PROPOSED SITE SERVICING STRATEGY

RESIDENTIAL TOWNHOUSE DEVELOPMENT

634 COMMISSIONERS ROAD WEST

APRIL, 2023

Revised – OCTOBER 2023, New Site Plan

Ref. No. – 22.164

Prepared for:
Royal Premier Homes
509 Commissioners Rd W #425
London, ON N6K 1J5

Prepared by:

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1.0 INTRODUCTION

Eng Plus Ltd. has been retained by Royal Premier Homes to prepare a Servicing and Stormwater Management Report to support a Site Plan Application for the proposed infill residential townhouse development located at 634 Commissioners Road West in the City of London. **Figure 1** Key Plan shows the site location, Appendix C.

2.0 EXISTING CONDITIONS

The site is located at 634 Commissioners Road W. on the south side of Commissioners Road West and approximately 475 metres west of Wonderland Road South. The site frontage is 88.0 meters and total site area is 0.445 hectares.

The site currently houses an existing (c. 1850) Georgian-Style Dwelling that is listed on the City's Register of Cultural Heritage Resources. There are existing residential lands uses adjoining the site. The subject lands have been re-zoned to Residential R5-7(30).

The existing topography of the subject property is split in approximately middle of the site and slopes northeast and northwest towards Commissioners Road West to the ditches along the road.

3.0 PROPOSED DEVELOPMENT

The site plan has been changed from the original development proposal.

The proposal now is for two stacked back-to-back townhouse buildings containing a total of 28 new townhouse units and the retention of the existing c.1850 Georgian Style dwelling as a single detached unit.

The revised preliminary concept plan is shown in **Appendix D**.

4.0 WATER SERVICING

There are existing 900mm diameter watermain and 300mm diameter high-level watermain on Commissioners Road W. Water service for the development will be provided by connecting to the existing 300mm diameter high-level watermain.

Watermains on-site were sized based on EPANET simulations for the Average Day and Maximum Hour demand scenarios. The high-level boundary condition (335m) for Westmount Area was used in the model in accordance with City requirements. The proposed water service mains for the site will include 50mm diameter Municipex watermains. Each unit will be individually serviced by a 25mm diameter PEX water service.

The following domestic water demands have been calculated for the proposed stacked townhouse buildings:

Average Day Demand for 8-units = 3.4 L/min; Maximum Hour Demand = 26.5 L/min.
Average Day Demand for 20-units (plus ex. House) = 9.0 L/min; Maximum Hour Demand = 70.4 L/min.

The above demands are based on the design criteria outlined in the City of London's Design Specifications and Requirements Manual, including a boundary condition of 335m, population density of 2.4 people per unit, and an average domestic flow rate of 255 L/cap/day. Refer to **Appendix A** for calculations. The following table summarizes the results of the EPANET model.

Table 1. Summary of EPANET Modelling Results

Node	Operating Condition	Pressure (Min. 275 kPa or 28m head)	Velocity (m/s)	Water Quality (hours)
8-Units	Average Day Demand	517 kPa (52.8m head)	0.03	0.34
	Peak Hour Demand	510 kPa (51.95m head)	0.23	-
20-Units (+ ex.)	Average Day Demand	531 kPa (54.17m head)	0.08	0.22
	Peak Hour Demand	516 kPa (52.65m head)	0.60	-

The modelled results in the above table indicate that the proposed water service for the development will have adequate pressures under the Average Day and Peak Hour Demand scenarios. Further, the velocity in the system is below the maximum 1.5m/s under the Peak Hour scenario. Also, water quality time is well below the maximum limit of 72 hours.

Fire Protection: Since the proposed buildings are Part 9 of the Ontario Building Code, there is no requirement for on-site fire hydrants for firefighting. There are existing hydrants located on the north boulevard of Commissioners Rd. W at Nottinghill Rd and Westmount Cres. Both of the existing hydrants are located more than 90m to the proposed Townhouse development. A new fire hydrant is proposed on Commissioners Rd. in front of the site to meet the 90m distance to the new proposed buildings. The new fire hydrant on Commissioners Road also provide additional fire protection for the existing dwellings in the area. New location is shown on the attached FIG. 4, Servicing Strategy in **Appendix D**.

There is an existing 900mm diameter trunk sewer on Commissioners Road W. It will be required to cross above this trunk watermain when making the new water and sanitary connections for the proposed development. The crossing shall be constructed in accordance with City of London standard 7.4.7.3 including providing 0.6m of clearance above the trunk watermain.

A new 50mm diameter Municipex water service connection to the existing 300mm main is proposed to service the site.

Existing house demand also included in the calculation. Details calculations can be found in **Appendix A**.

5.0 SANITARY SERVICING

There is no municipal sanitary sewer fronting the site. The municipal sanitary sewer is stop just east of the site. This property was included in the design of this sanitary sewer as a single family lot (per City As-built Plan No. 10,589).

It is proposed to develop 28 stacked back-to-back townhouse units and 1 heritage building for total of 29 units (the site area is 0.449 hectares site). With total population of 71 people (2.4 ppu * 28 + 3 persons per unit).

According to City as-built drawing No. 9993, Sanitary Drainage Areas, Rosecliffe Garden Estate, Feb, 1988. The existing 250mm diameter sanitary sewer on Rosecliffe Terrace had been designed with the external area of 4.12 hectares and populations of 273 people, the allowable flows on Rosecliffe Terace is **3.69 l/s**

We have updated the sanitary sewer design with the current design standards and the added 28 townhouse units (2.4 person per unit). As per the updated design sheet attached, the proposed design flow to the existing sewer on Rosecliffe Terrace is **1.76** l/s (total population of 106 people), less than the allowable design flowrate above (**3*.69 l/s***). Therefor there is no capacity issue with the proposed infill development.

The sanitary service for the site will be connected to the new extension of the existing sanitary sewer on Commissioners Road West from the existing manhole just east of the site.

The new sanitary PDC of 200mm diameter at 1.0% slope is proposed to connect to the existing sanitary manhole on Commissioners Road West, servicing the site.

All the proposed units and the existing dwelling will have PDC connecting to an internal sanitary sewer system. An inspection manhole is proposed onsite before the connection to the municipal sewers on Commissioners Road West. A schematic of the proposed service is attached.

6.0 STORMWATER SERVICING STRATEGY

6.1 Existing Site Drainage and Approved Drainage Plan

Currently, the site drainage is high along the back and the stormwater is generally draining north, northeast to the existing swales on the property to the east and then to the existing roadside ditches along Commissioners Road West.

As per City of London as-built drawing # 16954 dated Sept. 2001 (attached), the drainage from the site had been accounted for in the existing sewers on Commissioners Road West. The allowable runoff coefficient for the site is C=0.5 outleting to the ditch inlet catchbasin in front of 610 Commissioners Road W. approximately 50 meters east of the site.

The allowable peak flows from the site is 34 l/s and 81 l/s for 2-year and 100-year storm events respectively. Calculations attached.

The approved drainage for the site is shown on Sheet 2, Existing Conditions.

6.2 Post-Development Stormwater Servicing Proposal

As indicated, the site is to intensify with additional 10 townhouse units in 2 building blocks, the existing heritage house is to remain as single detached unit.

The proposed development include surface parking, driveways, and landscape areas.

The actual runoff co-efficient "C" is calculated as per the final site plan as per table below:

Description	Post-Development Runoff Coefficient		
	Area (m^2)	Runoff Coefficient (C)	C x A
Asphalt	1088	0.90	980
Concrete	219	0.90	197
Building	1012	0.90	911
Grass	1669	0.25	417
Total	**3988**		**2505**
		Composite C	**0.63**

As per City of London Design Specifications & Requirements Manual, the runoff co-efficient C=0.65 is used for the propose townhouse development.

The increase in the "C" value will result in increase in post-development stormwater runoff from the site. It is proposed to control post-development runoff from the site to the pre-approved flow conditions of C=0.50 so that the downstream storm sewer system will not be affected.

Under the post-development condition, the stormwater runoff from the entire site will be directed north toward Commissioners Road West. Quality and quality control are provided onsite before the runoff leaving the site. The strategies for servicing the site are as per below:

6.2.1 Stormwater Management –Quantity Control

For the post-development conditions, onsite storage is provided so that the total post-development peak flows are not more than the approved flow rates from above.

For minor storm events, 2-year storm, an underground storage system is proposed to store the excess post-development runoff to control the flowrate to the above 2-year controlled flow (34 l/s). There will be no surface ponding during minor storm events.

An orifice is proposed at the outlet to limit the flow from the development area to 2-year storm events and 35 l/s for 100-year storm events.

In the major storm events (up to 100-year storm), extra storage is to be provided on the surface on top of the catchbasin to a maximum depth of 0.3 meters. When the storage capacity of the ponding areas on top of the catchbasins is exceeded, stormwater runoff will overflow and follow the existing overland flow route. Overland flow routes is

provided to safely convey the major storm surface runoff from the site to the existing overland flow route on Commissioners Road W.

Storm Outlet: The outlet from the site is the new proposed 450mm diameter storm PDC connecting to the extension of 450mm diameter storm sewer on the north side of Commissioners Road W.

6.2.2 Quality Control

The proposed development has less than 30 parking spaces, as per the City of London's requirements for on-site private stormwater system, the stormwater runoff from the site must meet the "normal" protection level for water quality control or 70% TSS removal) since there is no downstream quality controls in place.

An oil/grit separator is proposed for treating the runoff water before leaving the site.

7.0 EROSION AND SEDIMENT CONTROL

Sediment control measures are intended to intercept sediment that is suspended in stormwater runoff, prior to reaching the receiving water course. To control sediment transport during construction, the following measures will be implemented and recommended:

- Install silt fence to filter and detain runoff around stockpiles, along grading limits and neighboring property boundaries susceptible to receiving drainage from the subject site;
- Stockpiles to be away from the proposed stormwater storage areas;
- Straw bales and/or riprap check dams in drainage swales and ditches where necessary, to reduce erosive velocities. Check dams should be inspected and maintained during construction (with accumulated sediment removed).

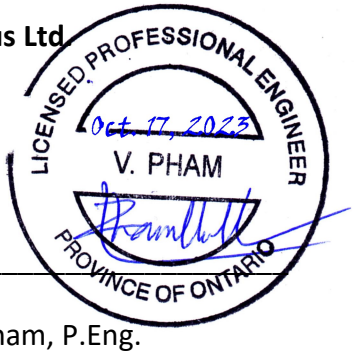
Erosion and sediment control measures should be inspected daily and after every rainfall to determine maintenance, repair or replacement requirements. Sediments or granulars that enter site drainage systems shall be removed immediately by the contractor. These measures will be implemented prior to the commencement of construction and maintained in good order until the site has been paved and vegetation has been established.

8.0 CONCLUSIONS AND RECOMMENDATIONS

- Water servicing for the proposed development is provided by connecting to the existing 300mm diameter watermain on Commissioners Road West;
- The proposed building will be serviced by a new sanitary PDC that will connect to the extension of the existing municipal sanitary sewer system on Commissioners Road West;
- Stormwater quantity and quality impacts from the development will be mitigated through implementation of stormwater control measures including onsite storage and oil / grit separator. The new storm PDC is connecting to the extension of the existing municipal storm sewer system on Commissioners Road West;
- Erosion and sediment control measures will be implemented prior to, during and after construction.

We trust the information presented in this report meets your current requirements. Please do not hesitate to contact us should you have any questions or concerns.

Eng Plus Ltd.



Vinh Pham, P.Eng.

APPENDIX A

Water Service Calculations

Water Service Calculations

Date: 16-Oct-23
Project: 634 Commissioners Rd. W Stacked Back-to-Back Townhouse Development

Hydraulic Criteria and EPANET Input Data

Average Day Domestic Flow Requirement	255	L/cap/day
Minimum Average Day Demand	275	kPa (40psi, pressure head=28m)
Minimum Max. Peak Hourly Demand	275	kPa (40psi, pressure head=28m)
Maximum Hour Peaking Factor	7.8	

Friction Factors

Pipe Diameters	C-Factor
100mm and 150mm	100
200mm and 250mm	110
300mm	120

Maximum Velocity - Max Hour Domestic Flow	1.5	m/s

Domestic Water Demand Calculation

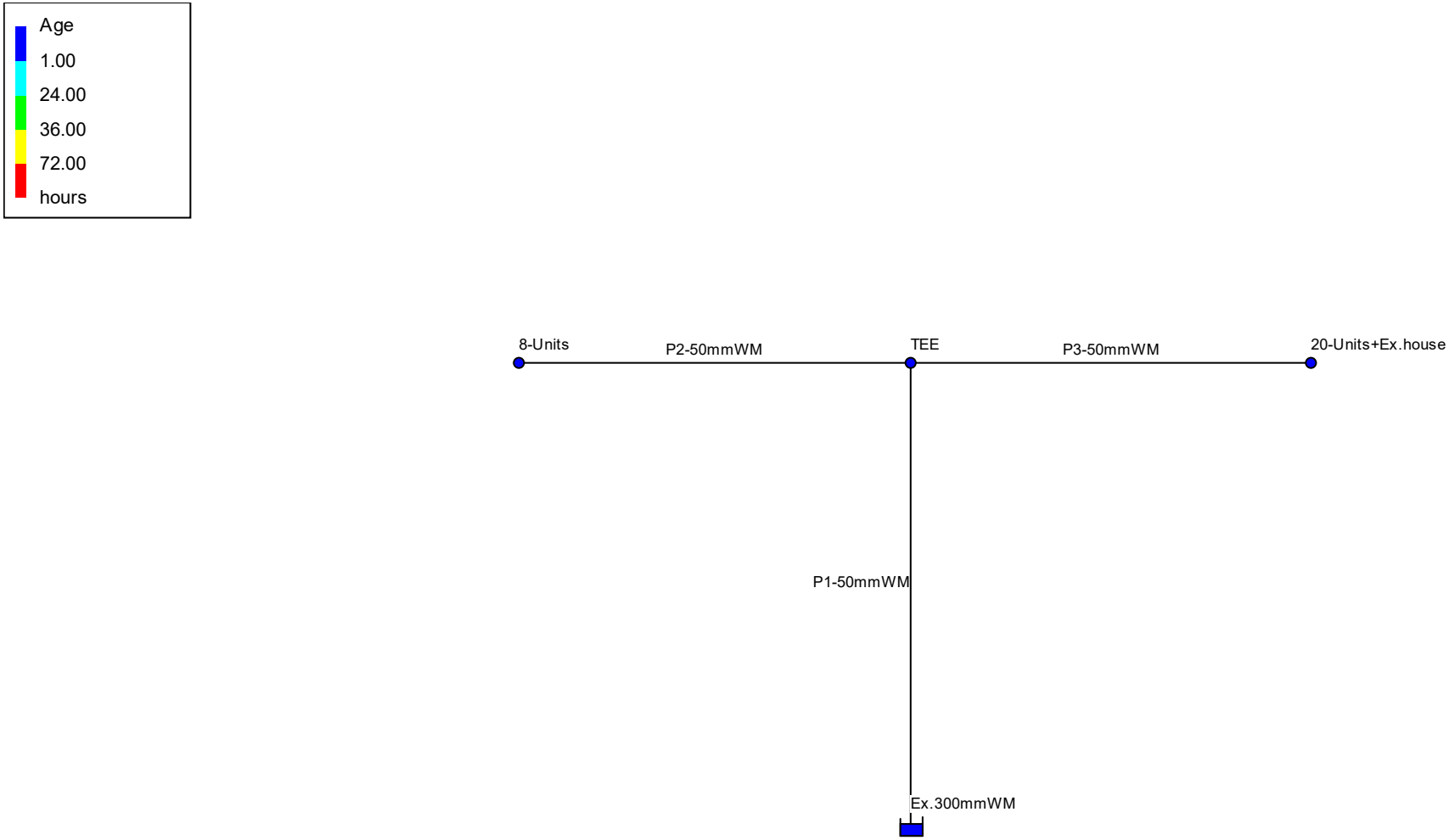
Residential Population

Total number of new units is 28 at 2.4 people per unit	67.2	people
Existing house at 3 people	3	people

Average Day Demand - 8 units	**3.4**	L/min	0.057 L/s
Maximum Hour Demand - 8 units	**26.5**	L/min	0.442 L/s
Average Day Demand - 20 units + Ex. House	**9.0**	L/min	0.151 L/s
Maximum Hour Demand - 20 units + Ex. House	**70.4**	L/min	1.174 L/s

634 Commissioners Rd. W - Proposed Water Service

Day 1, 12:00 A



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*********************************************************************
*                            E P A N E T                            *
*                     Hydraulic and Water Quality                   *
*                     Analysis for Pipe Networks                    *
*                           Version 2.2                             *
*********************************************************************
```

Input File: Water Service_Avg. Day.net

475 Grey Street - Proposed Water Service

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
P2-50mmWM	TEE	8-Units	30	50
P3-50mmWM	TEE	20-Units+Ex.house	45	50
P1-50mmWM	Ex.300mmWM	TEE	21	50

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
TEE	0.00	334.98	53.48	0.06	
8-Units	0.06	334.98	52.78	0.34	
20-Units+Ex.house	0.15	334.97	54.17	0.22	
Ex.300mmWM	-0.21	335.00	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
P2-50mmWM	0.06	0.03	0.06	Open
P3-50mmWM	0.15	0.08	0.39	Open
P1-50mmWM	0.21	0.11	0.78	Open

```
*********************************************************************
*                            E P A N E T                            *
*                     Hydraulic and Water Quality                   *
*                     Analysis for Pipe Networks                    *
*                           Version 2.2                             *
*********************************************************************
```

Input File: Water Service_Peak hour.net

475 Grey Street - Proposed Water Service

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
P2-50mmWM	TEE	8-Units	30	50
P3-50mmWM	TEE	20-Units+Ex.house	45	50
P1-50mmWM	Ex.300mmWM	TEE	21	50

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
TEE	0.00	334.24	52.74	0.01	
8-Units	0.44	334.15	51.95	0.04	
20-Units+Ex.house	1.18	333.45	52.65	0.03	
Ex.300mmWM	-1.62	335.00	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	Velocity m/s	Unit Headloss m/km	Status
P2-50mmWM	0.44	0.23	2.89	Open
P3-50mmWM	1.18	0.60	17.50	Open
P1-50mmWM	1.62	0.83	36.20	Open

APPENDIX B

Updated Sanitary Design Sheet – Sanitary As-Built

RESIDENTIAL POPULATION DENSITIES

	Lot Basis		Hectare Basis	
LOW DENSITY	3	ppu	30	upha
MED. DENSITY (TOWNHOUSES)	2.4	ppu	75	upha
HIGH DENSITY	1.6	ppu	150	upha

SANITARY SEWER DESIGN SHEET

CITY OF LONDON

DESIGN CRITERIA

PER CAPITA FLOW	=	230	l/cap/d
INFILTRATION	=	8640	l/ha/d
PEAKING FACTOR	=	Harmon Formula	
		M= 1 + 14 /(4+P^1/2)	

PROJECT NAME: **634 Commissioners Road West - Proposed Townhouse Development**

SEWER LOCATION				AREA			TOTAL	RESIDENTIAL AREA & POPULATION						SEWAGE FLOW				SEWER DESIGN					
AREA NO.	STREET	FROM MH	TO MH	NET AREA ha.	GROSS AREA ha.	CUM. AREA ha.	CUM. AREA ha.	PER ha.	PERS. PER UNIT	NO. OF UNITS	Δ POPUL.	TOTAL CUM. POPUL.	HARMON PEAKING FACTOR	INFILT. l/s	SEWAGE l/s	TOTAL l/s	"n"	CALC. PIPE D mm	NOM. PIPE D mm	PIPE SLOPE %	CAPACITY Q l/s	VELOCITY (0.60 min.) m/s
A1	*Comm. Rd W.*	*Ex. 1*	*Ex. 2*	*1.460*			*1.460*	*60.00*	***3.0***	*4*	*12*	*12*	*4.4067*	*0.15*	*0.15*	*0.30*	*0.013*	*39.2*	*200*	*0.50*	*23.20*	*0.74*
A2		*Ex. 2*	*Ex. 3*	*0.19*			*1.65*	*60.00*	*0.0*	*0*	*0*	*12*	*4.4067*	*0.17*	*0.15*	*0.32*	*0.013*	*41.1*	*200*	*0.44*	*21.76*	*0.69*
									28 THs + 1 single													
A3	**Comm. Rd W.**	**Site**	**Ex. 4**	**0.445**			**0.445**		**2.4**	**29**	**70**	**70**	**4.2826**	**0.04**	**0.88**	**0.92**	**0.013**	**52.5**	**200**	**1.00**	**32.80**	**1.04**
A3		*Fut.*	*Ex.4*	*1.30*	*		*1.75*		***3.0***	***4***	*12*	*82*	*4.2659*	*0.17*	*1.03*	*1.20*						
A4		*Ex.4*	*Ex.3*	*1.02*			*2.77*	*60.00*	***3.0***	*4*	*12*	*94*	*4.2506*	*0.28*	*1.17*	*1.45*	*0.013*	*71.0*	*200*	*0.49*	*22.96*	*0.73*
-	*Rosecliffe Ter.*	*3*	*Ex. SAN-1*	*0.000*			*4.415*	*0.00*		*11*	*0*	*106*	*4.2363*	*0.44*	*1.32*	*1.76*	*0.013*	*74.2*	*200*	*0.57*	*24.77*	*0.79*
		Ex. SAN-1	*Ex. SAN-2*	0.00			*4.42*	*0.00*		*0*	*0*	*106*	*4.2363*	*0.44*	*1.32*	*1.76*	*0.013*	*52.4*	*250*	*3.63*	*113.32*	*2.31*
**		*Ex. SAN-1*	*Ex. SAN-2*	*0.00*			*4.12*	*0.00*		*0*	*273*	*273*	*4.0956*	*0.41*	*3.27*	*3.69*	*0.013*	*69.2*	*250*	*3.63*	*113.32*	*2.31*

** According to City as-built drawing No. 9993, Sanitary Drainage Areas, Rosecliffe Garden Estate, Feb, 1988. The existing 250mm diameter sanitary sewer on Rosecliffe Terrace had been designed with the external area of 4.12 hectares and populations of 273 people.

RESIDENTIAL POPULATION DENSITIES

(A) - AREA BASIS
60 PERSONS PER GROSS HECTARE
82 PERSONS PER NET HECTARE

(B) - LOT BASIS
SINGLE FAMILY - 4 PEOPLE
DUPLEX - 8 PEOPLE
MULTI-FAMILY - BACHELOR - 1½ PEOPLE
-1 BEDROOM - 2½ PEOPLE
-2 BEDROOM - 3½ PEOPLE

SANITARY SEWER DESIGN SHEET

CITY OF LONDON

CITY ENGINEER'S DEPARTMENT

PROJECT NAME COMMISSIONERS RD. W. LATERAL SANITARY SEWER
80m. W. ROSECLIFFE TER. TO 130m. E. ROSECLIFFE TER.

DATE OCT. / 89
DESIGNED BY Leo Kent
CHECKED BY A. Flynn
FILE No 610 / C / 64
SHEET 1 OF 1

LOCATION				AREA (HECTARES)				POPULATION					SEWAGE FLOW			SEWER DESIGN					PROFILE				
AREA No.	STREET	FROM MANHOLE	TO MANHOLE	NET OR GROSS	DIMENSIONS	Δ ha	TOTAL ha	PER ha	No. OF LOTS	PER LOT	Δ POP.	TOTAL POP.	INFILT l/s	SEWAGE l/s	TOTAL l/s	SIZE mm	SLOPE %	n	VELOCITY m/s	CAP. l/s	LOSSES IN M.H.	FALL IN SEWER	LENGTH metres	INVERT U.S.	ELEV. D.S.
A1	COMM. RD. W.	1	2	GROSS		1.46	1.46	60	4	4	16	16	0.171	0.312	0.483	200	0.50	0.013	0.738	23.97		0.317	62.80	277.110	276.793
A2	COMM. RD. W.	2	3	GROSS		0.19	1.65	60	-	-	-	16	0.193	0.312	0.505	200	0.44	0.013	0.692	22.44	0.018	0.279	63.80	276.775	276.496
A3	COMM. RD. W.	POSS. FUTURE	4	GROSS		2.86	2.86	60	6	4	24	24	0.335	0.468	0.803	200	0.50	0.013	0.739	23.19					
A4	COMM. RD. W.	4	3	GROSS		1.02	3.88	60	4	4	16	40	0.454	0.782	1.236	200	0.49	0.013	0.731	23.70		0.340	69.60	276.690	276.350
—	ROSECLIFFE TER.	3	EX. MH	—		—	3.88	—	—	—	—	56	0.454	1.096	1.550	250	0.57	0.013	0.915	46.33	0.028	0.032	5.60	276.322	276.290

AS CONSTRUCTED NOTES	AS CONSTRUCTED SERVICES	COMPLETION	
1 SEE DRAWING No FOR FURTHER DETAIL	SANITARY SEWER, M.H'S AND		DESIGN L.K
2 SEWER DESIGN TRANSITION WIDTH OR AS NOTED	P.D.C'S		DRAWN E.J.H
3 REFERENCE B.M. No S-80 ELEVATION 234.400 m BEING TOP OF CUT CROSS ON SOUTH EAST CORNER OF THE CHAMBER OF THE PUMPING STATION ON THE WEST SIDE OF WONDERLAND ROAD AT THE RIVER THAMES.	CUT RESTORATION AS NOTED		CHECKED L.K.
	UNDER ROAD RESTORATIONS ON		APPROVED A.W.F
	THIS DRAWING	MAY/1988	DATE SEPT. 17, 1987

No	REVISIONS	DATE	BY
1	"AS CONSTRUCTED" DRAWING	OCT./89	J.J.S.

CONSULTANT OR DIVISION

ENGR'S STAMP

PROJECT ENGINEER

CORPORATION OF THE CITY OF LONDON

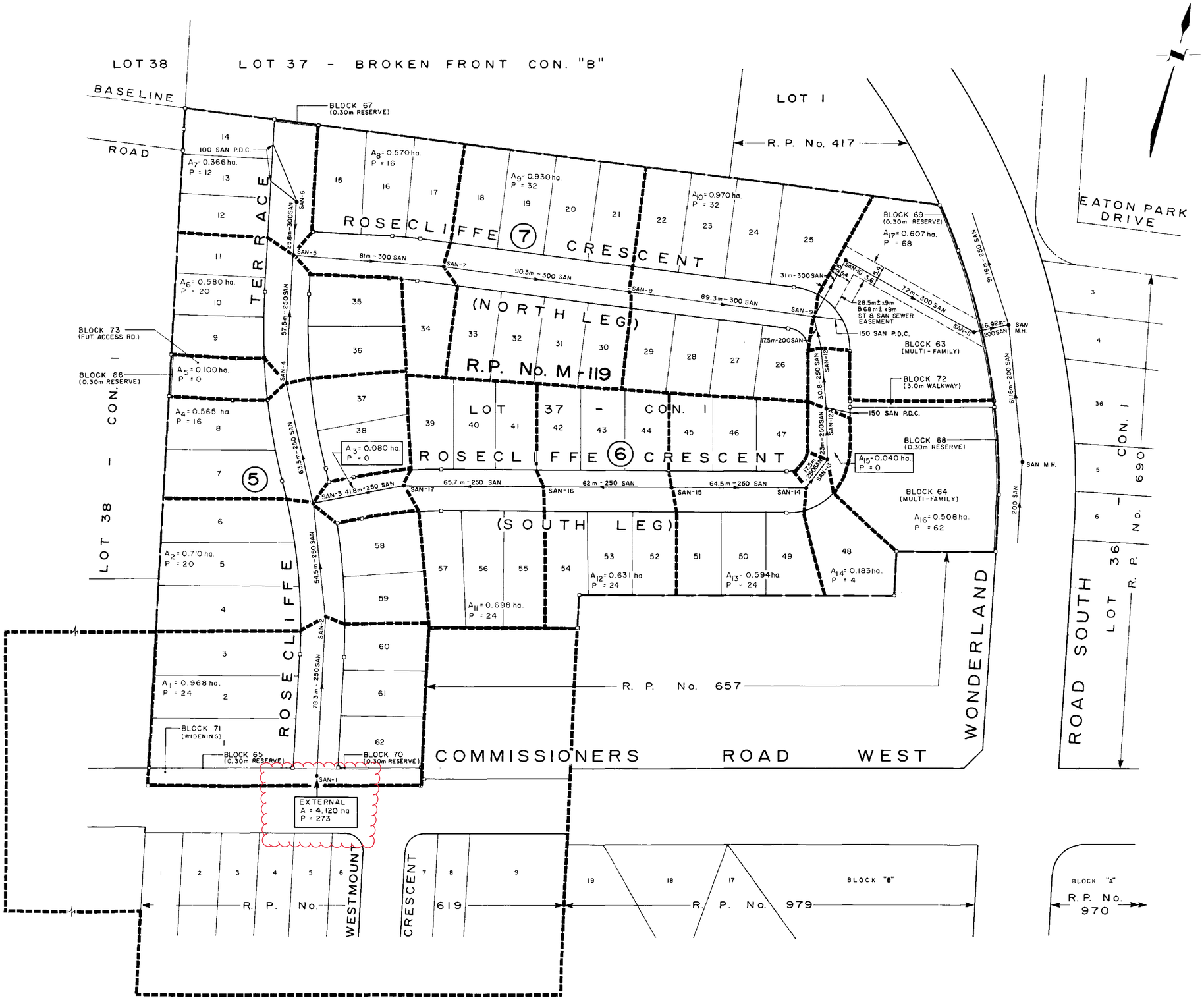
DIVISION HEAD

CITY ENGINEER

SCALE
m 0 Horizontal
m 0 Vertical

TITLE
COMMISSIONERS ROAD WEST
LATERAL SANITARY SEWER
SANITARY SEWER DESIGN SHEET
&
DRAINAGE AREAS PLAN

PROJECT No 87-610/C/64
SHEET No 3
PLAN FILE No 10,589



THE SANITARY SEWER SIZES SHOWN ON THE DESIGN SHEETS ARE ONE SIZE SMALLER THAN THOSE SHOWN ON THE PLANS & PROFILES IN ACCORDANCE WITH INSTRUCTIONS RECEIVED FROM THE CITY ENGINEER IN A LETTER DATED MARCH 20, 1984.

SAN SEWERS, P.D.C's & M.H's AUG. 1984

D.R.
C.A.B.
H.K.G.
K.W.H. DEC. '83

DeLCan
PROJECT No.
07-1417

1. "AS-CONSTRUCTED" DRAWING BY K.W.H. FEB '85

DeLCan DE LEUW CATHER CANADA LTD.
CONSULTING ENGINEERS AND PLANNERS

REGISTERED PROFESSIONAL ENGINEER K. W. HODGES PROVINCE OF ONTARIO

DRAFT PLAN OF SUBDIVISION CITY OF LONDON

10m 0 20
1:1000

R.P. No. M-119

ROSECLIFFE GARDEN ESTATES

ARDSHELL DEVELOPMENTS LIMITED - LONDON, ONT.

SANITARY DRAINAGE AREAS

DRAWING No. 3

9993

Z83-368 9-85

9993

APPENDIX C

Stormwater Calculations

PRE-DEVELOPMENT
ALLOWABLE FLOWS

2-Year Pre-development Flow

Q= 2.78CIA

C=	0.50		Pre-development Run-off Coefficient
I=	55.602267	mm/h	Rainfall intensity, Time to Peak = 19 minutes
A=	0.445	ha	Lot drainage area

Q = 34.4 l/sec

100-Year Pre-development Flow

Q= 2.78CIA

I=	131.48404	mm/h	Rainfall intensity, Time to Peak = 19 minutes

Q = 81.3 l/sec

POST-DEVELOPMENT - Site
STORAGE REQUIREMENT

Design Criteria:

Lot Area	A=	0.399	ha
Post-Development	$C_{2\text{-yr}}$=	0.65	
Post-Development	$C_{100\text{-year}}$=	0.65	
Flow	Q=	2.78CIA	m^3

Storm	2 Year
a	754.36
b	6.01
c	0.81

Q_{pre_2} = 34.4 l/s

Duration (minute)	Intensity mm/hr	Peak Runoff m^3/s		Storm runoff m^3	Release Flow m^3	Req'd Storage m^3
5	108.1	0.07788		23.36	10.32	13.05
6	100.7	0.07258		26.13	12.38	13.75
7	94.4	0.06803		28.57	14.44	14.13
8	88.9	0.06407		30.75	16.51	**14.24**
9	84.1	0.06059		32.72	18.57	14.15
10	79.8	0.05751		34.50	20.64	13.87
13	69.4	0.05004		39.03	26.83	12.20
15	64.0	0.04614		41.53	30.95	10.58
19	55.6	0.04007		45.68	39.21	6.47
20	53.9	0.03882		46.58	41.27	5.31
21	52.2	0.03765		47.44	43.33	4.10
22	50.7	0.03656		48.25	45.40	2.86
23	49.3	0.03553		49.03	47.46	1.57
24	48.0	0.03457		49.78	49.53	0.25
25	46.7	0.03366		50.50	51.59	-1.09

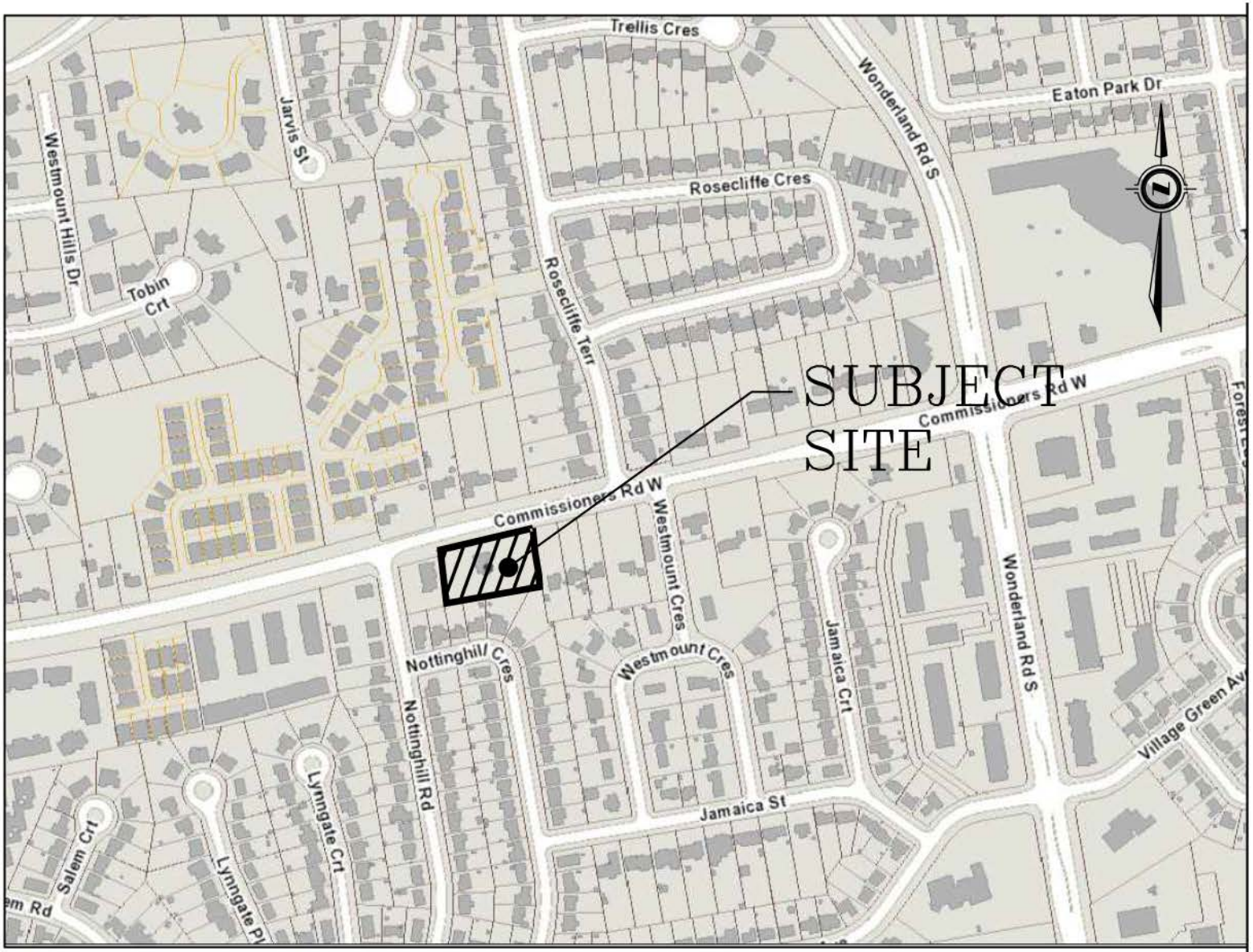
Storm	100 Year
a	2619.36
b	10.50
c	0.88

Q_{pre_100} = 81.3 l/s

Duration (minute)	Intensity mm/hr	Peak Runoff m^3/s		Storm runoff m^3	Release Flow m^3	Req'd Storage m^3
5	232.2	0.167		50.21	24.40	25.81
6	219.8	0.158		57.01	29.28	27.73
7	208.6	0.150		63.14	34.16	28.98
8	198.6	0.143		68.70	39.04	29.66
9	189.6	0.137		73.78	43.92	**29.86**
10	181.4	0.131		78.43	48.80	29.63
11	173.9	0.125		82.71	53.68	29.04
13	160.8	0.116		90.36	63.44	26.92
15	149.6	0.108		97.00	73.20	23.80
19	131.5	0.095		108.02	92.72	15.30
20	127.7	0.092		110.40	97.60	12.80
21	124.1	0.089		112.66	102.48	10.19
22	120.7	0.087		114.81	107.35	7.45
23	117.5	0.085		116.86	112.23	4.62
24	114.5	0.083		118.81	117.11	1.69
25	111.6	0.080		120.67	121.99	-1.32

APPENDIX D

Figures



SK 1. SITE LOCATION

N.T.S.

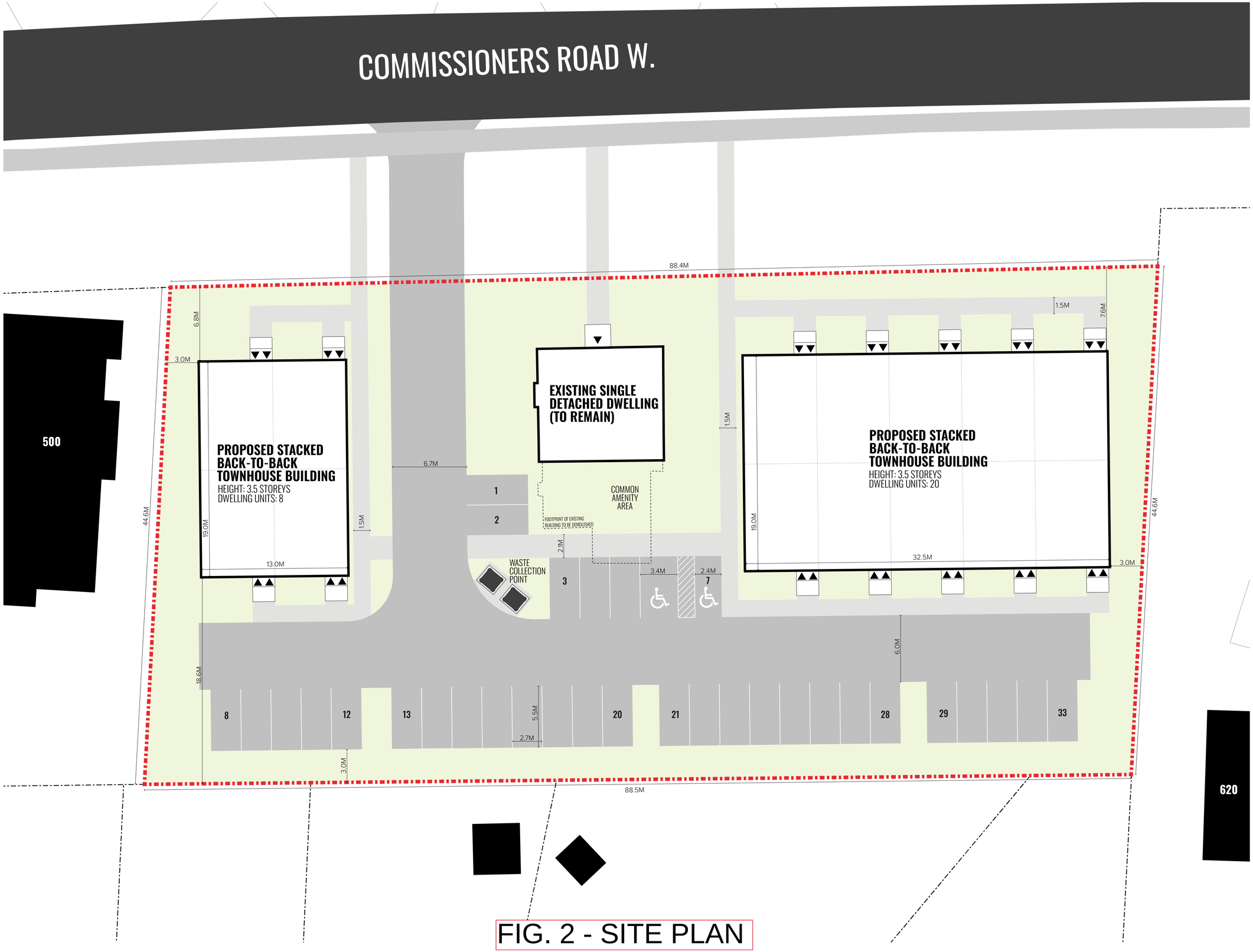


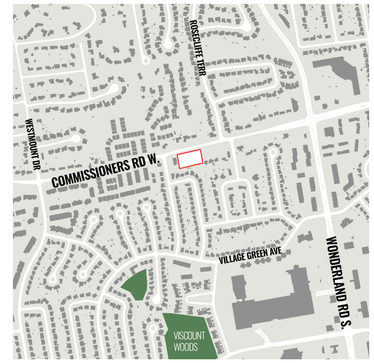
FIG. 2 - SITE PLAN

Lot Boundary Disclaimer: *Site dimensions have been assumed based on data provided by the City of London. Siv-ik planning and design inc. makes no warranties or guarantees regarding the accuracy of the lot boundaries.*

CONCEPT PLAN

01 DWG

PROJECT SITE
634 Commissioners Road W



SITE DATA

R5-7(30) ZONE

Regulations	Required	Proposed
Permitted Uses:	Section 9.2	Cluster Stacked Townhouse Dwellings
Lot Area:	1,000m² (min.)	4,499.3m²
Lot Frontage:	30.0m (min.)	88.4m
Front Yard:	6.5m (min.)	6.8m*
Interior Side Yard (First 30m of Lot Depth):	1.8 metres (5.9 feet) when the end wall of a unit contains no windows to habitable rooms, or 6.0 metres (9.8 feet) when the wall of a unit contains windows to habitable rooms.	3.0m
Interior Side Yard (Remainder of Lot):	3.0m (min.)	3.0m
Rear Yard:	1.0 metre per 1.0 metre of main building height, but in no case less than 6.0 metres.	18.6m
Landscape OS:	30% (min.)	38.4%
Lot Coverage:	45% (max.)	21.5%
Height:	12.0m (max.)	12.0m
Density:	25uph (max.)	65uph*
	Stacked Townhouse: 0.5/unit	
	Single Detached: 1 per unit	
Parking:	18 total required	33 total provided

* Requires Special Provision

Client:	Royal Premier Homes
Date:	[09.27.23]
Drawn By:	D. Murphy
Plan Scale:	nts
File No:	634CW
Version	2.0

N

[siv-ik] PLANNING / DESIGN

Contact Us
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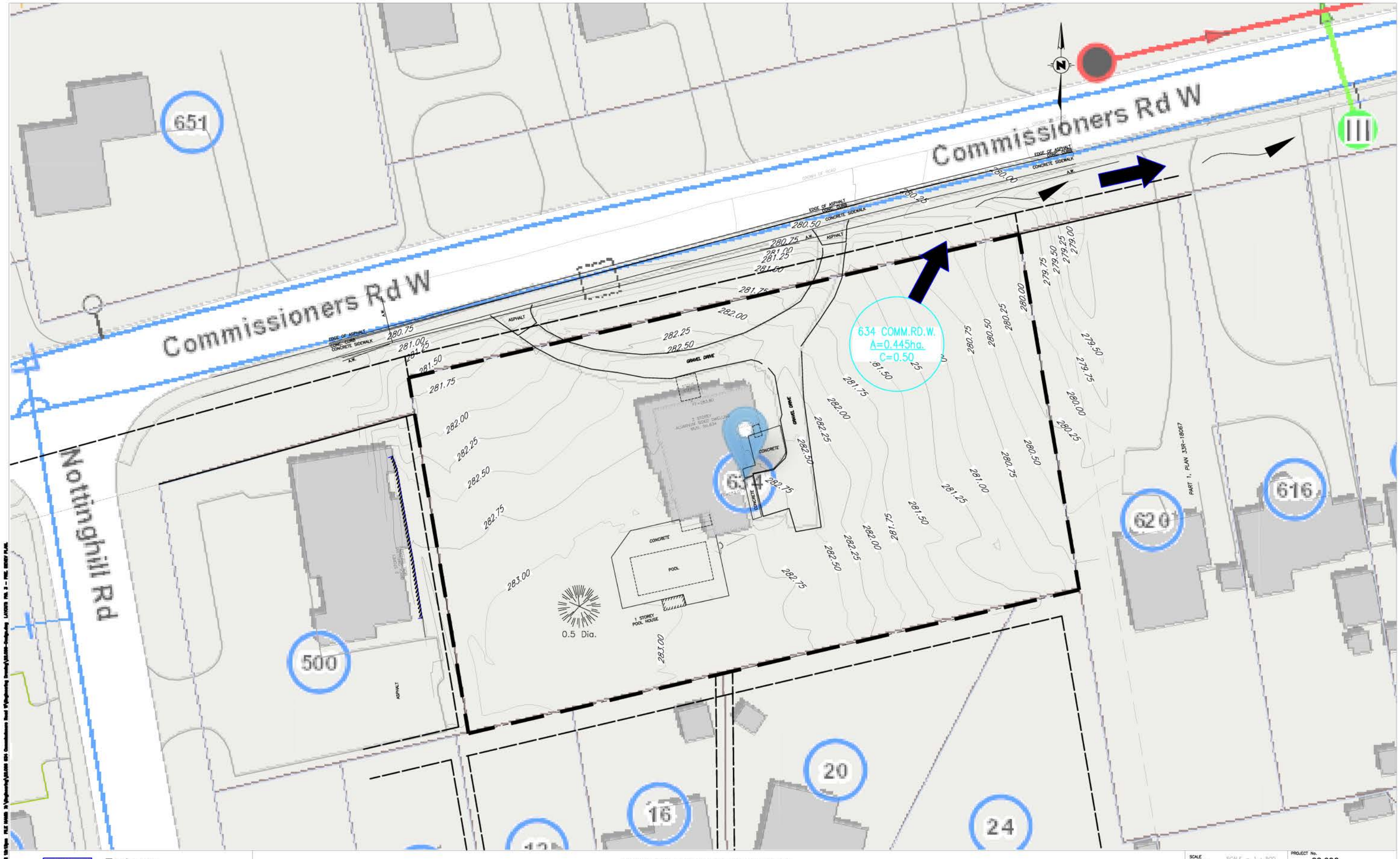


ENG PLUS

Engineers
Landscape Architects
and Building Designers

100–809 WILLIAM STREET, LONDON, ON. N6B 3G1
tel. 519.438.6994 fax. 519.438.7052
email. engplus@engplusltd.com

634 COMMISSIONERS ROAD WEST

APPROVED DRAINAGE AREA
PER CITY OF LONDON AS-BUILT DRAWING # 16954

SCALE
HORZ SCALE - 1 : 500
VERT 2.50 0 5.0m

DATE:
MAY 2022

PROJECT No.
22.096

SHEET No.
FIG. 3

PLAN FILE No.

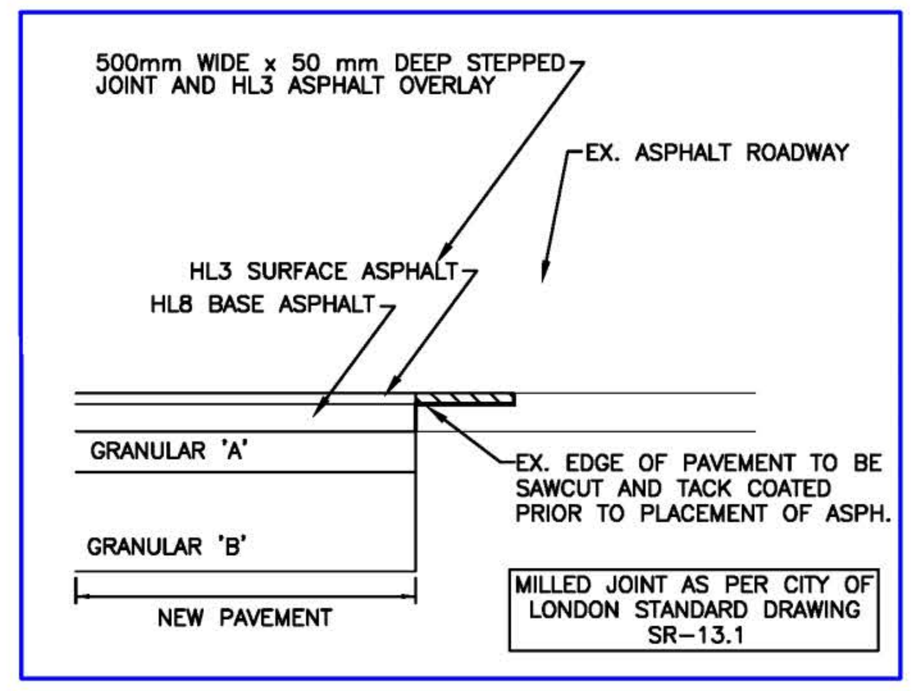
ALL SURFACES WITHIN THE CITY ROAD ALLOWANCE WHICH ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO A CONDITION AT LEAST AS GOOD AS ORIGINAL, TO THE SATISFACTION OF THE ENGINEER, ALL AT NO COST TO THE CITY.

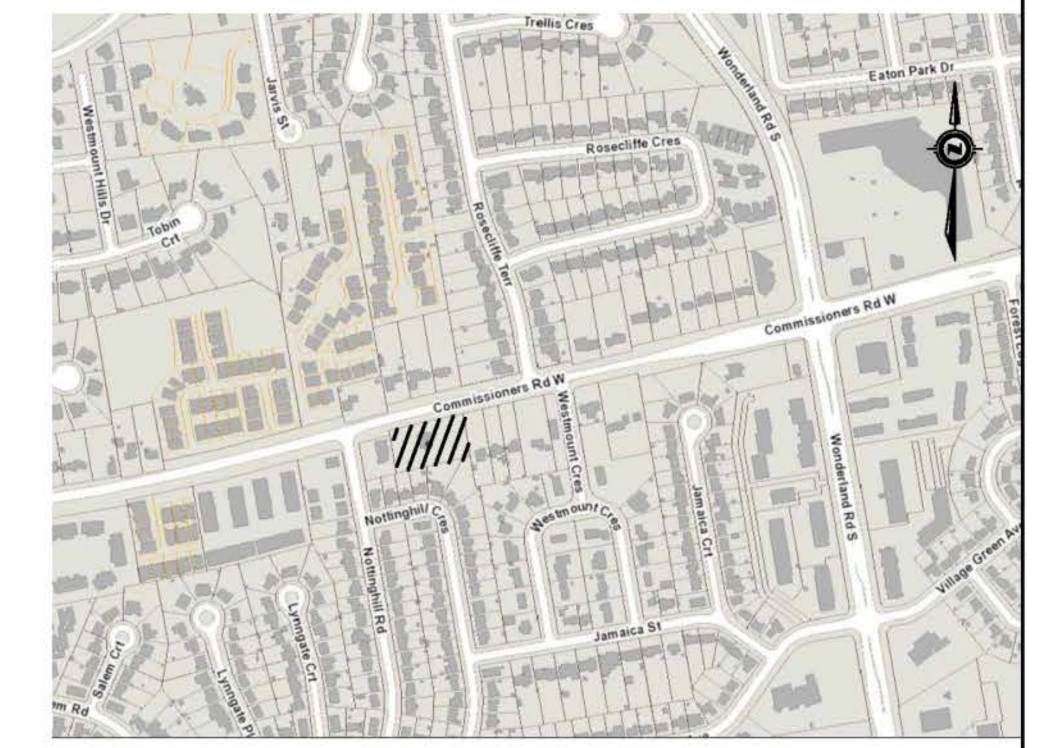
ASPHALT AREAS:
SAWCUT AND REMOVE EXISTING ASPHALT AS INDICATED. TAKE PRECAUTIONS TO AVOID UNDERMINING OR DAMAGING EXISTING SERVICES OR EXISTING CURB & GUTTER. RESTORE EXISTING ROAD AS PER CITY OF LONDON STANDARDS. ALL ASPHALT CUTS ARE TO BE MILLED 50mm DEEP x 500mm WIDE TO CREATE A LAP JOINT FOR NEW ASPHALT. APPLY ASPHALT TACK COAT PRIOR TO PLACEMENT OF SURFACE COURSE.

CURB AREAS:
SAWCUT AND REMOVE EXISTING CURB AS INDICATED. MATCH EXISTING CURB DETAILS. ALL DAMAGED CURBS TO BE RESTORED TO AS NEW CONDITION.

BOULEVARD AREAS:
ALL DISTURBED BOULEVARDS TO BE RESTORED TO AS NEW CONDITION WITH MIN. 100mm TOPSOIL & SOD.

PAVEMENT MARKINGS:
RESTORE ALL PAVEMENT MARKINGS TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS. MARKINGS SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 710 'CONSTRUCTION SPECIFICATION FOR PAVEMENT MARKING'.





EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION	DETAILS	No.	REVISIONS	DATE	CONSULTANT

ENG PLUS
Engineers
Landscape Architects
and Building Designers
100-609 WILLIAM STREET, LONDON, ON. N6B 3G1
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LICENSED PROFESSIONAL ENGINEER
V. PHAM
PROVINCE OF ONTARIO

ROYAL PREMIER HOMES
509 COMMISSIONERS RD. W. #425
London, ON N6K 1J5

SCALE – 1 : 300
3 0 6m

634 COMMISSIONERS ROAD W.
LONDON, ON

SERVICING STRATEGY

21.112

FIG. 4

PRINTED ON: Oct 17, 2023 10:17am FILE NAME: X:\Engineering\22.164 (22.096) 634 Commissioners Road W\Engineering Design\22.164-634 Commissioners Rd-servicing sketch.dwg LAYOUT: 5 SERVICING PLAN