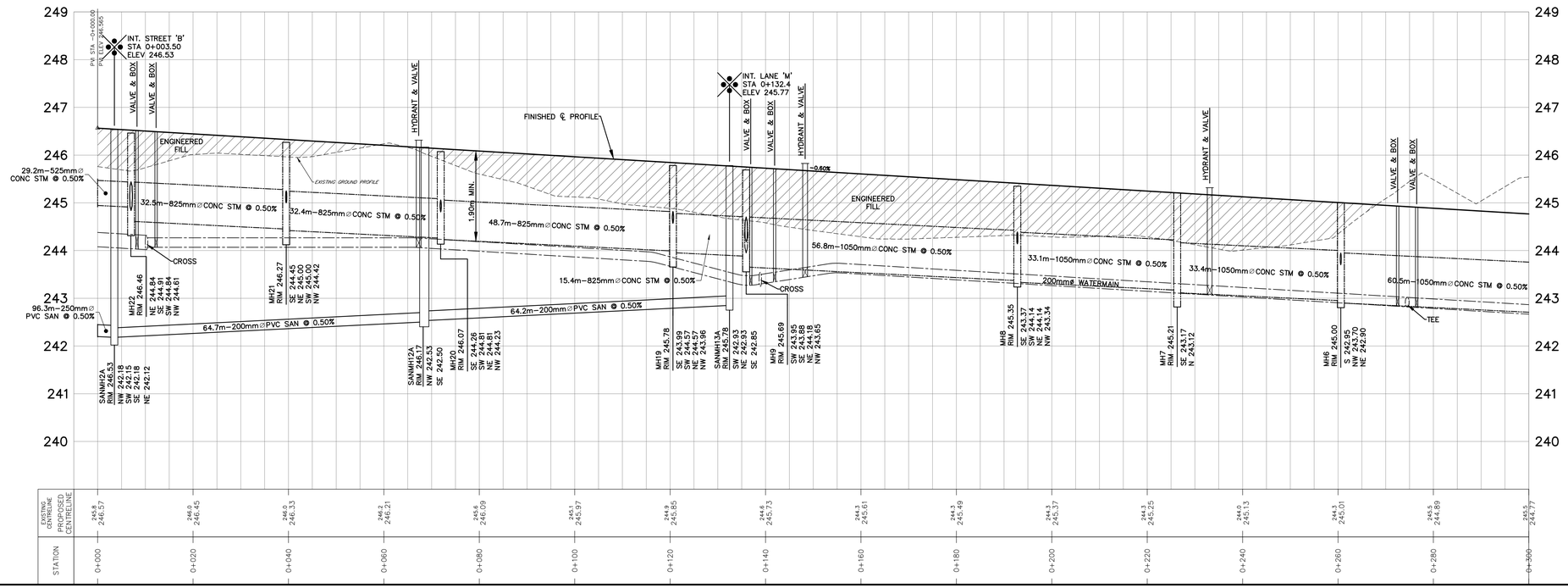




KEYPLAN

LEGEND

- EX.SAN/MH — EX. SANITARY MAINTENANCE HOLE
- H&V. — HYDRANT AND VALVE
- VB — VALVE AND BOX
- MH1A — SANITARY MAINTENANCE HOLE
- MH2 — STORM MAINTENANCE HOLE
- CBMH1 — STORM CATCHBASIN MAINTENANCE HOLE
- CB1 — CATCH BASIN
- DCB3 — DOUBLE CATCH BASIN
- DEPRESSED CURB
- SANITARY SEWER AND FLOW DIRECTION
- STORM SEWER AND FLOW DIRECTION
- WATERMAIN
- DRAFT PLAN OF SUBDIVISION BOUNDARY



BENCHMARK:

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NO.	REVISIONS	DATE	INITIAL
1.	ZBA & DPA SUBMISSION	MAY 2026	JWI

LICENCED PROFESSIONAL ENGINEER — J. W. INGRAM — 100143779 — 26-05-08 — PROVINCE OF ONTARIO

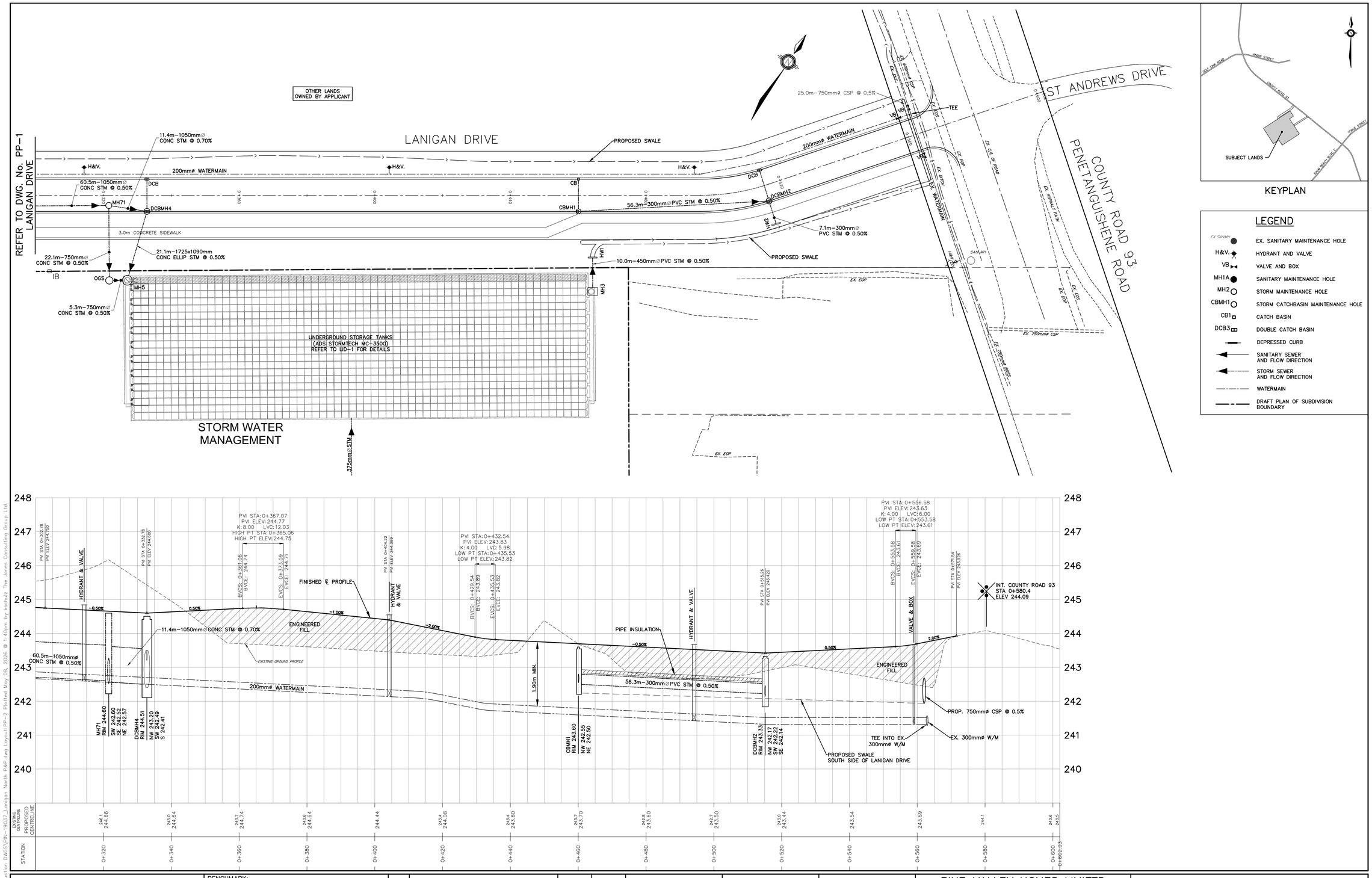
PINE VALLEY HOMES LIMITED
9332 COUNTY ROAD 93
TOWN OF MIDLAND

LANIGAN DRIVE
PLAN AND PROFILE
STA. 0+000 TO STA. 0+300

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	K.S./K.R.	SCALE: H.1:500 V.1:50	DATE FEBRUARY 2026
DRAWN	K.S.	PROJECT PIN-19037	DWG. Nº PP-1
CHECKED	J.W.I.		

G:\Eng_3D\PIN-19037\Production DWGS\PIN-19037_Lanigan North P&P.dwg Layout:PP-1 Plotted May 08, 2026 @ 1:40pm by kschulz The Jones Consulting Group Ltd.


OTHER LANDS
OWNED BY APPLICANT
REFER TO DWG. No. PP-1
LANIGAN DRIVE
LANIGAN DRIVE
ST ANDREWS DRIVE
COUNTY ROAD 93
PENETANGUISHENE ROAD
PROPOSED SWALE
11.4m-1050mmø
CONC STM @ 0.70%
200mmø WATERMAIN
H&V.
60.5m-1050mmø
CONC STM @ 0.50%
DCB
MH71
DCBMH4
CB
CBMH1
DCBMH2
56.3m-300mmøPVC STM @ 0.50%
7.1m-300mmø
PVC STM @ 0.50%
3.0m CONCRETE SIDEWALK
22.1m-750mmø
CONC STM @ 0.50%
21.1m-1725x1090mm
CONC ELLIP STM @ 0.50%
10.0m-450mmøPVC STM @ 0.50%
OGS
MH5
MH3
5.3m-750mmø
CONC STM @ 0.50%
UNDERGROUND STORAGE TANKS
(ADS STORMTECH MC-3500)
REFER TO LID-1 FOR DETAILS
STORM WATER
MANAGEMENT
375mmøSTM
25.0m-750mmø CSP @ 0.5%
TEE
VB
EX. WATERMAIN
EX. SAN MH
EX. EOP
EX. C/L OF ROAD
EX. ASPHALT PATH
EX. 750mmø CSP
EX. 700mmø EOS
EX. 600mmø EOS
EX. 375mmø EOS
EX. 450mmø EOS
EX. 300mmø EOS
EX. CULVERT
EX. DCB
EX. CB
EX. 600mmø CSP
EX. 300mmø CSP
EX. 450mmø CSP
EX. 525mmø CSP
EX. 1200mmø CSP
EX. 1500mmø CSP
EX. 1800mmø CSP
EX. 2100mmø CSP
EX. 2400mmø CSP
EX. 3000mmø CSP
EX. 3600mmø CSP
EX. 4200mmø CSP
EX. 4800mmø CSP
EX. 5400mmø CSP
EX. 6000mmø CSP
EX. 6600mmø CSP
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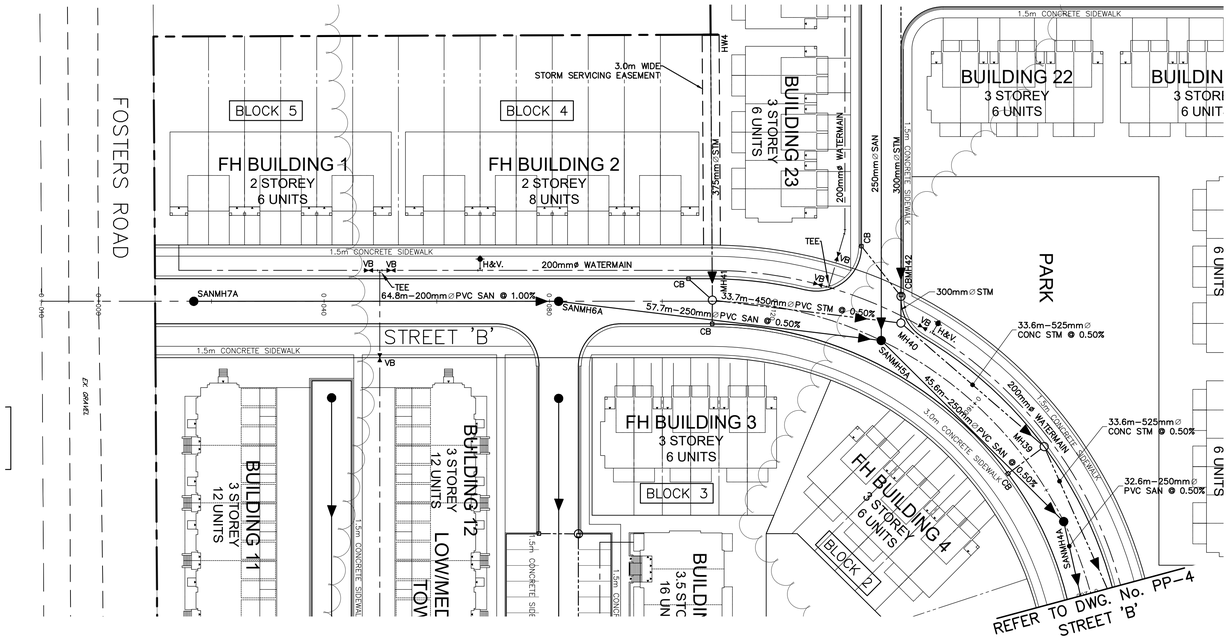
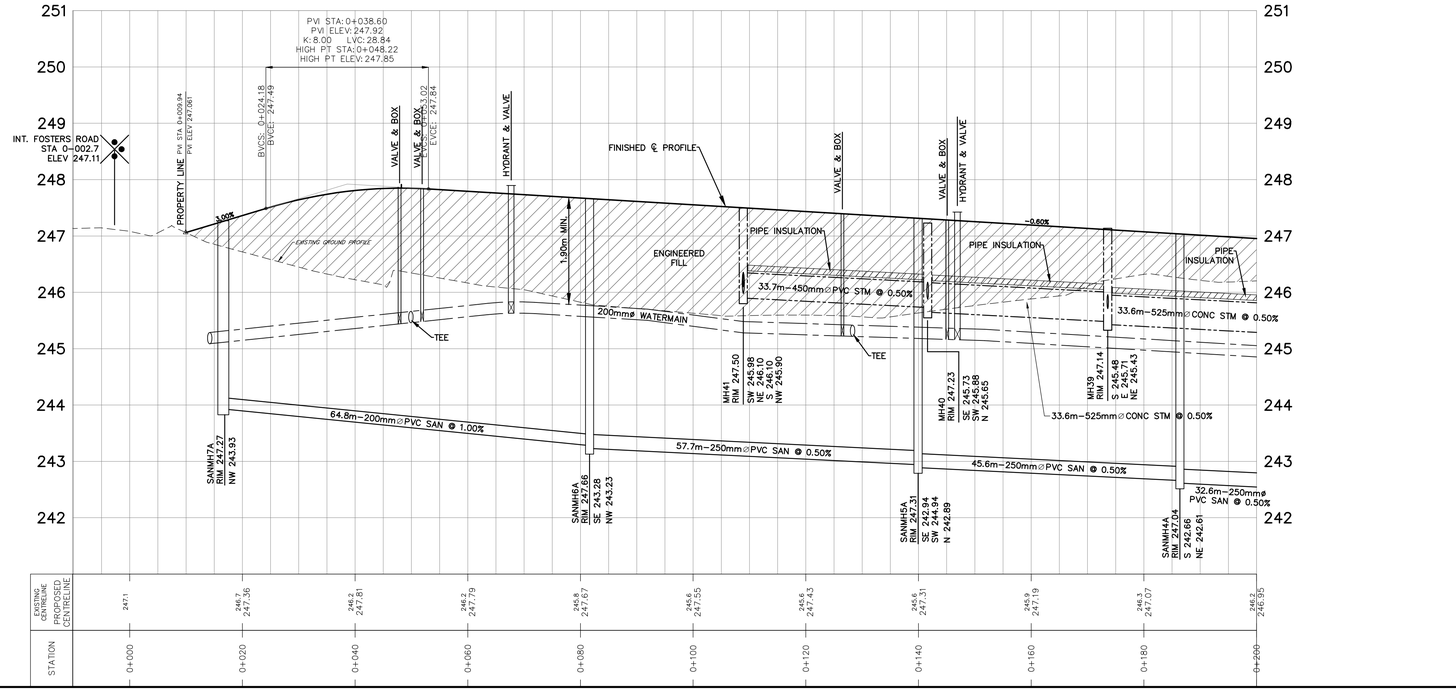
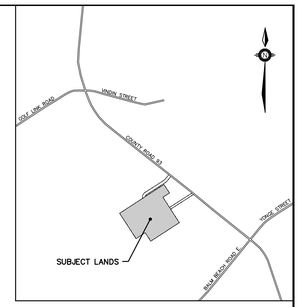
EX. 8400mmø CSP
EX. 9000mmø CSP
EX. 9600mmø CSP
EX.







KEYPLAN

LEGEND

- EX. SANMH — EX. SANITARY MAINTENANCE HOLE
- H&V. — HYDRANT AND VALVE
- VB — VALVE AND BOX
- MH1A — SANITARY MAINTENANCE HOLE
- MH2 — STORM MAINTENANCE HOLE
- CBMH1 — STORM CATCHBASIN MAINTENANCE HOLE
- CB1 — CATCH BASIN
- DCB3 — DOUBLE CATCH BASIN
- DEPRESSED CURB
- SANITARY SEWER AND FLOW DIRECTION
- STORM SEWER AND FLOW DIRECTION
- WATERMAIN
- DRAFT PLAN OF SUBDIVISION BOUNDARY

BENCHMARK:

ELEVATIONS ARE GEODETIC AND DERIVED BY REAL TIME NETWORK OBSERVATIONS, USING THE CAN–NET NETWORK, UTM ZONE 17, NAD83(CSRS),(2020).

NO.	REVISIONS	DATE	INITIAL
1.	ZBA & DPA SUBMISSION	MAY 2026	JWI

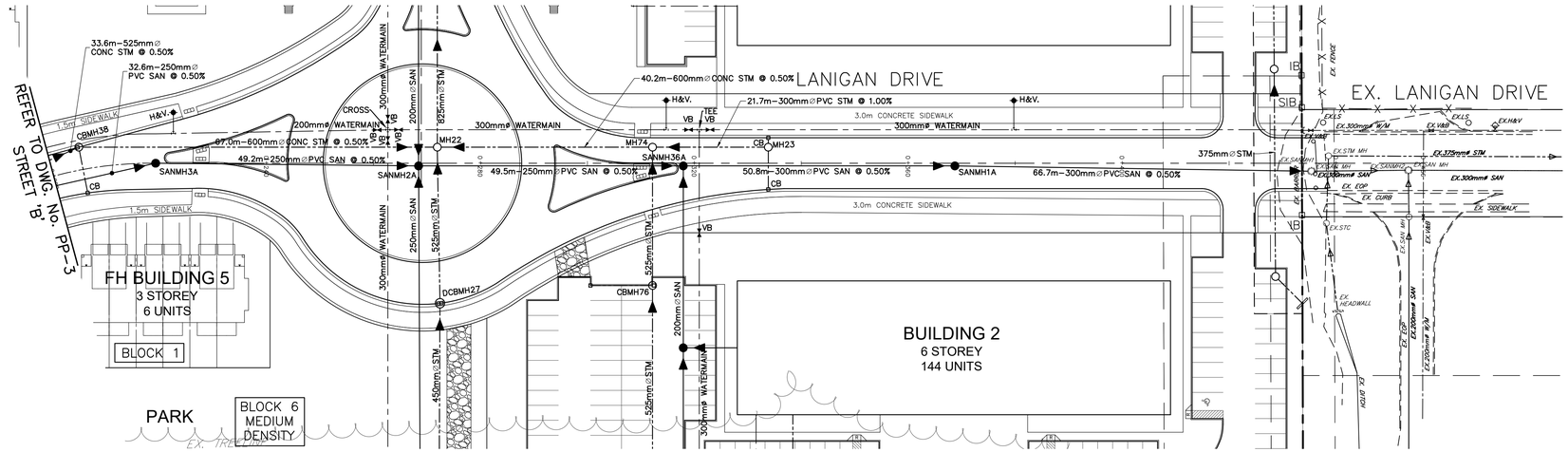
LICENCED PROFESSIONAL ENGINEER — J. W. INGRAM — 100143779 — 26-05-08 — PROVINCE OF ONTARIO

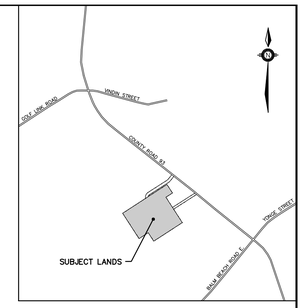
PINE VALLEY HOMES LIMITED
9332 COUNTY ROAD 93
TOWN OF MIDLAND

STREET 'B' & LANIGAN DRIVE
PLAN AND PROFILE
STA. 0+000 TO STA. 0+200

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	K.S./K.R.	SCALE: H.1:500 V.1:50	DATE FEBRUARY 2026
DRAWN	K.S.	PROJECT PIN–19037	DWG. Nº PP–3
CHECKED	J.W.I.		





KEYPLAN

LEGEND

- EX.SANMH — EX. SANITARY MAINTENANCE HOLE
- H&V. — HYDRANT AND VALVE
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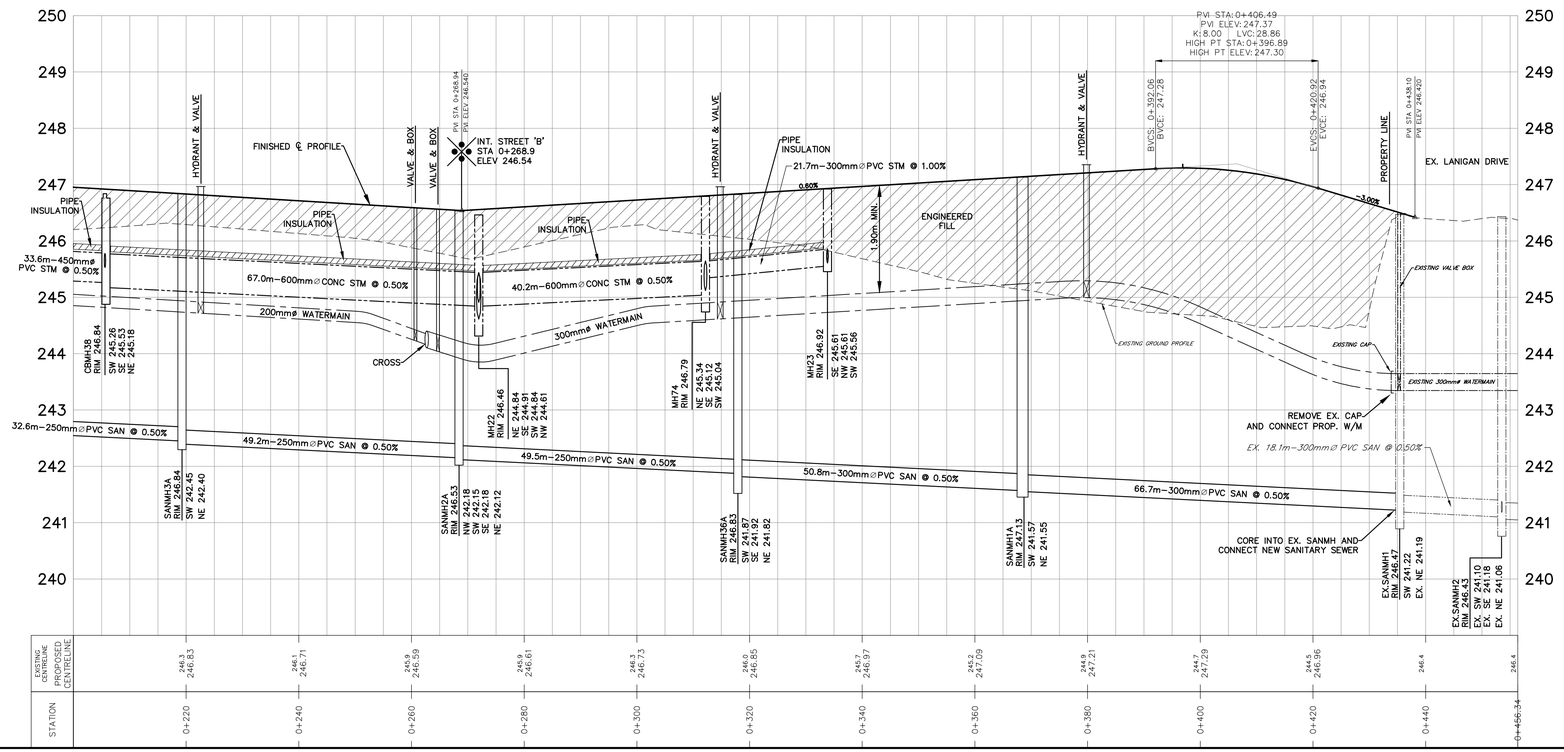
- STORM SEWER AND FLOW DIRECTION
- WATERMAIN
- DRAFT PLAN OF SUBDIVISION BOUNDARY



BENCHMARK:

ELEVATIONS ARE GEODETIC AND DERIVED BY REAL TIME NETWORK OBSERVATIONS, USING THE CAN–NET NETWORK, UTM ZONE 17, NAD83(CSRS),(2020).

NO.	REVISIONS	DATE	INITIAL
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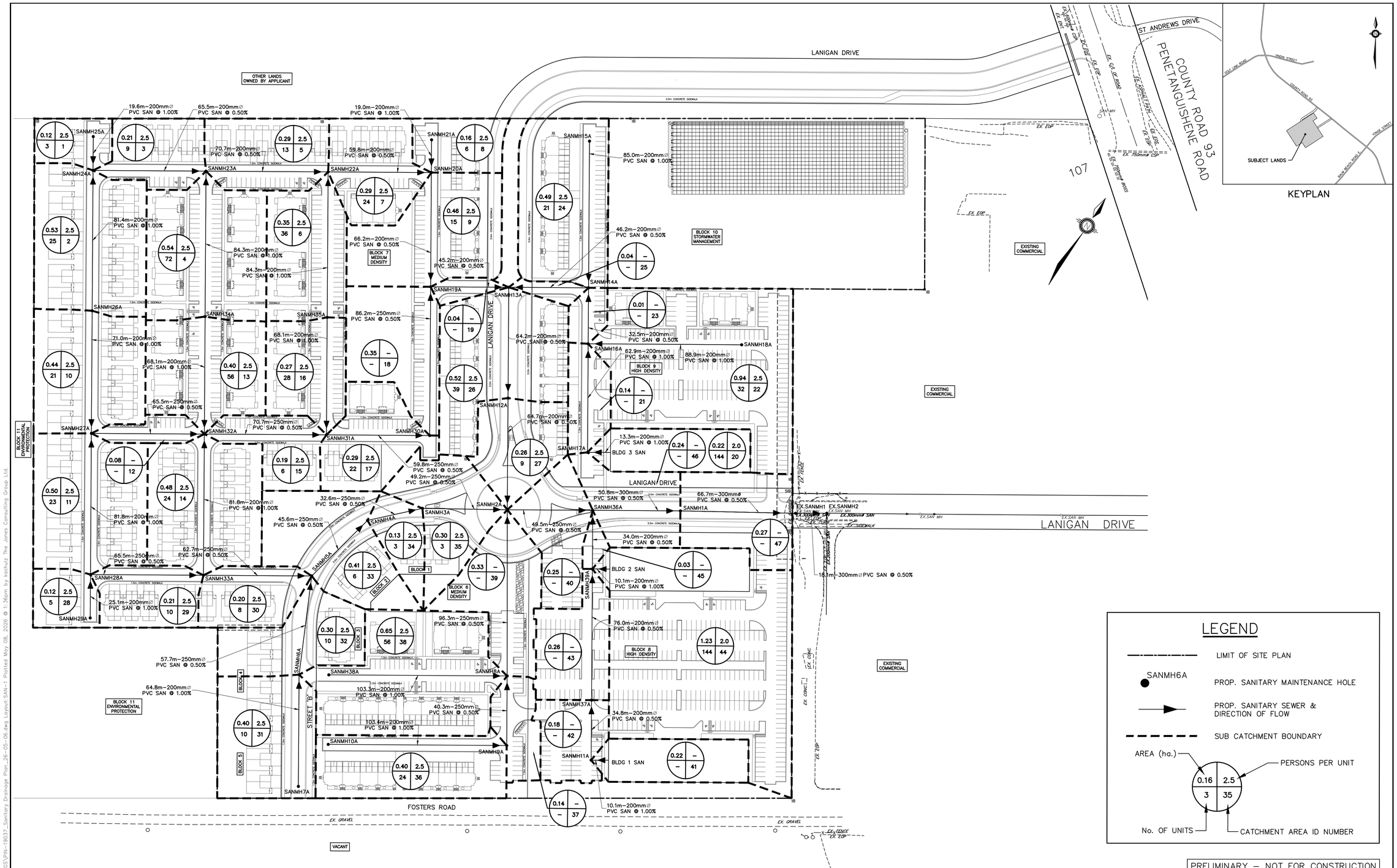
LICENSED PROFESSIONAL ENGINEER — J. W. INGRAM — 100143779 — 26-05-08 — PROVINCE OF ONTARIO

PINE VALLEY HOMES LIMITED
9332 COUNTY ROAD 93
TOWN OF MIDLAND

STREET 'B' & LANIGAN DRIVE
PLAN AND PROFILE
STA. 0+200 TO STA. 0+456

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2688
F. 705.734.1056

DESIGN	K.S./K.R.	SCALE: H.1:500 V.1:50	DATE FEBRUARY 2026
DRAWN	K.S.	PROJECT PIN–19037	DWG. Nº PP–4
CHECKED	J.W.I.		



PRELIMINARY – NOT FOR CONSTRUCTION

BENCHMARK:

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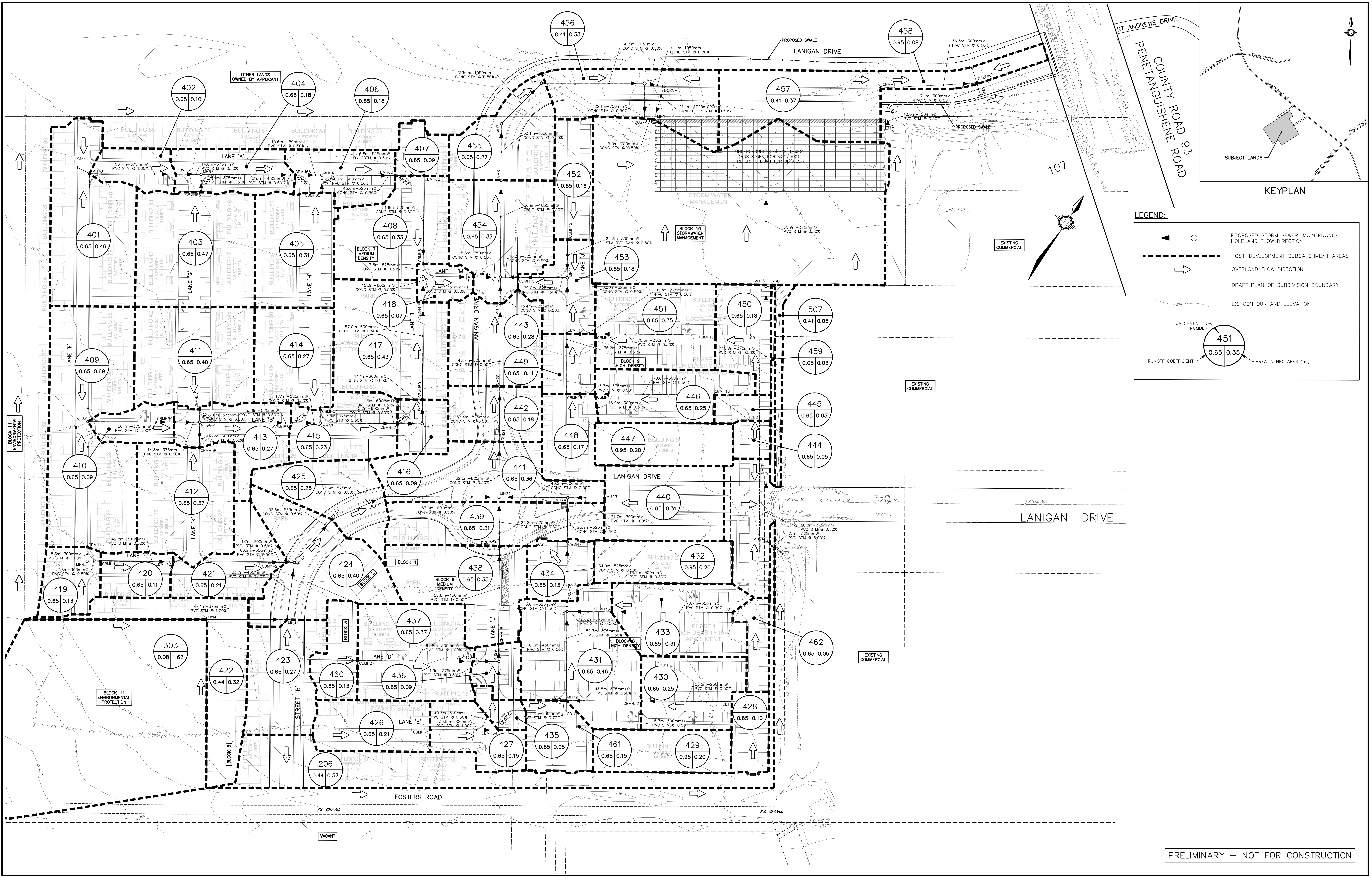
LICENSED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 26-05-08 PROVINCE OF ONTARIO

PINE VALLEY HOMES LIMITED
9332 COUNTY ROAD 93
TOWN OF MIDLAND

SANITARY SEWER SUBCATCHMENT PLAN

JONES CONSULTING GROUP LTD. PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	WS	SCALE: 1:1000	DATE MARCH 2026
DRAWN	WS	PROJECT PIN–19037	DWG. Nº SAN–1
CHECKED	JWI		



PRELIMINARY – NOT FOR CONSTRUCTION

BENCHMARK:

ELEVATIONS ARE GEODETIC AND DERIVED BY REAL TIME NETWORK OBSERVATIONS, USING THE CAN-NET NETWORK, UTM ZONE 17, NAD83(CSRS),(2020).

NO.	REVISIONS	DATE	INITIAL
1.	ZBA & DPA SUBMISSION	MAY 2026	JWI

LICENSED PROFESSIONAL ENGINEER
J. W. INGRAM
100143779
26-05-08
PROVINCE OF ONTARIO

PINE VALLEY HOMES LIMITED
9332 COUNTY ROAD 93
TOWN OF MIDLAND

STORM SEWER SUBCATCHMENT PLAN

JONES
CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN KS/JWI
DRAWN KS
CHECKED JWI
SCALE: 1:1000
PROJECT PIN–19037
DATE MARCH 2026
DWG. Nº STM–1

TOWN OF MIDLAND
STORM SEWER DESIGN SHEET
Pine Valley Estates

Jones Consulting Project No.: PIN-19037
R.P. No.:

5 Year Storm Sewer Sizing

Area ID#	Street / Location	Maintenance Hole From	Maintenance Hole To	Length (m)	Increment C	Increment A	Increment CA	Total CA	Flow Time (min) To	Flow Time (min) In	I (mm/hr)	Total Q (cms)	S (%)	DIA (mm)	Q Full (cms)	V Full (m/s)	Percent Capacity (%)
401	Lane F	MH70	CBMH69	**50.7**	0.65	0.46	0.30	0.30	15.00	0.53	83	0.069	**1.00**	**375**	0.18	1.6	39%
402	Lane A	CBMH69	MH67	**14.8**	0.65	0.10	0.07	0.36	15.53	0.22	81	0.082	**0.50**	**375**	0.12	1.1	66%
403	Lane G	CBMH68	MH67	**10.1**	0.65	0.47	0.31	0.31	15.00	0.15	83	0.070	**0.50**	**375**	0.12	1.1	57%
	Lane A	MH67	CBMH66	**55.1**				0.67	15.75	0.72	81	0.150	**0.50**	**450**	0.20	1.3	74%
404	Lane A	CBMH66	MH64	**15.6**	0.65	0.18	0.12	0.79	16.48	0.21	78	0.171	**0.50**	**450**	0.20	1.3	85%
405	Lane H	CBMH65	MH64	**10.1**	0.65	0.31	0.20	0.20	15.00	0.17	83	0.046	**0.50**	**300**	0.07	1.0	68%
	Lane A	MH64	CBMH63	**43.0**				0.99	16.68	0.51	78	0.214	**0.50**	**525**	0.30	1.4	70%
406	Lane A	CBMH63	CBMH62	**16.8**	0.65	0.18	0.12	1.11	17.19	0.20	77	0.235	**0.50**	**525**	0.30	1.4	77%
407	Lane I	CBMH62	CBMH61	**51.6**	0.65	0.09	0.06	1.16	17.39	0.61	76	0.246	**0.50**	**525**	0.30	1.4	81%
408	Lane I	CBMH61	MH48	**7.6**	0.65	0.33	0.21	1.38	18.00	0.09	75	0.285	**0.50**	**525**	0.30	1.4	94%
409	Lane B	MH60	CBMHS9	**50.7**	0.65	0.69	0.45	0.45	15.00	0.53	83	0.103	**1.00**	**375**	0.18	1.6	59%
410	Lane B	CBMH59	MHS6	**14.8**	0.65	0.09	0.06	0.51	15.53	0.22	81	0.114	**0.50**	**375**	0.12	1.1	92%
412	Lane G	CBMH58	MHS6	**14.8**	0.65	0.37	0.24	0.24	15.00	0.25	83	0.055	**0.50**	**300**	0.07	1.0	81%
411	Lane G	CBMH57	MHS6	**7.6**	0.65	0.40	0.26	0.50	15.00	0.11	83	0.115	**0.50**	**375**	0.12	1.1	93%
	Lane B	MHS6	CBMHS5	**53.6**				1.01	15.75	0.64	81	0.225	**0.50**	**525**	0.30	1.4	74%
413	Lane B	CBMHS5	MHS3	**17.1**	0.65	0.27	0.18	1.18	16.39	0.20	79	0.259	**0.50**	**525**	0.30	1.4	85%
414	Lane H	CBMHS4	MHS3	**7.8**	0.65	0.27	0.18	0.50	15.00	0.12	83	0.115	**0.50**	**375**	0.12	1.1	93%
	Lane B	MHS3	CBMHS2	**45.2**				1.36	16.59	0.49	78	0.295	**0.50**	**600**	0.43	1.5	68%
415	Lane B	CBMHS2	MHS1	**14.6**	0.65	0.23	0.15	1.51	17.08	0.16	77	0.322	**0.50**	**600**	0.43	1.5	74%
	Lane I	MHS1	CBMHS0	**14.1**				1.51	17.24	0.15	76	0.320	**0.50**	**600**	0.43	1.5	74%

TOWN OF MIDLAND
STORM SEWER DESIGN SHEET
Pine Valley Estates

Jones Consulting Project No.: PIN-19037
R.P. No.:

5 Year Storm Sewer Sizing

Area ID#	Street / Location	Maintenance Hole From	Maintenance Hole To	Length (m)	Increment C	Increment A	Increment CA	Total CA	Flow Time (min) To	Flow Time (min) In	I (mm/hr)	Total Q (cms)	S (%)	DIA (mm)	Q Full (cms)	V Full (m/s)	Percent Capacity (%)
416	Lane I	CBMH50	CBMH49	**57.0**	0.65	0.09	0.06	1.57	17.39	0.62	76	0.331	**0.50**	**600**	0.43	1.5	76%
417	Lane I	CBMH49	MH48	**15.0**	0.65	0.43	0.28	1.85	18.01	0.16	74	0.382	**0.50**	**600**	0.43	1.5	88%
	Lane M	MH48	CBMH47	**29.4**				3.22	18.17	0.27	74	0.664	**0.50**	**750**	0.79	1.8	84%
418	Lane M	CBMH47	MH9	**15.8**	0.65	0.07	0.05	3.27	18.45	0.15	73	0.667	**0.50**	**750**	0.79	1.8	85%
419	Lane F	CBMH46	MH45	**8.3**	0.65	0.13	0.08	0.08	15.00	0.10	83	0.019	**1.00**	**300**	0.10	1.4	20%
	Lane C	MH45	CBMH44	**7.8**				0.08	15.10	0.13	82	0.019	**0.50**	**300**	0.07	1.0	28%
	Lane C	CBMH44	CBMH43	**42.8**				0.08	15.24	0.74	82	0.019	**0.50**	**300**	0.07	1.0	28%
420	Lane C	CBMH43	CBMH42	**66.2**	0.65	0.11	0.07	0.16	15.97	1.14	80	0.035	**0.50**	**300**	0.07	1.0	51%
421	Lane C	CBMH42	MH40	**4.7**	0.65	0.21	0.14	0.29	17.11	0.08	77	0.062	**0.50**	**300**	0.07	1.0	91%
303	Street B				0.08	1.62	0.13	0.13	15.00		137	0.049					
422	Street B	HW4	MH41	**47.1**	0.44	0.32	0.14	0.27	15.00	0.49	137	0.103	**1.00**	**375**	0.18	1.6	59%
423	Street B				0.65	0.27	0.18	0.18	15.00		83	0.040					
	Street B	MH41	MH40	**33.7**				0.45	15.49	0.44	81	0.143	**0.50**	**450**	0.20	1.3	71%
	Street B	MH40	MH39	**33.6**				0.74	17.19	0.40	77	0.203	**0.50**	**525**	0.30	1.4	67%
424	Street B	MH39	CBMH38	**33.6**	0.65	0.40	0.26	1.00	17.59	0.40	76	0.256	**0.50**	**525**	0.30	1.4	84%
425	Street B	CBMH38	MH22	**67.0**	0.65	0.25	0.16	1.16	17.99	0.73	75	0.288	**0.50**	**600**	0.43	1.5	66%
428	High Density Blk	CB1	CBMH32	**53.2**	0.65	0.10	0.07	0.07	15.00	1.04	83	0.015	**0.50**	**250**	0.04	0.9	36%
429	High Density Blk	BLDG 1	CBMH32	**16.7**	0.95	0.20	0.19	0.19	15.00	0.29	83	0.044	**0.50**	**300**	0.07	1.0	64%
430	High Density Blk	CBMH32	MH72	**43.8**	0.65	0.25	0.16	0.42	16.04	0.65	80	0.092	**0.50**	**375**	0.12	1.1	75%

TOWN OF MIDLAND
STORM SEWER DESIGN SHEET
Pine Valley Estates

Jones Consulting Project No.: PIN-19037
R.P. No.:

5 Year Storm Sewer Sizing

Area ID#	Street / Location	Maintenance Hole From	Maintenance Hole To	Length (m)	Increment C	Increment A	Increment CA	Total CA	Flow Time (min) To	Flow Time (min) In	I (mm/hr)	Total Q (cms)	S (%)	DIA (mm)	Q Full (cms)	V Full (m/s)	Percent Capacity (%)
461	High Density Blk	MH72	MH73	**52.3**	0.65	0.15	0.10	0.52	16.69	0.78	78	0.111	**0.50**	**375**	0.12	1.1	90%
462	High Density Blk	CB9	CBMH33	**70.7**	0.65	0.05	0.03	0.03	15.00	1.22	83	0.007	**0.50**	**300**	0.07	1.0	11%
432	High Density Blk	BLDG 2	CBMH33	**16.7**	0.95	0.20	0.19	0.19	15.00	0.29	83	0.044	**0.50**	**300**	0.07	1.0	64%
433	High Density Blk	CBMH33	MH73	**26.2**	0.65	0.31	0.20	0.39	16.22	0.39	79	0.086	**0.50**	**375**	0.12	1.1	69%
	High Density Blk	MH73	CBMH75	**6.0**				0.94	17.46	0.07	76	0.198	**0.50**	**525**	0.30	1.4	65%
431	High Density Blk	CBMH75	CBMH76	**34.9**	0.65	0.46	0.30	1.24	17.53	0.41	76	0.260	**0.50**	**525**	0.30	1.4	86%
434	High Density Blk	CBMH76	MH74	**25.9**	0.65	0.13	0.08	1.32	17.95	0.31	75	0.274	**0.50**	**525**	0.30	1.4	90%
426	Lane E	CBMH35	CBMH34	**39.9**	0.65	0.21	0.14	0.14	15.00	0.49	83	0.031	**1.00**	**300**	0.10	1.4	32%
427	Lane L				0.65	0.15	0.10	0.23									
435	Lane L	CBMH34	MH29	**40.3**	0.65	0.05	0.03	0.27	15.49	0.69	81	0.060	**0.50**	**300**	0.07	1.0	88%
460	Lane D	CBMH37	CBMH36	**67.8**	0.65	0.13	0.08	0.08	15.00	0.83	83	0.019	**1.00**	**300**	0.10	1.4	20%
437	Lane D	CBMH36	MH29	**14.9**	0.65	0.37	0.24	0.33	15.83	0.22	80	0.073	**0.50**	**375**	0.12	1.1	58%
	Lane L	MH29	CBMH28	**10.3**				0.59	16.18	0.14	79	0.130	**0.50**	**450**	0.20	1.3	65%
436	Lane L	CBMH28	DCBMH27	**56.8**	0.65	0.09	0.06	0.65	16.32	0.75	79	0.143	**0.50**	**450**	0.20	1.3	71%
438	Lanigan Drive				0.65	0.35	0.23	0.88	17.06		77	0.187					
439	Lanigan Drive	DCBMH27	MH22	**29.2**	0.65	0.31	0.20	1.08	17.06	0.35	77	0.230	**0.50**	**525**	0.30	1.4	76%
440	Lanigan Drive	MH23	MH74	**21.7**	0.65	0.31	0.20	0.20	15.00	0.26	83	0.046	**1.00**	**300**	0.10	1.4	48%
	Lanigan Drive	MH74	MH22	**40.2**				1.52	18.25	0.44	74	0.313	**0.50**	**600**	0.43	1.5	72%
	Lanigan Drive	MH22	MH21	**32.5**				3.76	17.41	0.29	76	0.841	**0.50**	**825**	1.02	1.9	83%
441	Lanigan Drive	MH21	MH20	**32.4**	0.65	0.36	0.23	4.00	17.69	0.28	75	0.883	**0.50**	**825**	1.02	1.9	87%
442	Lanigan Drive	MH20	MH19	**48.7**	0.65	0.18	0.12	4.11	17.98	0.43	75	0.900	**0.50**	**825**	1.02	1.9	89%
443	Lanigan Drive	MH19	MH9	**15.4**	0.65	0.28	0.18	4.30	18.41	0.14	74	0.926	**0.50**	**825**	1.02	1.9	91%
444	High Density Blk	CB2	CBMH18	**25.8**	0.65	0.05	0.03	0.03	15.00	0.50	83	0.007	**0.50**	**250**	0.04	0.9	18%

TOWN OF MIDLAND
STORM SEWER DESIGN SHEET
Pine Valley Estates

Jones Consulting Project No.: PIN-19037
R.P. No.:

5 Year Storm Sewer Sizing

Area ID#	Street / Location	Maintenance Hole From	Maintenance Hole To	Length (m)	Increment C	Increment A	Increment CA	Total CA	Flow Time (min) To	Flow Time (min) In	I (mm/hr)	Total Q (cms)	S (%)	DIA (mm)	Q Full (cms)	V Full (m/s)	Percent Capacity (%)
445	High Density Blk	CBMH18	CBMH17	**70.0**	0.65	0.05	0.03	0.07	15.50	1.21	81	0.015	**0.50**	**300**	0.07	1.0	21%
447	High Density Blk	BLDG 3	CBMH17	**16.9**	0.95	0.20	0.19	0.19	15.00	0.29	83	0.044	**0.50**	**300**	0.07	1.0	64%
446	High Density Blk	CBMH17	CBMH16	**16.7**	0.65	0.25	0.16	0.42	16.71	0.25	78	0.090	**0.50**	**375**	0.12	1.1	73%
448	Lane J	CBMH16	CBMH13	**35.2**	0.65	0.17	0.11	0.53	16.96	0.52	77	0.113	**0.50**	**375**	0.12	1.1	91%
450	High Density Blk	CBMH15	CBMH14	**70.3**	0.65	0.18	0.12	0.12	15.00	1.21	83	0.027	**0.50**	**300**	0.07	1.0	39%
451	High Density Blk	CBMH14	CBMH13	**16.7**	0.65	0.35	0.23	0.34	16.21	0.25	79	0.076	**0.50**	**375**	0.12	1.1	61%
449	Lane J	CBMH13	MH11	**33.0**	0.65	0.11	0.07	0.94	17.48	0.39	76	0.199	**0.50**	**525**	0.30	1.4	65%
452	Lane J	CBMH12	MH11	**22.3**	0.65	0.16	0.10	0.10	15.00	0.38	83	0.024	**0.50**	**300**	0.07	1.0	35%
	Lane M	MH11	CBMH10	**29.0**				1.05	17.87	0.34	75	0.218	**0.50**	**525**	0.30	1.4	72%
453	Lane M	CBMH10	MH9	**10.3**	0.65	0.18	0.12	1.17	18.21	0.12	74	0.239	**0.50**	**525**	0.30	1.4	79%
	Lanigan Drive	MH9	MH8	**56.8**				8.73	18.54	0.42	73	1.824	**0.50**	**1050**	1.93	2.2	94%
454	Lanigan Drive	MH8	MH7	**33.1**	0.65	0.37	0.24	8.97	18.97	0.25	72	1.849	**0.50**	**1050**	1.93	2.2	96%
	Lanigan Drive	MH7	MH6	**33.4**				8.97	19.21	0.25	72	1.835	**0.50**	**1050**	1.93	2.2	95%
455	Lanigan Drive	MH6	MH71	**60.5**	0.65	0.27	0.18	9.15	19.46	0.45	71	1.856	**0.50**	**1050**	1.93	2.2	96%
	Lanigan Drive	MH71	DCBMH4	**11.4**				9.15	19.92	0.07	70	1.832	**0.70**	**1050**	2.28	2.6	80%
	Lanigan Drive	DCBMH4	MH5	**21.1**	0.41	0.33	0.14	9.28	19.99	0.13	117	3.008	**0.50**	**1350**	3.77	2.6	80%
	Lanigan Drive	MH71	OGS	**22.1**				*25mm Event Flow Taken from OTTHYMO Model:*				0.642	**0.50**	**750**	0.79	1.8	82%
	SWM Block	OGS	MH5	**5.3**				*25mm Event Flow Taken from OTTHYMO Model:*				0.642	**0.50**	**750**	0.79	1.8	82%
206	East Boundary	HW3	MH24	**7.1**	0.44	0.57	0.25	0.25	15.00	0.03	137	0.096	**5.00**	**375**	0.39	3.5	24%
	East Boundary	MH24	MH25	**38.8**				0.25	15.03	0.58	137	0.096	**0.50**	**375**	0.12	1.1	77%
	East Boundary	MH25	MH26	**110.0**				0.25	15.61	1.63	135	0.094	**0.50**	**375**	0.12	1.1	76%

TOWN OF MIDLAND
STORM SEWER DESIGN SHEET
Pine Valley Estates

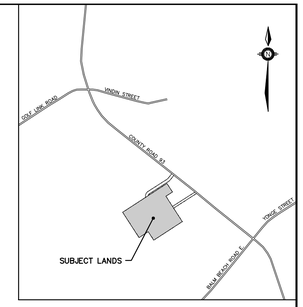
Jones Consulting Project No.: PIN-19037
R.P. No.:

5 Year Storm Sewer Sizing

Area ID#	Street / Location	Maintenance Hole From	Maintenance Hole To	Length (m)	Increment C	Increment A	Increment CA	Total CA	Flow Time (min) To	Flow Time (min) In	I (mm/hr)	Total Q (cms)	S (%)	DIA (mm)	Q Full (cms)	V Full (m/s)	Percent Capacity (%)
507	East Boundary				0.41	0.05	0.02	0.02	15.00		137	0.008					
459	East Boundary	CB3	MH26	**4.6**	0.05	0.03	0.00	0.02	15.00	0.08	137	0.008	**0.70**	**250**	0.05	1.0	17%
	East Boundary	MH26	LID	**55.9**				0.27	17.24	0.83	127	0.096	**0.50**	**375**	0.12	1.1	78%
457	Lanigan Drive	CBMH1	DCBMH2	**56.3**	0.41	0.37	0.15	0.15	15.00	0.97	83	0.035	**0.50**	**300**	0.07	1.0	51%
458	Lanigan Drive	DCBMH2	HW2	**3.8**	0.95	0.08	0.08	0.23	15.97	0.07	80	0.051	**0.50**	**300**	0.07	1.0	74%

Note: Values in red include the 100-year flow/intensity generated by Catchments 303 & 422 and Catchments 206, 507 & 459.
Note: Values in orange are taken from the OTTHYMO model to size stm sewers for the 25mm Water Quality Event
Note: Values in blue represent the equivalent nominal pipe size for a 1725mm x 1090mm elliptical pipe
Note: Cells highlighted in green represent pipes sized for the 100-year event
Stormwater Information:
$I = A/(tc + B)^C$ — $Q = (C^*I^*A)/360$ (cms)
A = 5 Year-1135.40, 100 Year-2193.10 — C: Runoff Coefficiant
B = 5 Year-7.5, 100 Year-9.04 — I: Rainfall Intensity (mm/hr)(See IDF Curve for the 5-year storm)
C= 5 Year-0.841, 100 Year-0.871 — A: Area (ha)
t_c = Time of Concentration (mins.)
Town of Midland IDF data taken from Section 5.2.5: Orillia Atmospheric Environment Weather Station
**Equivalent Diameter Used

Date: 6-May-26
Calculated By: KR
Checked By: JWI



KEYPLAN

Pine Valley Homes - 9332 County Road 93
SANITARY SEWER DESIGN
Development Details Basis

CLIENT: Pine Valley Homes
PROJECT: Pine Valley Estates Midland
FILE: PIN-19037 (50)

DATE: May 2026
DESIGN: WS
CHECKED: JI

n ≥ 0.013
M = 1+[14/(4+P^0.5)] (Harmon peaking factor where; 2 ≤ M ≤ 4)
Q_p = P*q*M/86.4 (Peak population flow where; q = 450 L/day/person; P = population in thousands)
Q_i = I*A (Peak extraneous flow: I= 0.23L/s/ha over development area)
$Q_{tot} = Q_p + Q_i$ (Total peak flow as the sum of peak population flow and peak extraneous flow)

FILE NO PIN-19037
CONTRACT / PROJECT Pine Valley Homes

CATCHMENT ID	MAINTENANCE HOLE FROM	MAINTENANCE HOLE TO	DWELL UNITS	DENSITY P.P.U.	POP. (P)	POP (ACC)	M PEAKING FACTOR	Q_p (Peak Residential Flow) (L/S)	AREA (ha)	AREA (ACC) (ha)	Q_i (Infiltration Flow) (L/S)	Q_{tot} (Total Peak Flow) (L/S)	L (m)	D (mm)	S (%)	Q Full (L/S)	V Full (m/s)	V Partial (m/s)	Velocity > 0.6 (m/s)	Velocity < 4.0 (m/s)
1	SANMH25	SANMH24	3	2.5	8	8	4.00	0.156	0.12	0.12	0.028	0.184	19.6	200	1.00	32.80	1.04	0.265	Ok	Ok
2	SANMH26	SANMH24	25	2.5	63	63	4.00	1.302	0.53	0.53	0.123	1.425	81.4	200	1.00	32.80	1.04	0.508	Ok	Ok
3	SANMH24	SANMH23	9	2.5	23	93	4.00	1.927	0.21	0.86	0.199	2.126	65.5	250	0.50	42.05	0.86	0.434	Ok	Ok
4	SANMH34A	SANMH23A	72	2.5	180	180	4.00	3.750	0.54	0.54	0.123	3.873	84.3	200	1.00	32.80	1.04	0.694	Ok	Ok
5	SANMH23A	SANMH22A	13	2.5	33	305	4.00	6.354	0.29	1.69	0.388	6.742	70.7	250	0.50	42.05	0.86	0.616	Ok	Ok
6	SANMH35A	SANMH22A	36	2.5	90	90	4.00	1.875	0.35	0.35	0.081	1.956	84.3	200	1.00	32.80	1.04	0.566	Ok	Ok
7	SANMH22A	SANMH20A	24	2.5	60	455	3.99	9.467	0.29	2.32	0.534	10.001	59.8	250	0.50	42.05	0.86	0.691	Ok	Ok
8	SANMH21A	SANMH20A	6	2.5	15	15	4.00	0.313	0.16	0.16	0.038	0.350	19.0	200	1.00	32.80	1.04	0.327	Ok	Ok
9	SANMH20A	SANMH19A	15	2.5	38	508	3.97	10.496	0.46	2.94	0.677	11.173	66.2	250	0.50	42.05	0.86	0.711	Ok	Ok
10	SANMH26A	SANMH27A	21	2.5	53	53	4.00	1.094	0.44	0.44	0.101	1.195	71.0	200	1.00	32.80	1.04	0.482	Ok	Ok
11	SANMH28A	SANMH27A	23	2.5	58	58	4.00	1.198	0.50	0.50	0.115	1.313	81.8	200	1.00	32.80	1.04	0.494	Ok	Ok
12	SANMH27A	SANMH32A	0	0.0	0	110	4.00	2.292	0.08	1.02	0.234	2.526	65.5	250	0.50	42.05	0.86	0.457	Ok	Ok
13	SANMH34A	SANMH32A	56	2.5	140	140	4.00	2.917	0.40	0.40	0.091	3.008	68.1	200	1.00	32.80	1.04	0.644	Ok	Ok
14	SANMH33A	SANMH32A	24	2.5	60	60	4.00	1.250	0.48	0.48	0.111	1.361	81.8	200	1.00	32.80	1.04	0.501	Ok	Ok
15	SANMH32A	SANMH31A	6	2.5	15	325	4.00	6.771	0.19	2.09	0.480	7.251	70.7	250	0.50	42.05	0.86	0.628	Ok	Ok
16	SANMH35A	SANMH31A	28	2.5	70	70	4.00	1.458	0.27	0.27	0.062	1.520	68.1	200	1.00	32.80	1.04	0.524	Ok	Ok
17	SANMH31A	SANMH30A	22	2.5	55	450	4.00	9.369	0.29	2.65	0.610	9.979	59.8	250	0.50	42.05	0.86	0.689	Ok	Ok
18	SANMH30A	SANMH19A	0	0.0	0	450	4.00	9.369	0.35	3.00	0.691	10.059	86.2	250	0.50	42.05	0.86	0.689	Ok	Ok
19	SANMH19A	SANMH13A	0	0.0	0	958	3.81	19.011	0.04	5.99	1.377	20.388	45.2	250	0.50	42.05	0.86	0.835	Ok	Ok
20	BLDG3	SANMH17A	144	2.0	288	288	4.00	6.000	0.22	0.22	0.050	6.050	13.3	200	1.00	32.8	1.044	0.794	Ok	Ok
21	SANMH17A	SANMH16A	0	0.0	0	288	4.00	6.000	0.14	0.35	0.082	6.082	62.9	200	1.00	32.80	1.04	0.794	Ok	Ok
22	SANMH18A	SANMH16A	32	2.5	80	80	4.00	1.667	0.94	0.94	0.216	1.883	88.9	200	1.00	32.80	1.04	0.546	Ok	Ok
23	SANMH16A	SANMH14A	0	0.0	0	368	4.00	7.667	0.01	1.30	0.300	7.967	32.5	200	0.50	23.19	0.74	0.682	Ok	Ok
24	SANMH15A	SANMH14A	21	2.5	53	53	4.00	1.094	0.49	0.49	0.113	1.207	85.0	200	1.00	32.80	1.04	0.482	Ok	Ok
25	SANMH14A	SANMH13A	0	0.0	0	421	4.00	8.760	0.04	1.84	0.422	9.183	46.2	200	0.50	23.19	0.74	0.686	Ok	Ok
26	SANMH13A	SANMH12A	39	2.5	98	1476	3.68	28.317	0.52	8.35	1.920	30.236	64.2	250	0.50	42.05	0.86	0.919	Ok	Ok
27	SANMH12A	SANMH2A	9	2.5	23	1498	3.68	28.711	0.26	8.60	1.979	30.690	64.7	250	0.50	42.05	0.86	0.922	Ok	Ok
28	SANMH29A	SANMH28A	5	2.5	13	13	4.00	0.260	0.12	0.12	0.029	0.289	25.1	200	1.00	32.80	1.04	0.312	Ok	Ok
29	SANMH28A	SANMH33A	10	2.5	25	38	4.00	0.781	0.21	0.33	0.077	0.858	65.5	250	0.50	42.05	0.86	0.330	Ok	Ok
30	SANMH33A	SANMH5A	8	2.5	20	58	4.00	1.198	0.20	0.53	0.123	1.321	62.7	250	0.50	42.05	0.86	0.375	Ok	Ok
31	SANMH7A	SANMH6A	10	2.5	25	25	4.00	0.521	0.40	0.40	0.093	0.613	64.8	200	1.00	32.80	1.04	0.383	Ok	Ok
32	SANMH6A	SANMH5A	10	2.5	25	50	4.00	1.042	0.30	0.70	0.162	1.204	57.7	250	0.50	42.05	0.86	0.361	Ok	Ok
33	SANMH5A	SANMH4A	6	2.5	15	123	4.00	2.552	0.41	1.65	0.380	2.932	45.6	250	0.50	42.05	0.86	0.473	Ok	Ok
34	SANMH4A	SANMH3A	3	2.5	8	130	4.00	2.708	0.13	1.78	0.409	3.117	32.6	250	0.50	42.05	0.86	0.480	Ok	Ok
35	SANMH3A	SANMH2A	3	2.5	8	138	4.00	2.865	0.30	2.08	0.478	3.343	49.2	250	0.50	42.05	0.86	0.488	Ok	Ok
36	SANMH10A	SANMH9A	24	2.5	60	60	4.00	1.250	0.40	0.40	0.092	1.342	103.4	200	1.00	32.80	1.04	0.501	Ok	Ok
37	SANMH9A	SANMH8A	0	0.0	0	60	4.00	1.250	0.14	0.

PRELIMINARY – NOT FOR CONSTRUCTION

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NO.	REVISIONS	DATE	INITIAL
1.	ZBA & DPA SUBMISSION	MAY 2026	JWI

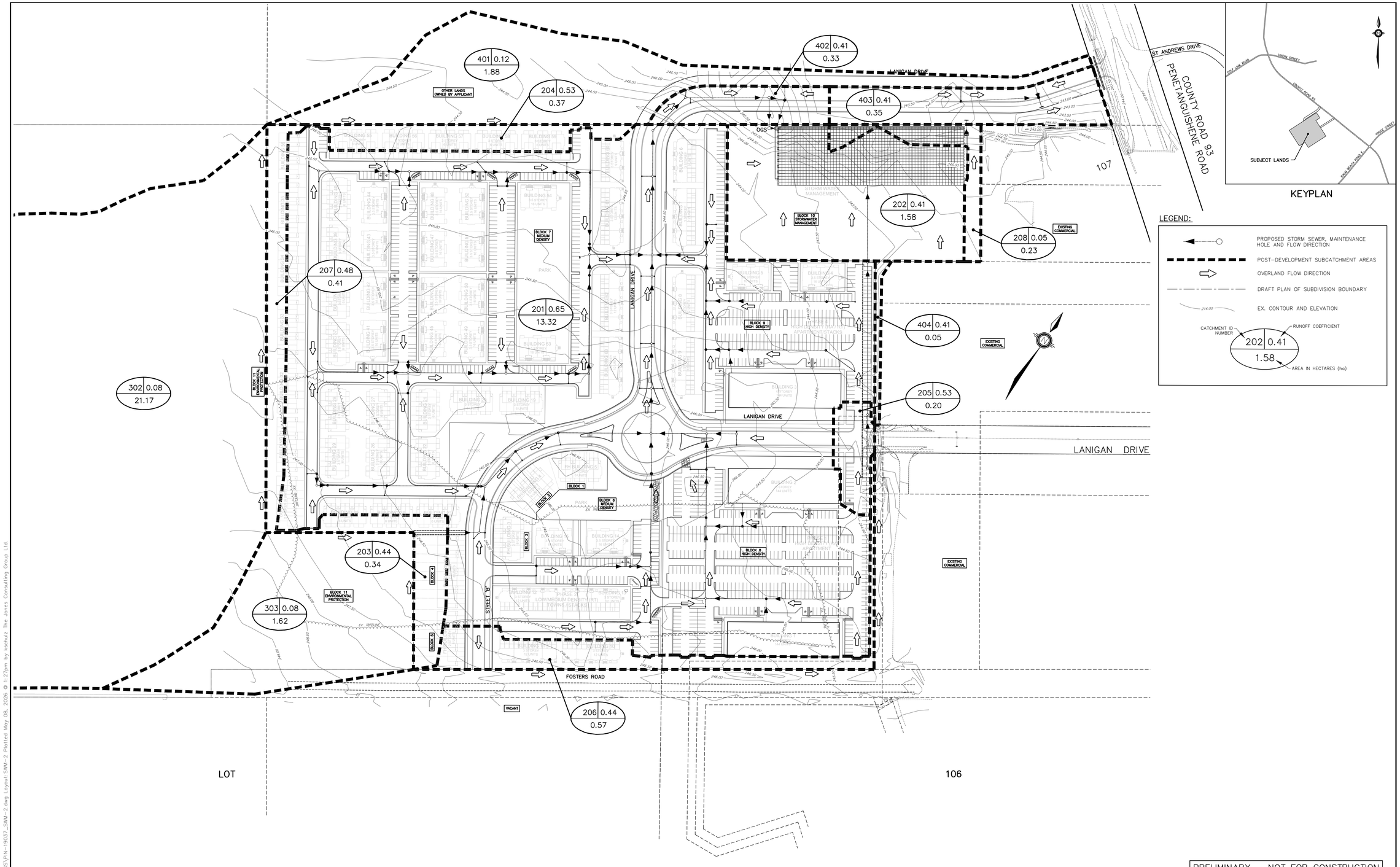
LICENSED PROFESSIONAL ENGINEER
J. W. INGRAM
100143779
26-05-08
PROVINCE OF ONTARIO

PINE VALLEY HOMES LIMITED
9332 COUNTY ROAD 93
TOWN OF MIDLAND

STORMWATER MANAGEMENT PLAN
PRE-DEVELOPMENT CONDITIONS

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
P. 705.734.2538
F. 705.734.1056

DESIGN	KS/KR	SCALE: 1:1250	DATE APRIL 2026
DRAWN	KS	PROJECT PIN-19037	DWG. Nº SWM-1
CHECKED	JWI		



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NO.	REVISIONS	DATE	INITIAL
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LICENSED PROFESSIONAL ENGINEER
J. W. INGRAM
100149779
26-05-08
PROVINCE OF ONTARIO

PINE VALLEY HOMES LIMITED
9332 COUNTY ROAD 93
TOWN OF MIDLAND

STORMWATER MANAGEMENT PLAN
POST-DEVELOPMENT CONDITIONS

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
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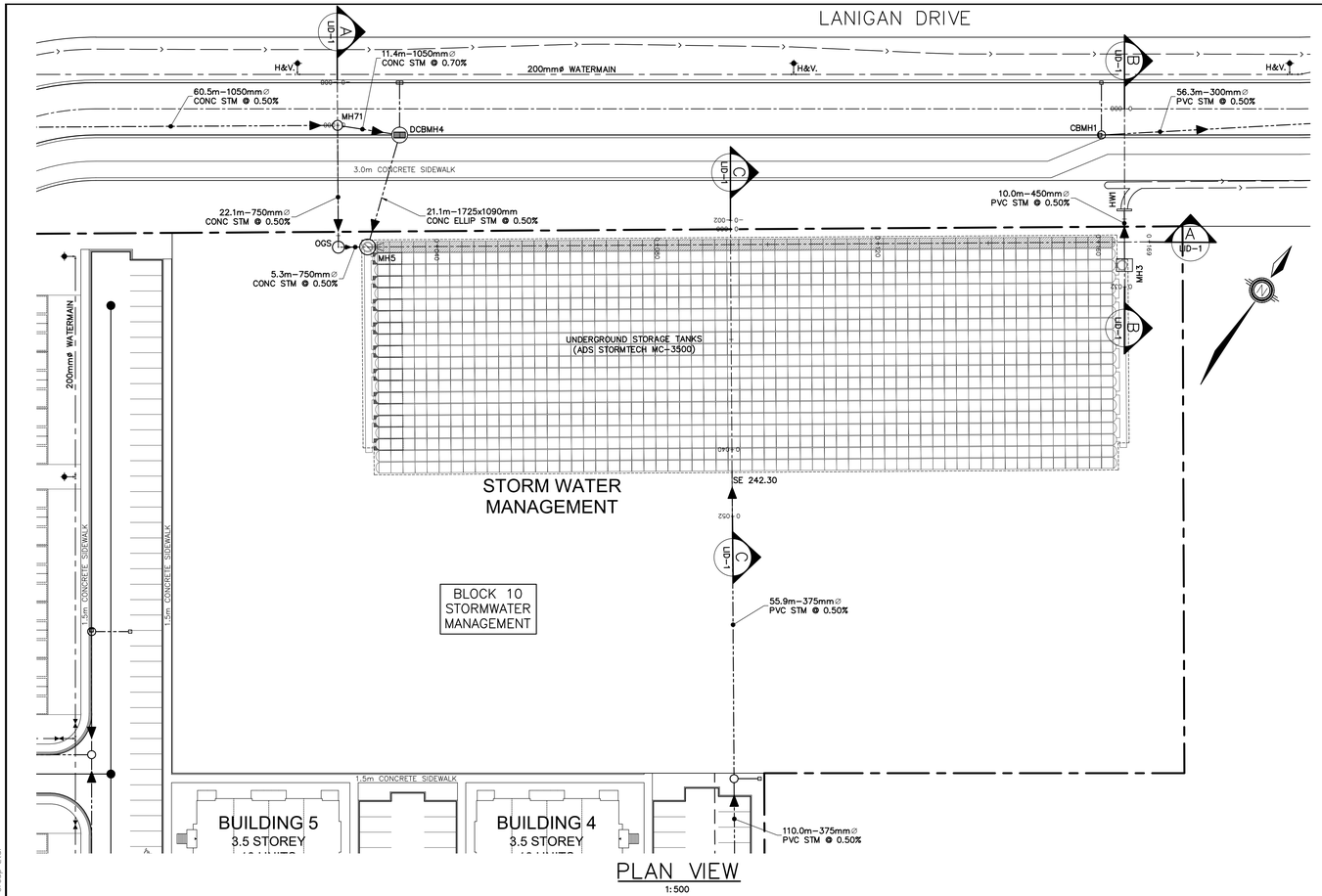
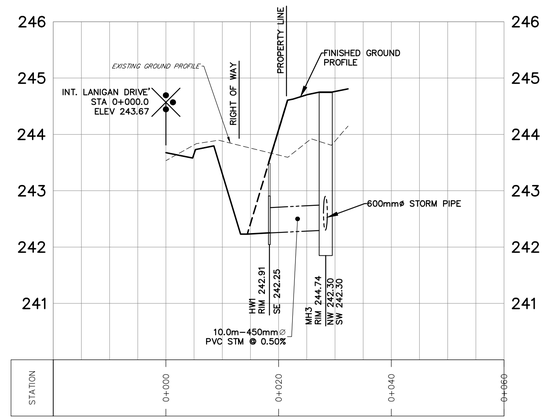
DESIGN	KS/KR	SCALE: 1:1250	DATE APRIL 2026
DRAWN	KS	PROJECT PIN-19037	DWG. Nº SWM-2
CHECKED	JWI		



PLAN VIEW

1:500



SECTION B–B

HOR. 1:500
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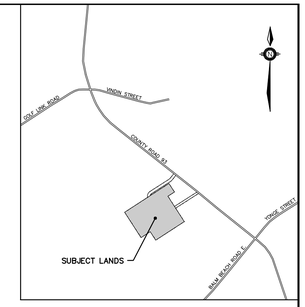

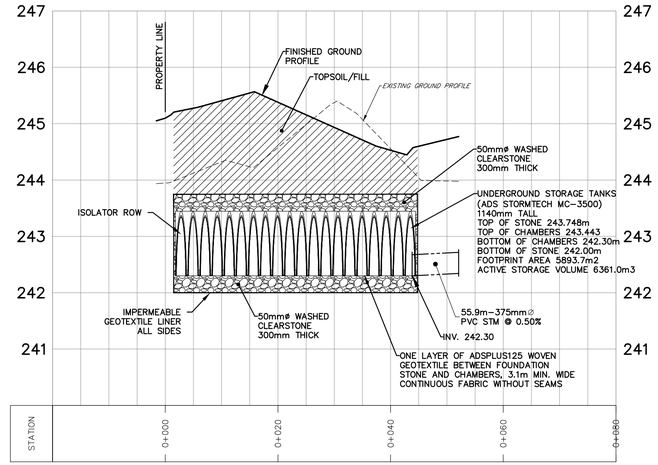

SECTION C–C

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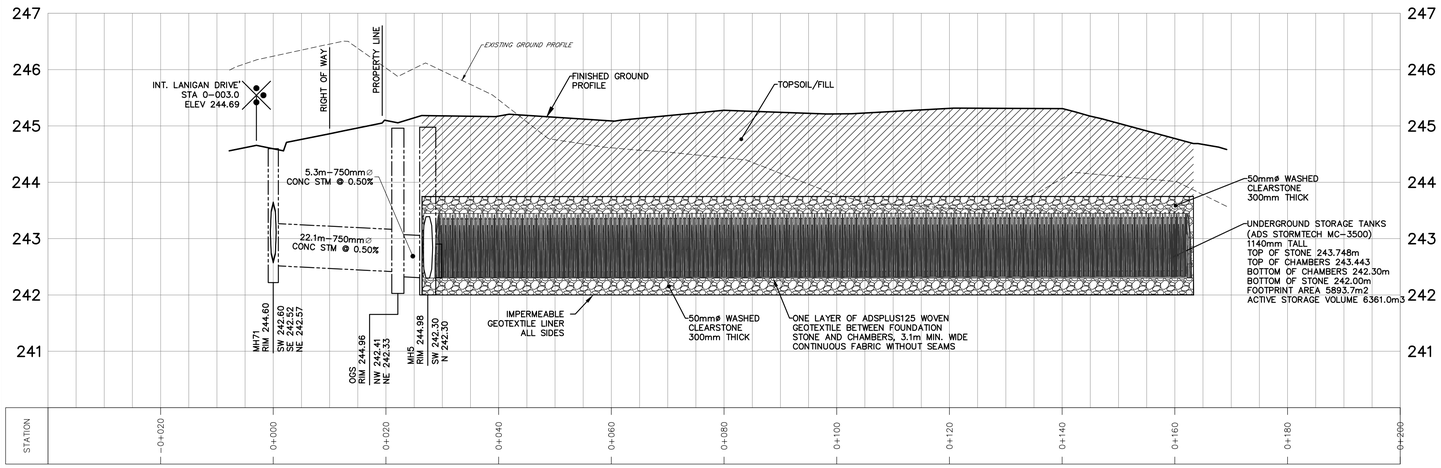

SECTION A–A

HOR. 1:500
VERT. 1:50

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LICENCED PROFESSIONAL ENGINEER J. W. INGRAM 100143779 26-05-08 PROVINCE OF ONTARIO

PINE VALLEY HOMES LIMITED
9332 COUNTY ROAD 93
TOWN OF MIDLAND

LID SECTIONS & DETAILS
BELOW GRADE SWM FACILITY

JONES CONSULTING GROUP LTD.
PLANNERS & ENGINEERS
229 Mapleview Dr. E, Unit 1
Barrie, ON L4N 0W5
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DESIGN	KS/JWI	SCALE: AS NOTED	DATE FEBRUARY 2026
DRAWN	KS	PROJECT PIN–19037	DWG. Nº LID–1
CHECKED	JWI		