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City of St. Thomas
545 Talbot Street
St. Thomas, ON N5P 3V7

April 2, 2026
SBM-24-2689

Attn: Shayne Reitsma, Manager of Development and Compliance

Re: Feasibility Servicing Brief
Proposed Commercial Development
9784 Sunset Drive, St. Thomas, ON

1. INTRODUCTION

This Feasibility Servicing Brief (Brief) has been prepared by Strik, Baldinelli, Moniz Ltd. (SBM) for VKS Sunset Plaza Inc. c/o Venkat Perugu and the City of St. Thomas (City) to address the servicing feasibility for the proposed 1.31 ha commercial development located at 9784 Sunset Drive, St. Thomas, ON.

The subject site abuts vacant lands to the northeast, an existing commercial development to the northwest, the Major Line Right-Of-Way (ROW) to the southeast, and Sunset Drive ROW to the southwest. The proposed development will consist of two (2) new one-storey multi-unit commercial buildings and two (2) new one-storey restaurants with associated surface parking and landscaping. Please refer to the Site Plan prepared by Patrick David Trottier Architect, dated February 4, 2026, provided in Appendix A.

This Brief is to determine the adequacy of the existing City services in support of the Official Plan Amendment (OPA) and Zoning By-Law Amendment (ZBA) applications for the proposed commercial development.

Design requirements used in this Brief have been based on the current City of St. Thomas Design Guidelines Manual (STDGM), revised 2023, the Ministry of the Environment Conservation and Parks (MECP) Design Guidelines for Drinking Water Systems 2008 (DGDWS), and MECP Design Guidelines for Sewage Works 2008 (DGWS).

2. WATER SERVICING

According to the Sandymount Subdivision drawing #4 “General Plan of Services – External Sunset” prepared by CJDL Consulting Engineers, dated June 27, 2025, provided in Appendix A, there is a future 300mm diameter watermain proposed in the Major Line ROW. It is proposed that this commercial development is to be serviced with a water service connection to the future 300mm diameter watermain in the Major Line ROW.

Water distribution system and requirement for specific demand conditions were determined according to Section 9.2 of the STDGM. Specific requirements from the STDGM are outlined below:

- Maximum day demand plus fire flow at a pressure not less than 140 kPa (20 psi) at any hydrant lateral or potential fire service connections.
- Maximum hourly demand at a pressure not less than 275 kPa (40 psi) in residential areas and not less than 310 kPa (45 psi) in industrial areas.
- Average day demand at a pressure not less than 275 kPa (40 psi).
- Maximum residential pressure should not exceed 690 kPa (100 psi) and a minimum residual pressure (peak hour) shall not be below 275 kPa (40 psi)

- The pipes shall be designed so that the velocity for normal rates will be between 0.6 and 1.5 m/s.
- The maximum velocity for fire demand shall not exceed 3.0 m/s.

2.1 DOMESTIC WATER SUPPLY

The average day domestic water demand for the proposed development was calculated to be 0.42 L/s using the commercial demand of 28 m^3/ ha/day (per Section 9.2.2.3. of STDGM). The maximum day demand and the maximum hour demand were calculated to be 1.49 L/s and 3.31 L/s, respectively. As shown on the Domestic Water Demand calculations, provided in Appendix B, the proposed 150mm diameter water service results in a velocity of 0.187 m/s which is less than the required maximum of 1.5 m/s per Section 9.2.1. of STDGM.

2.2 WATER SUPPLY FOR FIRE PROTECTION

Based on the Sandymount Subdivision drawing #4 "General Plan of Services – External Sunset" prepared by CJDL Consulting Engineers, dated June 27, 2025, provided in Appendix A, there are no existing nor future hydrants located near the subject site.

Since the buildings are proposed to be constructed on private property and sprinkler systems are required, the fire-fighting demand is determined as per NFPA-13. The proposed building is conservatively determined to have 'Ordinary Occupancy – Group 1' (refer to Annex A – Section A.5.3.1 of the NFPA-13). Therefore, a supply flow rate of 1893.00 L/min is required as per NFPA-13; when combined with the maximum day demand, this resulted in a required fire flow + maximum day demand rate of 1982.40 L/min (33.04 L/s). Since the Sandymount Subdivision is currently being constructed, there are no hydrant flow tests available at this time. Therefore, it is proposed that this item be deferred to detailed design for approval. As shown in the Fire-Fighting Flow NFPA#13 calculations, provided in Appendix B, the velocity for the proposed 150mm water service is 1.87 m/s, which is below the maximum allowable velocity of 3.0 m/s specified in section 9.2.1 of the STDGM. However, the actual diameter will be determined once the watermain in Major Line ROW has been approved by the city of St. Thomas for the neighboring subdivision which will then confirm the watermain pressures and flow capacities.

Based on the current OBC requirements, a fire hydrant should be located 45m from the fire fighters' connection (i.e Siamese connection). Since, there are no existing nor future hydrants located within 45m of the subject site, a new on-site hydrant(s) is required. The location(s) will be determined at the time of detailed design for approval.

3. SANITARY SERVICING

According to the Sandymount Subdivision drawing #4 "General Plan of Services – External Sunset" prepared by CJDL Consulting Engineers, dated June 27, 2025, provided in Appendix A, a future 200 mm diameter sanitary sewer is planned within the Major Line ROW. The proposed development will be serviced by a new 200 mm sanitary connection to this future sewer on Major Line.

The anticipated flows for the proposed development are calculated as shown in the Sanitary Service Design Sheet, provided in Appendix C. Using a commercial allowance flow of 28 m^3/ha/day (per Section 6.1.4 STDGM) and site area of 1.31 ha results in a peak sanitary flow of 1.96 L/s. When combined with the infiltration allowance of 8640 L/ha/day (per Section 6.1.4 STDGM), the resultant total peak sanitary flow was calculated to be 2.10 L/s. As shown in the Sanitary Service Design Sheet, provided in Appendix C, a 200mm diameter sanitary service at a slope of 2.00% has sufficient capacity for the proposed total peak flows.

According to Sandymount Subdivision drawing #SR-19, 'Sanitary Drainage System and Areas,' prepared by CJDL Consulting Engineers (April 15, 2024), provided in Appendix C, the site is tributary to the Sandymount Subdivision sanitary sewer system, within catchment FUT08. This catchment covers an area of 16.63 ha and was assumed to consist entirely of medium-density residential development. Allocated flows were calculated using a residential rate of 250 L/cap/day (per Section 6.1.4 of STDGM), a medium-density residential factor of 65 persons/ha, and the site area of 1.31 ha, resulting in a peak sanitary flow with infiltration of 1.89 L/s. Therefore, an additional demand of 0.21 L/s (2.10 – 1.89 L/s) is anticipated beyond the original allocation when reviewing the site from a commercial standpoint utilizing the commercial flows of 28 m^3/ ha/day in accordance with the City of St Thomas Design Guidelines Manual. A review of the Sandymount Subdivision sanitary sewer design sheet, provided in Appendix C, confirmed that this extra flow will not create capacity issues in any of the sewers.

As outlined in the preliminary servicing report for the Sandymount Subdivision, the Wellington Road Pumping Station currently exceeds its ultimate design flow capacity (143%) when accounting for all undeveloped lands within its tributary area. The additional flows from the proposed development are expected to have a negligible impact on this exceedance, as full build-out of the Sandymount Subdivision and other undeveloped lands will likely take several years. It will be the City's responsibility to review this condition and determine any future upgrade requirements.

4. STORM SERVICING AND STORMWATER MANAGEMENT

As per the City of St. Thomas drawing "Roadwork and Ditching Major Line Sunset Road Hwy 4 to C.N. Railway" dated 2019, provided in Appendix A, there is the existing Helkaa Drain which is routed through the subject site.

4.1 PRE-DEVELOPMENT CONDITIONS

Pre-development conditions were obtained from aerial imagery as the Topographic Survey was not completed at the time of preparing this Brief. As shown on the 'C' Coefficient calculations, provided in Appendix D, under pre-development conditions the site is comprised of existing buildings (approximately 435.59 m^2), gravel area (approximately 691.74 m^2), and landscape/open area (approximately 11,967.37 m^2) with a calculated runoff coefficient (C-value) of 0.30.

4.2 POST-DEVELOPMENT CONDITIONS

Post-development conditions were obtained from the Site Plan prepared by SBM, dated October 24, 2025, provided separately. Under post-development conditions, the entire site (13,399.60 m^2) will be comprised of four (4) commercial buildings (3,330.30 m^2), asphalt/concrete area (8,214.84 m^2), and landscaped/open area (1,549.56 m^2). Based on the 'C' Coefficient calculations, provided in Appendix D, the post-development runoff coefficient was calculated to be 0.82, which exceeds the pre-development C-value of 0.30. Therefore, SWM quantity controls are required for this development to attenuate post-development flows to the allowable pre-development levels for the 2-year through 100-year design storms. Detailed SWM quantity and quality controls will be completed at the time of detailed design for approval.

5. LIMITATIONS

This Brief was prepared by SBM for VKS Sunset Plaza Inc. c/o Venkat Perugu and the City of St. Thomas. Use of this Brief by any third party, or any reliance upon its findings, is solely the responsibility of that party. SBM accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions undertaken as a result of this Brief. Third party use of this Brief, without the express written consent of the Consultant, denies any claims, whether in contract, tort, and/or any other cause of action in law, against the Consultant.

All findings and conclusions presented in this Brief are based on site conditions as they appeared in the information presented to SBM and related to in this document. This Brief is not intended to be exhaustive in scope, or to imply a risk-free development. It should be recognized that the passage of time may alter the opinions, conclusions, and recommendations provided herein, as well as any changes in the layout of the development.

The design was limited to the documents referenced herein and SBM accepts no responsibility for the accuracy of the information provided by others. All designs and recommendations presented in this Brief are based on the information available at the time of the review.

This document is deemed to be the intellectual property of SBM in accordance with Canadian copyright law.

6. CLOSURE

We trust this Brief meets your satisfaction. Should you have any questions or require further information, please do not hesitate to contact us. Respectfully submitted,

Strik, Baldinelli, Moniz Ltd.
Planning • Civil • Structural • Mechanical • Electrical

Ryan Frouws, P.Eng.
Civil Team Lead, Eng IV
Associate I



Levi Prinsen
Engineering Trainee III

List of Appendices

Appendix A: Site Plan prepared by Patrick David Trottier Architect dated February 4, 2026

Sandymount Subdivision drawing #4 “General Plan of Services – External Sunset” prepared by CJDL Consulting Engineers, dated June 27, 2025

City of St. Thomas drawing “Roadwork and Ditching Major Line Sunset Road Hwy 4 to C.N. Railway” dated 2019

Appendix B: Domestic Water Demand Calculations

Fire-Fighting Flow NFPA#13 Calculations

Appendix C: Sandymount Subdivision drawing #SR-19 “Sanitary Drainage System and Areas” prepared by CJDL Consulting Engineers, dated April 15, 2024

Sanitary Service Design Sheet

Appendix D: ‘C’ Coefficient Calculations

APPENDIX A

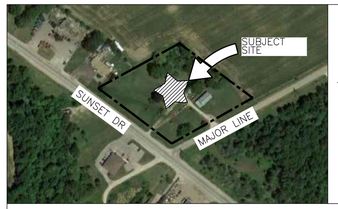
Site Plan prepared by Patrick David Trottier Architect dated February 4, 2026

Sandymount Subdivision drawing #4 “General Plan of Services – External Sunset” prepared by CJDL Consulting Engineers, dated June 27, 2025

City of St. Thomas drawing “Roadwork and Ditching Major Line Sunset Road Hwy 4 to C.N. Railway” dated 2019

LEGAL INFORMATION

PART OF
LOT D, EAST OF THE NORTH
BRANCH OF THE TALBOT ROAD
IN THE
TOWNSHIP OF SOUTHWOLD
COUNTY OF ELGIN



KEY PLAN
N.T.S.

LIST OF DRAWINGS

SHEET SP1	SITE PLAN & ZONING CHART
SHEET SP2	LEGEND & DETAILS

ZONING DATA CHART

GROSS LOT AREA: 13,453.3m² BUILDING AREA: 3,256.3m²
NET LOT AREA: 13,094.7m²

ASPHALT: 7,501.0m² LANDSCAPE AREA: 2,337.4m²

No.	ITEM	REQUIRED	PROPOSED
1	ZONES	C5, SECONDARY	COMMERCIAL*
2	LOT AREA (m² MIN.)	NO MIN.	13,094.7m²
3	LOT FRONTAGE (m MIN.)	NO MIN.	121.11
4	FRONT YARD DEPTH (m MIN.)	NIL	3.04
5	SIDE YARD DEPTH – ABUTTING NON–RESIDENTIAL (m MIN.)	NIL	7.63
6	SIDE YARD DEPTH – ABUTTING RESIDENTIAL (m MIN.)	3.0	11.38
7	REAR YARD DEPTH –ABUTTING RESIDENTIAL (m MIN.)	3.0	8.88
9	LOT COVERAGE (%)	–	24.9
10	LANDSCAPE AREA (%)	–	17.8
11	HEIGHT	–	TBD

*ZONING DEFICIENCY

PARKING DATA CHART

OFF–STREET VEHICLE PARKING

No.	ITEM	REQUIREMENT	REQUIRED	PROPOSED
1	RESTAURANT	20 SPACES/100m² (407.9m²)	80 SPACES	166 SPACES* + 17 STACKING SPACES
2	COMMERCIAL (RETAIL/BUSINESS & PERSONAL SERVICE)	4.5 SPACES/100m² (1007.2m²)	45 SPACES	
3	COMMERCIAL (FOOD STORE/RETAIL)	6 SPACES/100m² (1841.2m²)	126 SPACES	
4	TOTAL	SEE ABOVE	251 SPACES	166 SPACES* + 17 STACKING SPACES
5	B.F. PARKING	1+3% OF TOTAL REQUIRED PARKING (156 SPACES)**	6 SPACES	8 SPACES (4 TYPE A, 4 TYPE B)

LOADING SPACES

No.	ITEM	REQUIREMENT	REQUIRED	PROPOSED
1		GREATER THAN 450m²	1 SPACE	4 SPACES

*ZONING DEFICIENCY
**CITY OF LONDON STANDARD USED IN LIEU OF ST.THOMAS AS, NO PROVISION AVAILABLE IN ST.THOMAS ZONING BY–LAW

WASTE REMOVAL

GARBAGE TO BE STORED EXTERNALLY IN DEEP WELL GARBAGE CONTAINERS AND OWNER TO ARRANGE SITE PICK–UP AND REMOVAL.

BUILDING CLASS.

COMMERCIAL – GROUP E OCCUPANCY, PART 3 OF THE ONTARIO BUILDING CODE

CANADA POST

THIS DEVELOPMENT WILL RECEIVE MAIL TO A NEAR–BY SUPERBOX AS LOCATED BY CANADA POST.

PERMITTED USES

C5 ZONE:
- APPAREL AND ACCESSORY STORE;
- AUTOMOTIVE SERVICE BUSINESS;
- AUTOMOTIVE TRADE;
- BAKERY;
- BOOKS AND STATIONARY STORE;
- BUSINESS OFFICE;
- CAR WASH;
- CLINIC;
- CONVENIENCE STORE;
- DRUG STORE;
- DRIVE–IN RESTAURANT;
- ELECTRONICS AND COMPUTER STORE;
- GAS BAR;
- HOME AND AUTO SUPPLY;
- HOTEL;
- HOUSEHOLD FURNISHING STORE;
- LIQUOR, BEER OR WINE STORE;
- OFFICE SUPPLY STORE;
- PERSONAL SERVICE SHOP;
- PRIVATE CLUB;
- PUBLIC AND PRIVATE RECREATION FACILITY;
- RESTAURANT;
- RETAIL STORE;
- TAVERN;
- THEATRE;
- TIRES, BATTERIES AND ACCESSORIES STORE;
- ENTERTAINMENT CENTRE (BY–LAW 96–2023);
- USES ACCESSORY TO THE FOREGOING

LEGEND:

- FR–2 — PROPOSED SIGN, TYPE OF SIGN
- PROPOSED BARRIER FREE ROUTE
- PROPOSED FIRE ROUTE (6.0m WIDE, 12.0m ℄ RADIUS)
- PROPOSED SNOW STORAGE
- PROPOSED RAMP (SEE DETAIL ON SP2)
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE DEPARTMENT CONNECTION
- PRINCIPAL BARRIER FREE ENTRANCE & FIRE FIGHTER ACCESS ENTRANCE
- BUILDING ENTRANCE
- OVERHEAD DOOR
- DRIVETHRU WINDOW
- PROPOSED LIGHT–DUTY ASPHALT
- PROPOSED HEAVY–DUTY ASPHALT
- PROPOSED CONCRETE
- PROPOSED RETAINING WALL (DESIGNED BY OTHERS)
- EXISTING BUILDING
- PROPOSED BUILDING
- LIMITS OF SUBJECT PROPERTY
- DECIDUOUS/CONIFEROUS TREE
- BH 3 — BOREHOLE LOCATIONS, SEE GEOTECHNICAL INVESTIGATION
- LIGHTS, DESIGN BY OTHERS

SITE BENCHMARK:

MONUMENT TYPE:

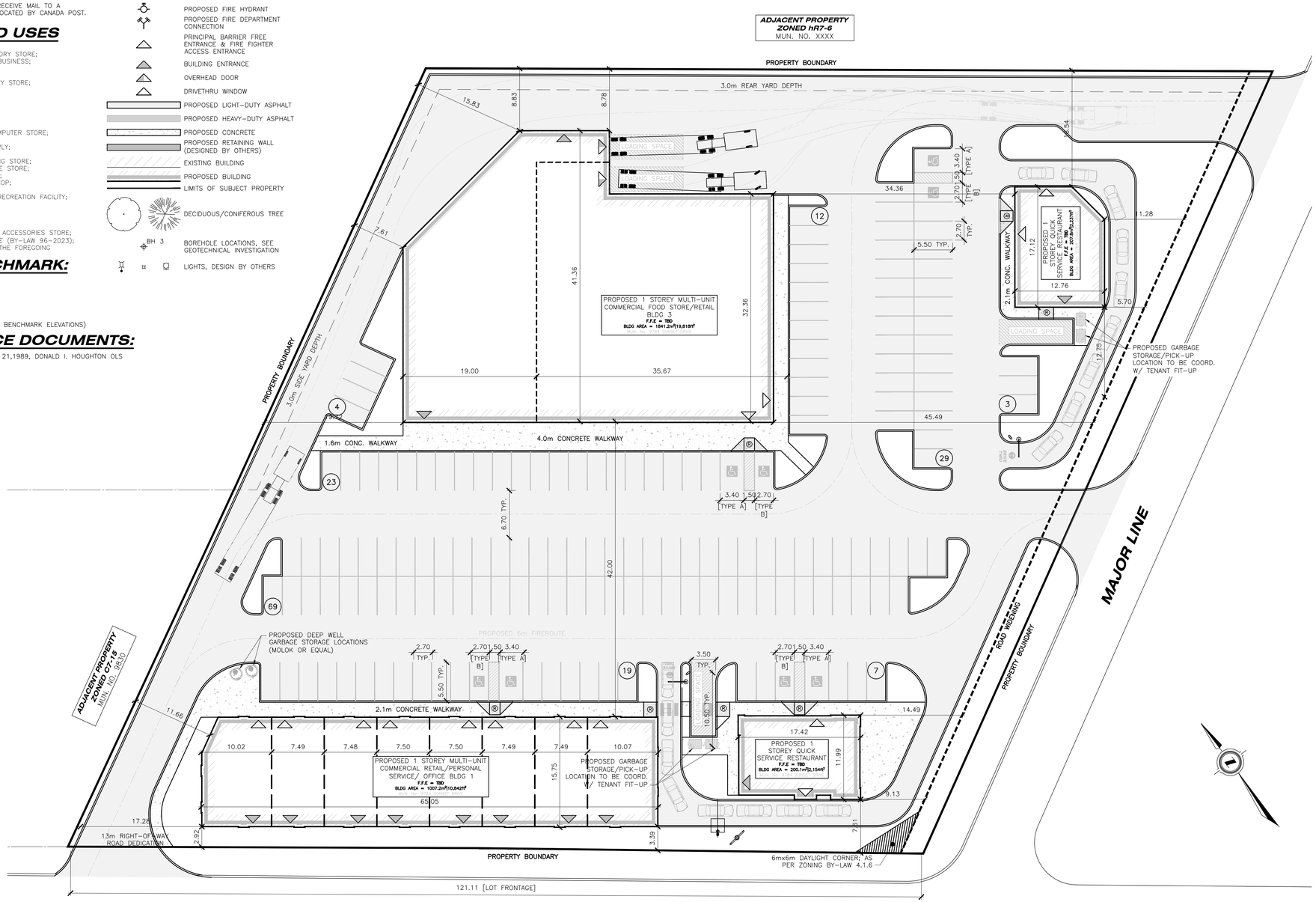
LOCATION:

GEODETIC ELEVATION:

(CONTRACTOR TO CONFIRM BENCHMARK ELEVATIONS)

REFERENCE DOCUMENTS:

1. PLAN 11R–3924 AUG. 21,1989, DONALD I. HOUGHTON OLS



#	ISSUED FOR	DATE
01	ISSUED FOR CLIENT REVIEW	2025.01.06
02	ISSUED FOR CLIENT APPROVAL	2025.01.17
03	ISSUED FOR CLIENT APPROVAL	2025.01.31
04	ISSUED FOR CLIENT APPROVAL	2025.03.24
05	ISSUED FOR CLIENT APPROVAL	2025.10.17
06	ISSUED FOR CLIENT APPROVAL	2025.10.24
07	ISSUED FOR OPA & ZBA	2026.04.02

PROJECT:
COMMERCIAL SITE DEVELOPMENT
9784 SUNSET DR.
ST.THOMAS, ONTARIO

CLIENT:
VKS SUNSET PLAZA INC.
c/o VENKAT PERUGU
206–1670 NORTH SERVICE RD. E. OAKVILLE, ON. L6H 7G3
P: 647–961–7111
E: VENKAT@PERUGUDEVELOPMENT.CA

PATRICK DAVID TROTTIER ARCHITECT

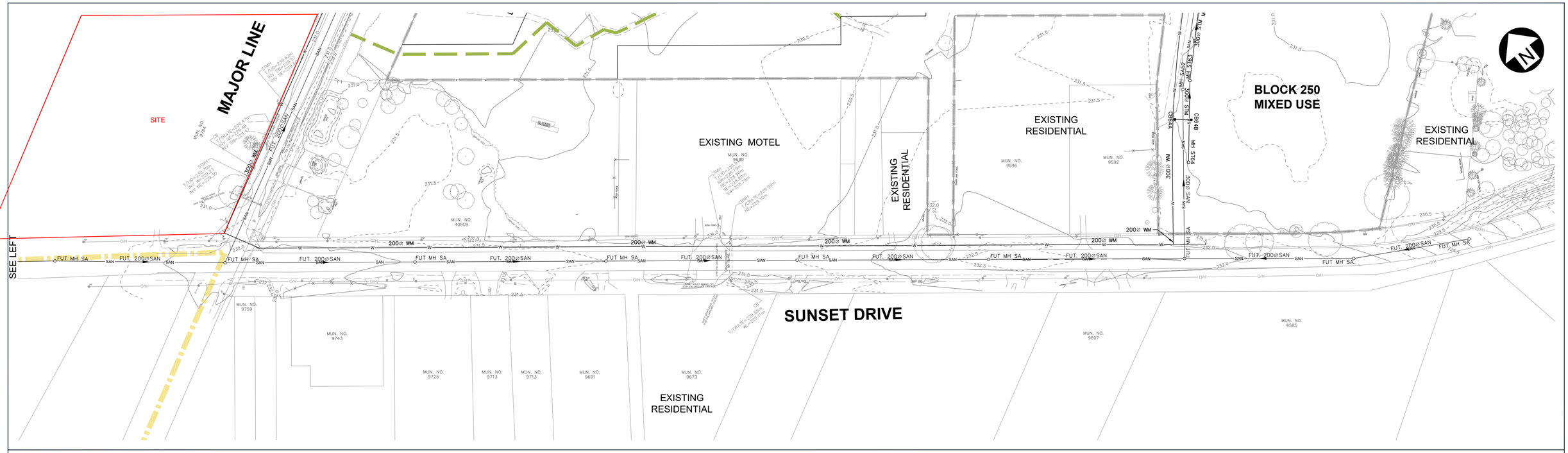
PRELIMINARY FOR REVIEW ONLY

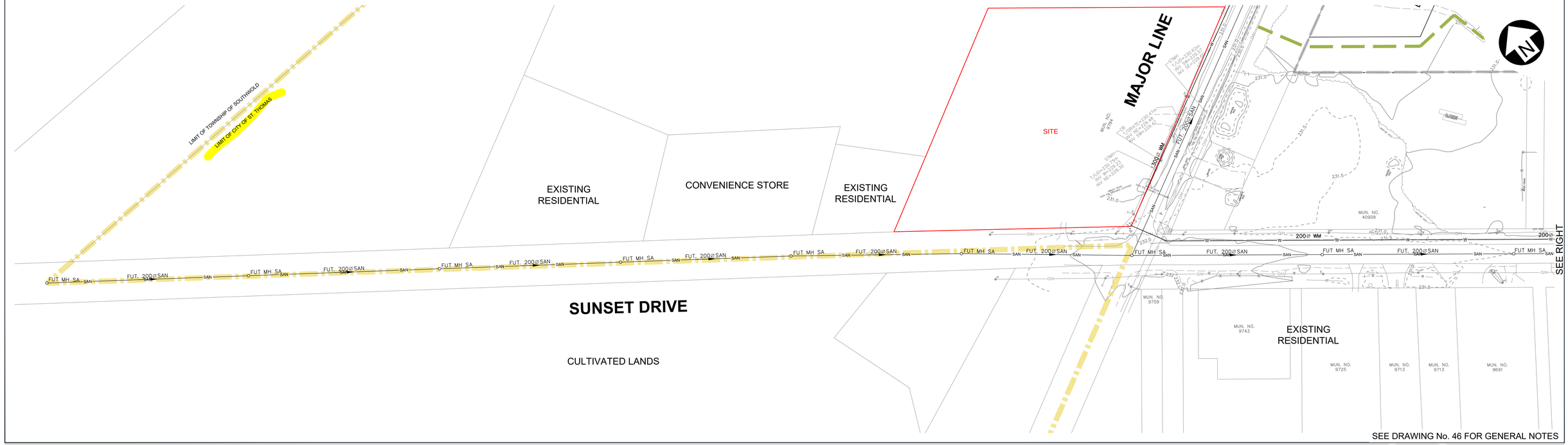
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SITE PLAN & ZONING CHART

PROJECT #26–02 PDTA
SBM–24–2689
SCALE: AS INDICATED
REVIEWED: PDTA
DRAWN: OMP
DWG # **SP1**

DO NOT SCALE DRAWINGS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS & REPORT DISCREPANCIES TO THE ARCHITECT PRIOR TO WORK. DRAWINGS REMAIN PROPERTY OF PDTARCHITECT.

266 DUFFERIN AVE, BRANTFORD, ON N3T 4S2 (226) 208–1543c patrick@pdtarch.ca





SEE DRAWING No. 46 FOR GENERAL NOTES

LEGEND

- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- FUTURE SANITARY SEWER
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- FUTURE STORM SEWER
- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- FUTURE WATERMAIN
- SUBDIVISION LIMITS
- MAINTENANCE HOLE
- CATCH BASIN
- WATER VALVE
- WATER SERVICE CURB STOP
- HYDRANT

CONSULTANT:

CJDL Consulting Engineers

ST. THOMAS THE RAILWAY CITY

Cyril J. Demeyere Limited
P.O. Box 460, 261 Broadway
Tillsonburg, Ontario, N4G 4H8
Tel: 519-688-1000
866-302-9886
Fax: 519-842-3235
cjd@cjdleng.com

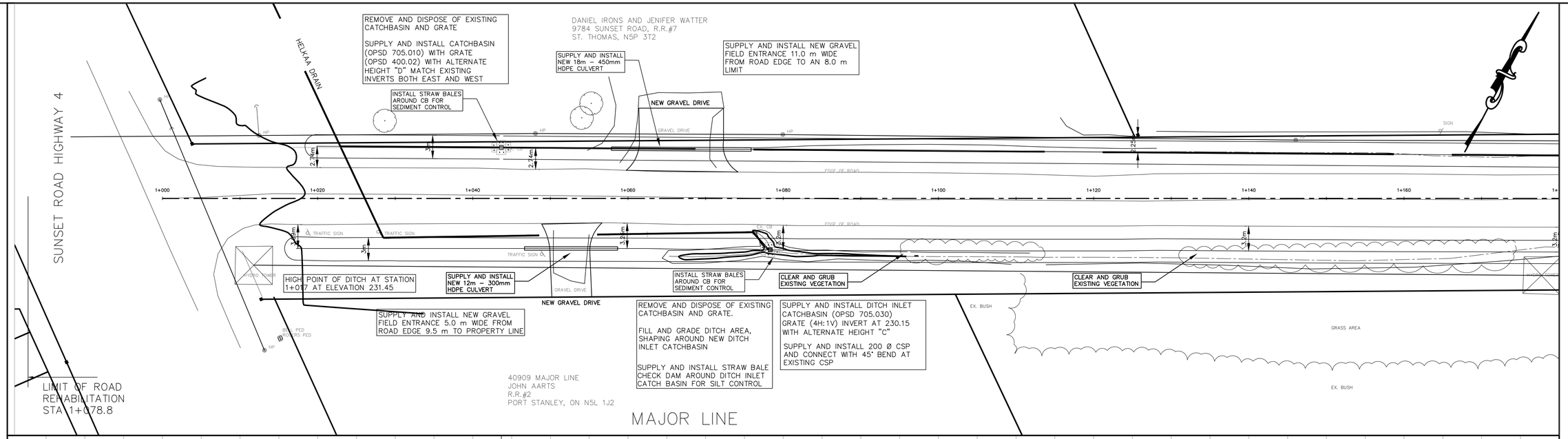
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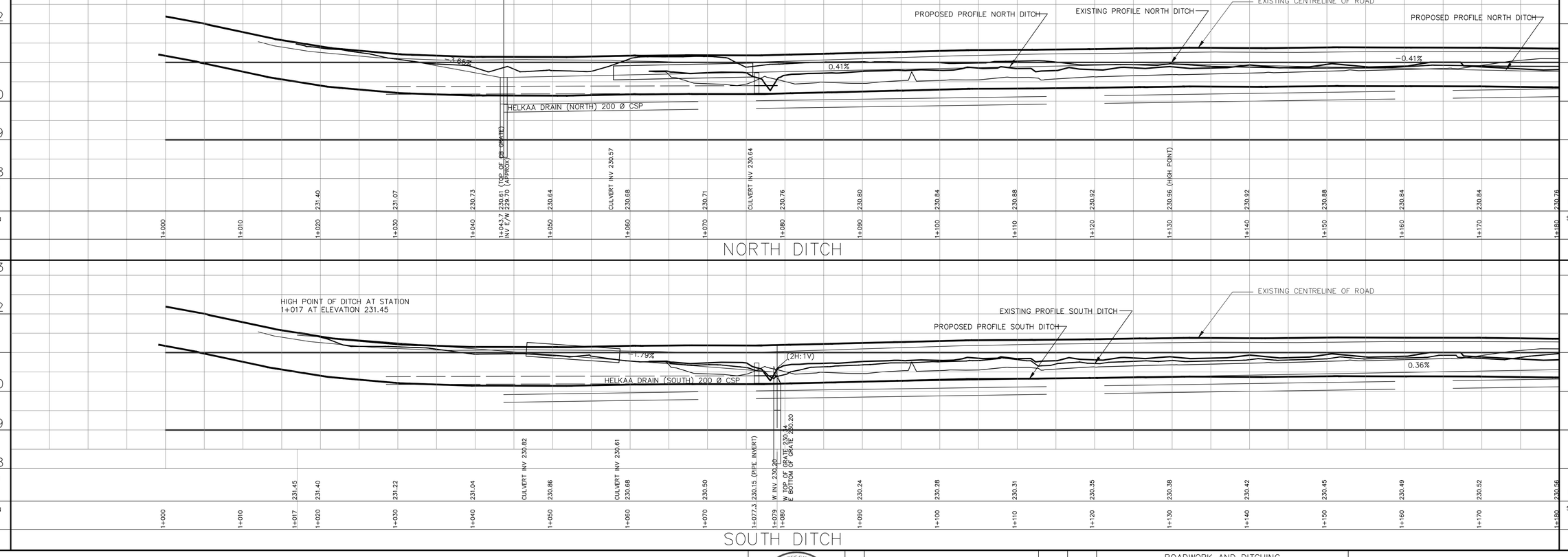
PROFESSIONAL ENGINEER — LICENSED — D.J. LYLE 100174772 — 17 JUN 2025 — PROVINCE OF ONTARIO

REVISION			
3	REVISED PER MUNICIPAL COMMENTS	27 JUN 2025	DJL
2	ISSUED FOR TENDER	19 JUN 2025	DJL
1	ISSUED FOR MUNICIPAL REVIEW	04 APR 2025	DJL
#	DESCRIPTION	DD/MM/YYYY	BY

GENERAL PLAN OF SERVICES - EXTERNAL SUNSET

CONTRACT #:	19009	**SCALE:**	1:1000
PROJECT NAME:	SANDYMOUNT SUBDIVISION RP 11M-XXX LECRAM INC.	**DRAWING #:**	4





LICENSED PROFESSIONAL ENGINEER
J. G. LAWRENCE
4/SEP/19
PROVINCE OF ONTARIO

NO	DESCRIPTION OF REVISION	DATE	INITIAL
1	AS RECORDED	2019	CST
0	ISSUED FOR TENDER	JUNE 2011	GER

ROADWORK AND DITCHING
MAJOR LINE
SUNSET ROAD HWY 4 TO C.N. RAILWAY

SCALE: HOR: 1:250 VER: 1:50
DATE: MARCH 2011
CITY ENGINEER

CITY OF ST THOMAS
ENVIRONMENTAL SERVICES

DRAWN BY: DLM
DESIGN BY: GER
CHECKED BY:
FIELDBOOK
DRAWING # 1
REVISION 0

APPENDIX B

Domestic Water Demand Calculations
Fire-Fighting Flow NFPA#13 Calculations

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LONDON LOCATION
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DOMESTIC WATER DEMAND CALCULATION

DATE:	April 2, 2026
JOB No.:	SBM-24-2689

Client:	**VKS Sunset Plaza Inc.**
Project:	**Proposed Commercial Development**
Location:	**9784 Sunset Drive, St. Thomas, ON**

DEMAND CALCULATION

*Commercial Demand =	28	m^3/ha/day
Avg. Day Demand =	0.324074074	L/ha/s
*Max. Day Peaking Factor =	3.5	
*Max. Hour Peaking Factor =	7.8	

	Area (ha)	Population	Avg. Day (L/s)	Max. Hour (L/s)	Max. Day (L/s)
Proposed Development	1.31	-	0.42	3.31	1.49

* Refer to Section 9.2.2. of the STDGM

VELOCITY CALCULATION

Diameter (mm)	Demand (L/s)	Velocity (m/s)
150	3.31	0.187

Maximum allowable velocity of 1.5 m/s as per Section 9.2.1. of the STDGM.

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Fire-Fighting Flow NFPA#13

Date:	April 2, 2026
Job No:	SBM-24-2689

Client:	**VKS Sunset Plaza Inc.**
Project:	**Proposed Commercial Development**
Location:	**9784 Sunset Drive, St. Thomas, ON**

Table 1. NFPA#13 Flow Demand Requirements

Hazard	Sprinkler Flow (USGPM)	Hydrant Allowance (USGPM)	Total Flow (USGPM)
Light	175	100	275
Ordinary 1	250	250	500
Ordinary 2	350	250	600
Extra 1	750	500	1250
Extra 2	1000	500	1500

Refer to NPFA A.5.2 to A.5.4.2 for Occupany examples

Required Supply Flow Rate, USGPM (Table 1) =	500	
Required Supply Flow Rate, L/min =	1893.00	
Maximum Day Demand, L/min =	1.49	L/s (Refer to attached Domestic Water Demand calculation)
	89.40	L/min
Required Supply Fire Flow + Maximum Day Demand, L/min =	**1982.40**	

Table 1. Water Velocity Calculation

Diameter (mm)	Demand (L/min)	Velocity (m/s)
150	1982	1.870

Maximum allowable velocity of 3.0 m/s as per Section 9.2.1. of the STDGM

APPENDIX C

Sandymount Subdivision drawing #SR-19 “Sanitary Drainage System and Areas” prepared by CJDL Consulting Engineers, dated April 15, 2024

Sanitary Service Design Sheet

CANADIAN NATIONAL RAILWAY

LIMIT OF TOWNSHIP OF SOUTHWOLD

LIMIT OF CITY OF ST. THOMAS

HYDRO ONE EASEMENT

MAJOR LINE

SUNSET DRIVE

SITE

WOODLOT
(NO FLOW)

BLOCK 253

BLOCK 254

BLOCK 80

STREET 'A'

STREET 'B'

STREET 'C'

STREET 'D'

STREET 'E'

STREET 'F'

STREET 'G'

STREET 'H'

STREET 'I'

STREET 'J'

LYN COURT

SWM BLOCK

PARK

WELLINGTON ROAD PUMPING STATION

WELLINGTON ROAD

LIMIT OF CITY OF ST. THOMAS

LIMIT OF MUNICIPALITY OF CENTRAL ELGIN

SEE DRAWING No. 21 FOR GENERAL NOTES

LEGEND

- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- FUTURE SANITARY SEWER
- PROPOSED MANHOLE, EXISTING/FUTURE
- LIMIT OF DRAINAGE AREA
- METRIC CONTOUR ELEVATIONS IN METRES (BY CJDL SITE SURVEY)
- SUBDIVISION LIMIT
- AREA NUMBER
- AREA IN HECTARES
- POPULATION

CONSULTANT:
CJDL Consulting Engineers
Cyrill J. Demeyere Limited
P.O. Box 460, 261 Broadway
Tillsonburg, Ontario, N4G 4H8
Tel: 519-688-1000
866-302-9686
Fax: 519-842-3235
cjd@cjdeng.com

ST. THOMAS
THE RAILWAY CITY

STAMP:
LICENSED PROFESSIONAL ENGINEER — C. CLUETT — 100214735 — PROVINCE OF ONTARIO
LICENSED PROFESSIONAL ENGINEER — D.J. LYLE — 100174772 — PROVINCE OF ONTARIO

REVISION			
1	ISSUED FOR DRAFTPLAN SUBMISSION	15 APR 2024	CJC
#	DESCRIPTION	DD/MM/YYYY	BY

SANITARY DRAINAGE SYSTEM AND AREAS

CONTRACT #: 19009/19055
SCALE: 1:2500
PROJECT NAME: SANDYMOUNT SUBDIVISION
LECRAM INC. & LAND RISE DEVELOPMENTS INC.
DRAWING #: SR-19

CITY OF ST. THOMAS | 2024 EDITION

CONSULTANT: CJDL Consulting Engineers

SANITARY SEWER DESIGN SHEET

PROJECT: SANDYMOUNT SUBDIVISION
MUNICIPALITY: CITY OF ST. THOMAS, ONTARIO
DATE: 15 APRIL 2024
DESIGNED BY: CJC
CHECKED BY: DJL
JOB No.: 19009/19055
SHEET: 1 of 2

L.D. Residential: 44 Persons/ha
M.D. Residential: 65 Persons/ha
H.D. Residential: 200 Units/ha @ 1.8 persons/unit (as per City of London Design Guidelines)
Institutional/ Commercial/ Industrial: 53 Persons/ha, 65 Persons/ha, 100 Persons/ha
Infiltration: 0.040 l/s/Ha/Day (low-age), 0.28 l/s/Ha/Day (high-age)
MANNING EQUATION: n=0.013 for PVC & Concrete Sewers
Min Velocity when FULL = 0.76 m/s
Min Velocity when PART FULL = 0.60 m/s
Min Population in Area = 50
Capacity Multiplier = 1.5
Min Sewer Size = 200mm
Peaking Factor = Harmon Formula
Extraneous Flow = 0.33 l/s/Ha
Min Velocity when Part Full = 0.60 m/s
Max Velocity = 3.00 m/s
Manning's n = 0.013
Rainfall Intensity = 1:5 yr = 1735.688 / (Time + 6.014)^0.820
1:10 yr = 2310.035 / (Time + 6.014)^0.820
1:100 yr = 3796.717 / (Time + 6.014)^0.820
Time of Concentration = 10 minutes
Min Cover = 2.50m
Min Slope = 0.40%
Harmon Correction Factor = 1 - 0.25 (Area / 43.56)^0.75 + 0.25
Where Area = Total Area (Ha)
Peak Flow = Population x Peaking Factor x Capacity Multiplier / 86.4 + Extraneous Flow x Total Area + Industrial Flow
Capacity = 0.3117 x Diameter^2.667 x Slope^0.5 / Manning's n
Actual Velocity = Peak Flow / 0.3117 / Diameter^2.667 / Slope^0.5
Full Flow Velocity = 0.3117 / Manning's n x (Diameter / 1000)^0.667 x Slope^0.5
Actual / Full Flow = Peak Flow / Capacity
Time of Flow = Length / (Velocity x 60)

AREA	Street	From MH	To MH	Net of Areas	Area (Ha)	Total Area (ha)	Pop per Area	POPULATION M.D. (LOT)	POPULATION L.D.	Total Pop	Peaking Factor M	Peak Flow (l/s)	Length (m)	Pipe Size (mm)	Type of Pipe	n	Slope (%)	Capacity (l/s)	Actual Velocity (m/s)	Full Flow Velocity (m/s)	UPSTREAM INVERT (m)	DOWN-STREAM INVERT (m)	FALL (m)	DROP MANHOLE LOWER INVERTS (m)
EXISTING RESIDENTIAL				Grass	3.13				0	0														
EXISTING HOUSE INCLUDING ROAD				Grass	0.42			ea	1	67	4.5	0.299	0.062	1.12										
OUTLOT	PUT STREET 'L'	ST 'C' STUB (SOUTH)		Grass	0.42																			
FUTURE EXISTING RESIDENTIAL				Grass	11.52			ea	0	864														
FUTURE EXISTING COMMERCIAL				Grass	4.11			ea		321														
FUTURE	PUT STREET 'L'	ST 'C' STUB (NORTH)		Grass	10.63					1381	4.178	11.871	1.885	13.48	136.5	200	PVC	0.013	0.40	60.74	0.98			
FUNT JOHN DENSITY					5.48			ea	102															
FUTURE JINDIAN DENSITY					5.47			ea	226															
FUTURE HIGH DENSITY					5.47			ea	1388															
FUT01	MAJOR LINE	STUB (NORTH)	MH SA120	Grass	10.43					1766	3.857	19.935	1.040	19.57										
FUT08	MAJOR LINE	-	-	Grass	0.38	0.38	65			24	4.389	0.303	0.038	0.34	140.0	200	PVC	0.013	0.40	35.74	0.68	227.58	226.05	0.73	0.05
FUT09	MAJOR LINE	-	-	Grass	3.42	3.80	65			168	4.124	2.309	0.315	2.62	140.0	200	PVC	0.013	0.40	35.74	0.86	226.05	224.49	0.76	0.05
FUT04	MAJOR LINE	STUB (WEST)	MH SA120	Grass	4.02	8.13	65			113	4.044	2.604	0.213	2.82	140.0	200	PVC	0.013	0.40	35.74	0.89	224.49	224.07	0.72	0.05
FUT05	MAJOR LINE	-	-	Grass	2.57	10.70	65			151	4.018	3.486	0.284	3.77	140.0	200	PVC	0.013	0.40	35.74	0.96	224.07	223.51	0.56	0.05
FUT02	MAJOR LINE	-	-	Grass	0.81	0.81	44			36	36														
FUT03	MAJOR LINE	STUB (SOUTH)	MH SA120	Grass	1.52	2.33	44			103	4.250	1.347	0.092	1.75	444.0	200	PVC	0.013	0.40	35.74	0.98	228.65	224.67	1.78	0.05
A85	BLOCK 254	STUB	MH SA118	Grass	1.58	1.58	400			632	632	3.505	7.188	3.158	7.25	13.0	200	PVC	0.013	2.09	45.68	1.48	224.71	224.45	0.26	0.05
A80	BLOCK 253	STUB	MH SA118	Grass	1.58	1.58	400			632	632	3.505	7.188	3.158	7.25	13.0	200	PVC	0.013	2.09	45.68	1.48	224.71	224.45	0.26	0.05
A75a	STREET 'E'	-	-	Grass	0.27	0.27	65			18	18														
A75	STREET 'E'	STUB	MH SA118	Grass	0.32	0.59	44			14	32	4.393	0.403	0.059	0.46	52.5	200	PVC	0.013	0.40	35.74	0.88	224.57	224.19	0.31	0.05
A70	STREET 'E'	STUB	MH SA91	Grass	1.79	1.79	44			79	79	4.275	0.976	0.179	1.16	39.4	200	PVC	0.013	0.40	35.74	0.88	224.03	223.82	0.21	0.05
A66	STREET 'C'	-	-	Grass	1.58	1.58	65			103	103														
A61a	STREET 'C'	-	-	Grass	0.12	0.12	65			8	8														
A61	STREET 'C'	STUB	MH SA91	Grass	3.41	4.65	65			264	319	4.096	28.553	2.491	28.94	98.0	300	PVC	0.013	0.22	45.68	0.64	224.71	223.92	0.79	0.05
A69a	STREET 'C'	-	-	Grass	0.24	0.24	65			16	16														
A69	STREET 'C'	MH SA91	MH SA118	Grass	0.27	27.21	44			12	328	3.491	29.525	2.123	29.35	65.8	300	PVC	0.013	0.22	45.68	0.64	223.87	223.68	0.21	0.05
A55	STREET 'D'	STUB	MH SA118	Grass	0.18	0.18	44			328	328	4.137	2.723	0.518	3.24	43.4	200	PVC	0.013	0.40	35.74	0.98	223.83	223.66	0.17	0.05
A40	STREET 'F'	STUB	MH SA118	Grass	3.83	3.83	44			169	169	4.174	2.541	0.980	3.42	43.5	200	PVC	0.013	0.40	35.74	0.98	227.77	227.60	0.17	0.05
A35	STREET 'H'	STUB	MH SA118	Grass	2.74	2.74	44			121	121	4.335	1.417	0.274	1.75	83.8	200	PVC	0.013	0.40	35.74	0.98	224.17	226.85	0.34	DROP
A28	STREET 'G'	MH SA128	MH SA129	Grass	1.13	1.13	44			49	49	4.253	0.812	0.113	0.72	78.1	200	PVC	0.013	0.75	57.64	1.87	223.64	223.01	0.63	0.05
A28	STREET 'G'	MH SA129	MH SA130	Grass	0.29	1.41	44			13	62	4.395	0.773	0.141	0.91	47.8	200	PVC	0.013	0.40	35.74	0.88	223.67	222.28	1.39	0.05
A27	STREET 'B'	MH SA127	MH SA113	Grass	0.85	0.85	44			37	37	4.506	0.465	0.085	0.55	116.4	200	PVC	0.013	1.65	53.80	1.74	226.20	227.26	1.06	DROP
A29	STREET 'B'	MH SA128	MH SA127	Grass	1.12	1.91	44			58	58	4.301	0.722	0.191	0.91	78.1	200	PVC	0.013	0.75	57.64	1.87	224.32	227.20	2.88	DROP
A25	STREET 'B'	MH SA125	MH SA126	Grass	1.03	2.34	44			45	105	4.340	1.064	0.234	1.35	78.5	200	PVC	0.013	0.45	35.74	0.88	227.49	227.19	0.30	0.05
A24	STREET 'B'	MH SA124	MH SA125	Grass	1.04	3.38	44			46	151	4.369	1.524	0.338	1.86	78.5	200	PVC	0.013	0.45	35.74	0.88	227.19	226.39	0.80	0.05
A23	STREET 'B'	MH SA123	MH SA124	Grass	1.00	4.38	44			44	195	4.398	1.920	0.438	2.36	78.5	200	PVC	0.013	0.45	35.74	0.88	226.39	226.39	0.00	0.05
A22	STREET 'B'	MH SA122	MH SA123	Grass	0.22	4.60	44			10	205	4.148	2.455	0.460	2.96	37.8	200	PVC	0.013	0.40	35.74	0.98	226.25	226.12	0.13	0.05
A21	STREET 'B'	MH SA121	MH SA122	Grass	0.24	4.84	44			11	216	4.153	2.582	0.484	3.05	43.4	200	PVC	0.013	0.40	35.74	0.98	226.12	225.95	0.17	DROP
A18	STREET 'H'	MH SA120	MH SA119	Grass	0.13	17.48	0			0	2081	3.573	21.510	1.748	25.29	82.4	250	PVC	0.013	0.28	31.47	0.84	224.82	224.45	0.37	0.05
A18a	STREET 'H'	-	-	Grass	0.13	0.13	65			8	8														
A18	STREET 'H'	MH SA119	MH SA118	Grass	0.59	21.58	0			0	2569	3.483	32.988	2.138	36.13	138.2	300	PVC	0.013	0.22	45.68	0.64	224.40	224.19	0.21	0.05
A17a	STREET 'A'	-	-	Grass	0.23	0.23	65			15	15														
A17	STREET 'A'	MH SA119	MH SA117	Grass	0.63	22.81	44			28	2625	3.465	33.981	2.260	36.93	83.8	300	PVC	0.013	0.22	45.68	0.64	224.71	223.91	0.80	0.05
A16a	STREET 'A'	-	-	Grass	0.18	0.18	65			12	12														
A16	STREET 'A'	MH SA118	MH SA117	Grass	0.16	24.83	44			12	2649	3.462	33.973	2.306	36.33	83.8	300	PVC	0.013	0.22	45.68	0.64	223.87	223.69	0.18	0.05
A15a	STREET 'A'	-	-	Grass	0.07	0.07	65			5	5														
A15	STREET 'A'	MH SA116	MH SA115	Grass	1.39	26.43	44			61	2715	3.454	34.1	57.8	0.6	69.40	300	PVC	0.013	0.75	106.13	1.50	223.61	223.42	0.19	0.05
A14a	STREET 'A'	-	-	Grass	0.14	0.14	65			9	9														
A14	STREET 'A'	MH SA115	MH SA114	Grass	0.68	27.25	44			30	2745	3.449	34.547	8.138	40.92	41.9	375	PVC	0.013	0.22	62.54	0.74	223.58	223.19	0.22	0.04
A13a	STREET 'A'	-	-	Grass	0.21	0.21	65			14	14														
A13	STREET 'A'	MH SA114	MH SA113	Grass	0.57	27.82	44			23	2768	3.446	34.547	8.178	40.87	126.3	375	PVC	0.013	0.25	79.12	0.93	223.12	222.89	0.23	0.05
A12a	STREET 'A'	-	-	Grass	0.16	0.16	65			10	10														
A12	STREET 'A'	MH SA113	MH SA112	Grass	0.30	28.28	44			13	2781	3.444	34.547	8.240	41.06	41.9	375	PVC	0.013	0.22	62.54	0.74	222.86	222.68	0.18	0.05
A11a	STREET 'A'	-	-	Grass	0.18	0.18	65			12	12														
A11	STREET 'A'	MH SA112	MH SA111	Grass	0.37	28.83	44			16	2809	3.439	34.547	8.301	41.14	126.3	375	PVC	0.013	0.25	79.12	0.93	222.62	222.39	0.23	0.05
A10a	STREET 'A'	-	-	Grass	0.27	0.27	65			18	18														
A10	STREET 'A'	MH SA111	MH SA110	Grass	0.77	29.87	44			34	2843	3.434	34.547	8.361	41.22	83.8	375	PVC	0.013	0.22	62.54	0.74	222.39	222.08	0.31	0.05
A9	STREET 'A'	MH SA110	MH SA109	Grass	0.36	30.23	44			24	2867	3.429	34.547	8.421	41.29	83.8	375	PVC	0.013	0.22	62.54	0.74	222.04	221.77	0.27	0.05
A8	STREET 'A'	MH SA109	MH SA108	Grass	0.53	30.76	44			35	2902	3.424	34.547	8.481	41.37	83.8	375	PVC	0.013	0.22	62.54	0.74	221.72	221.45	0.27	0.05
A7	STREET 'A'	MH SA108	MH SA107	Grass	0.43	31.19	44			28	2930	3.419	34.547	8.541	41.45	83.8	375	PVC	0.013	0.22	62.54	0.74	221.40	221.12	0.28	0.05
A6	STREET 'A'	MH SA107	MH SA106	Grass	1.02	32.21	44			45	2975	3.408	34.547	8.722	41.68	83.8	375	PVC	0.013	0.22	62.54	0.74	221.07	220.74	0.33	0.05
A5	STREET 'A'	MH SA106	MH SA105	Grass	0.22	32.43	44			10	2985	3.404	34.547	8.782	41.76	83.8	375	PVC	0.013	0.22	62.54	0.74	220.74	220.51	0.23	0.05
A4	BLOCK 80	STUB	MH SA105	Grass	1.11	33.54	44			74	3059	3.394	34.547	9.055	42.12	83.8	375	PVC	0.013	0.22	62.54	0.74	220.48	220.15	0.33	0.05
-	WELLINGTON ROAD	MH SA1	MH SA2	Grass	0.00	17.29	0			0	1975	3.588	68.130	7.726	75.86	39.5	375	PVC	0.013	1.90	174.73	1.94	218.60	218.31	0.42	0.05
-	WELLINGTON ROAD	MH SA2	MH SA3	Grass	0.00	17.29	0			0	1975	3.588	68.130	7.726	75.86	52.0	375	PVC	0.013	1.65	151.08	1.68	218.19	218.00	0.19	0.05
-	WELLINGTON ROAD	MH SA3	MH SA4	Grass	0.00	17.29	0			0	1975	3.588	68.130	7.726	75.86	52.0	375	PVC	0.013	1.65	151.08	1.68	217.90	217.71	0.19	0.05
-	WELLINGTON ROAD	MH SA4	MH SA5	Grass	0.00	17.29	0			0	1975	3.588	68.130	7.726	75.86	52.0	375	PVC	0.013	1.65	151.08	1.68	217.61	217.42	0.19	0.05

Basement gravity drainage is not possible for Area FUT 08 from Sunset Drive. Sewer from Sunset Drive can provide rear / sanitary outlet to the maintaining Road

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Sanitary Service Design Sheet

City of St. Thomas

DESIGN PARAMETERS:

Commercial Allowance Flow =	28	m3/ha/day	(Section 6.1.4. STDGM)
=	0.324074074	L/ha/s	
Medium Density Residential=	65	people/ha	(Section 6.1.4. STDGM)
Residential Flow Rate=	250	l/cap/day	(Section 6.1.4. STDGM)
	0.003	l/cap/sec	
Sewage Infiltration =	8640	L/ha/day	(Section 6.1.4. STDGM)
=	0.1	L/ha/s	
Roughness Coefficient =	0.013		(Section 6.1.1. STDGM)
Min Velocity =	0.6 m/s		(Section 6.1.2. STDGM)
Max Velocity =	4.5 m/s		
Harmon Formula, M =	(1 + 14/(4+P^0.5))		
Uncertainty Factor =	1.1		

Date: April 2, 2026
Job Number: SBM-24-2689
Client: VKS Sunset Plaza Inc.
Project: Proposed Commercial Development
Designed By: LPr
Reviewed By: RF

Location			Area		Population					Sewage Flows				Sewer Design				
Area No.	From MH	To MH	*Delta Hectare	Total Hectare	No. of Units	People Per Unit	People Per Hectare	Delta Pop.	Total Pop.	Harmon Peaking Factor	Infilt (L/S)	Sewage (L/S)	Total (L/S)	n	Pipe Slope (%)	Dia. (mm)	Capacity (L/S)	Velocity (m/s)
~~Proposed Development - Allocated Flows **~~	~~Site~~		~~1.309~~	~~1.309~~			~~65~~		~~85~~	~~3.78~~	~~0.13~~	~~1.76~~	~~1.89~~	~~0.013~~	~~0.40%~~	~~200~~	~~20.76~~	~~0.66~~
Proposed Development - Commercial			1.309	1.340			100		134	4.21	0.13	1.96	2.10	0.013	0.40%	200	20.76	0.66
FUT08 (Sunset Dr)	FUT STREET 'C'	ST 'C' STUB (NORTH)	16.630	16.630					1081	3.78	1.66	12.02 ***	13.68 ***	0.013	0.40%	200	20.76	0.66

*Refer to Site Plan prepared by SBM dated April 2, 2026, provided separately

** Allocated flows based on Sandymount Subdivision Sanitary Sewer Design Sheet Parameters - Medium Density assumption for FUT08 (Sunset Dr)

*** Sewage flows for FUT08 (Sunset Dr) are based on the Sandymount Subdivision Sanitary Sewer Design Sheet, plus an additional flow of 2.10-1.89 L/s beyond what was originally allocated to the site.

APPENDIX D

'C' Coefficient Calculations

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C' Coefficient Calculations

DATE:	April 2, 2026
JOB No.:	SBM-24-2689

Client:	**VKS Sunset Plaza Inc.**
Project:	**Proposed Commercial Development**
Location:	**9784 Sunset Drive, St. Thomas, ON**

PRE-DEVELOPMENT CONDITIONS

PRE-DEVELOPMENT OVERALL SITE

	Area (m^2)	C	A*C
Total Area:	13094.70		
Building Area:	435.59	0.9	392.031
Asphalt/Concrete:	0.00	0.9	0
Gravel:	691.74	0.7	484.218
Landscaped/Open:	11967.37	0.25	2991.8425
Totals:	13094.70		3868.0915
C_{eq} = Sum(A*C)/Sum(A) =	0.30		

POST-DEVELOPMENT CONDITIONS

POST-DEVELOPMENT OVERALL SITE

	Area (m^2)	C	A*C
Total Area:	13094.70		
Building Area:	3330.30	0.9	2997.27
Asphalt/Concrete:	8214.84	0.9	7393.3578
Gravel:	0.00	0.7	0
Landscaped/Open:	1549.56	0.25	387.3895
Totals:	13094.70		10778.0173
C_{eq} = Sum(A*C)/Sum(A) =	0.82		