March 04, 2025

BY EMAIL ONLY

Mr. David Smith, Manager, Planning and Development
Municipality of West Grey
402813 Grey Road 4
Durham ON N0G 1R0

Tel: 519-369-2200
Email: planning@westgrey.ca

Subject: **Proposed Townhouse Development**
270 Queen Street South
Municipality of West Grey
O/Ref.: 06005

Dear Mr. Smith:

Cobide Engineering Inc. has been retained by Candue Homes 2020 Ltd to complete the site servicing and grading design in support of the new thirteen-unit townhouse residential development located at 270 Queen Street South (herein referred to as the site), in the former Town of Durham, now the Municipality of West Grey.

The following letter outlines the servicing aspects of the proposed development with respect to water and sanitary sewer servicing and addresses the approach to stormwater management. This letter is being submitted to the Municipality of West Grey in support of the proposed development.

1.0 INTRODUCTION

1.1 Location and Site Description

The site is located at 270 Queen Street South in former Town of Durham. The property is bounded by the following:

- Residential dwellings to the south;
- Saugeen River to the west;
- Residential properties to the north; and
- Queen Street to the east.

The site is approximately 4395 square meters in area and currently has a barn situated to the south side of the property (see Figure 1). A copy of the proposed re-development Concept Plan (Drawing 06005-CP1) has been attached to this letter as Appendix A.

The property was recently severed from the house fronting Queen Street, and the existing barn has yet to be demolished. It appears that the property has a sloped drainage toward the south end of the property. The site consists of gravel driveway and grass cover as well as mature trees within the property boundary.

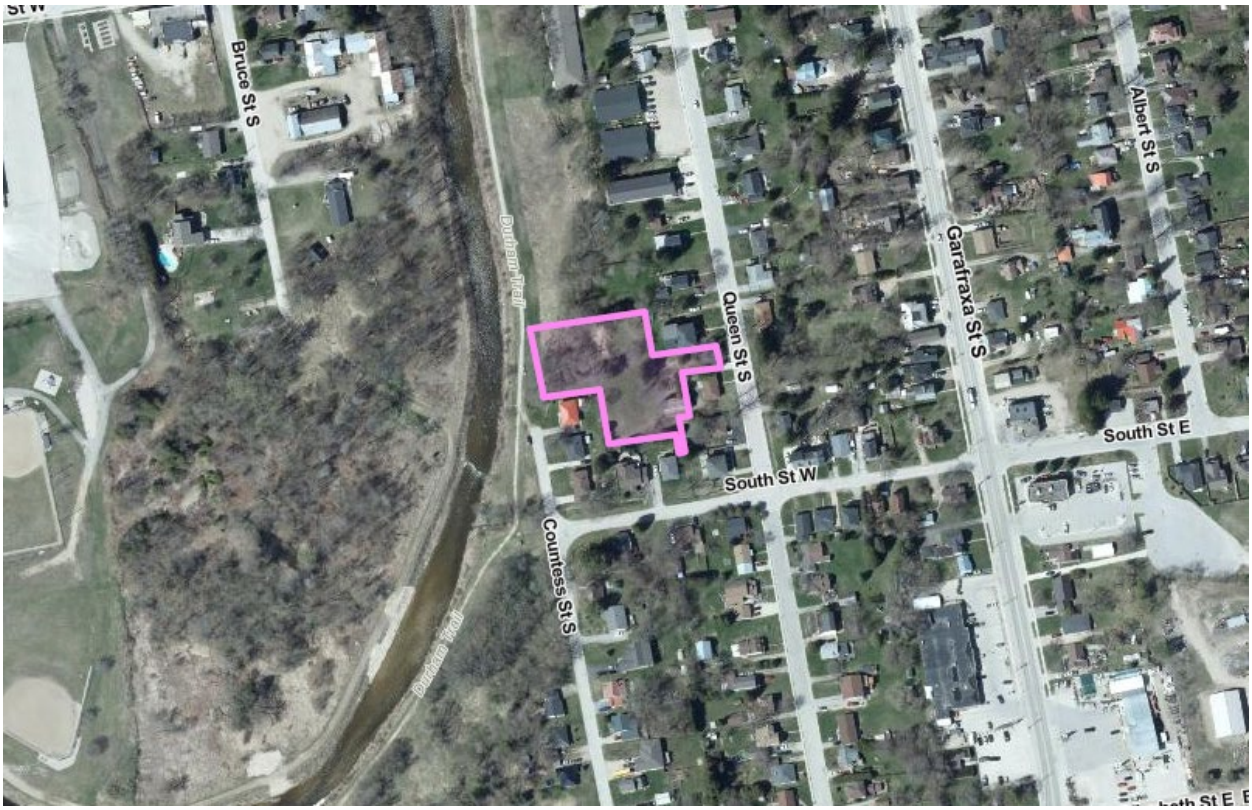

Figure 1 – Aerial Photo of the Site, Source: Grey County Maps 2024

2.0 PROPOSED DEVELOPMENT

The proposed development will consist of thirteen (13) townhouse units located in three (3) buildings. The buildings will be located on the north, south, and west portion of the property. The parking for the Site will consist of a parking lot with twenty (20) parking spots for all the units and will be off Queen Street South to the east of the proposed units. A summary of how the development is proposed to be serviced with municipal water and sanitary infrastructure is provided below.

See Appendix A for the proposed Concept Plan (Drawing 06005-CP1).

3.0 SITE SERVICING

3.1 Water Servicing

Each new unit is proposed to be serviced with a 25 mm diameter municipex water service connecting to a proposed 150 mm diameter watermain. The proposed watermain will connect to the existing 150 mm diameter watermain on Queen Street South.

The theoretical water demand for the proposed development is summarized below. The water demand was calculated using the Ministry of the Environment and Climate Change's Design *"Guidelines for Water Systems"*.

Table 3.1 – Domestic Water Demand

Type of Development	Water Demand (L/c/d)	Pop. Density	No. of Units	Pop.	Average Demand (L/s)	Max. Day Peak Factor	Max. Day Demand (L/s)	Peak Hour Factor	Peak Hour Demand (L/s)
Residential	450	2 ppl /unit	13 units	26	**0.135**	2.75	**0.37**	4.13	**0.56**

3.2 Sanitary Servicing

Each proposed unit in the development will be serviced with a new 125 mm diameter sanitary service. The new service will be connected to the proposed sanitary manhole and the new 200 mm diameter sanitary sewer. The new sanitary sewer will connect to the existing 300 mm diameter sanitary sewer on Queen Street South.

The total design flow including extraneous flows has been calculated based on the flow rates specified in Table 8.2.1.3.B of the Ontario Building Code.

Table 3.2 – Sanitary Flows

Type of Development	Population	Flow (L/c/d)	Avg. Flow (L/s)	Peaking Factor	Peak Flow (L/s) (1)	Extran. Flow (L/s) (2)	Total Flow (L/s) (1+2)
Residential	26	450	**0.135**	4.13	**0.56**	**0.123**	**0.68**

- *Extraneous Flow: Q_{Inf} = 0.28 L/effective gross area x 0.44 ha = 0.123 L/s*

3.3 Stormwater Management and Site Drainage

The proposed development will be graded to have the east portion of the development drain towards Queen Street South. There is a highpoint in the proposed driveway that will direct the remainder runoff from the entrance to the proposed parking lot area. Catchbasins will be located in the parking lot to drain stormwater into a ditch inlet on the west portion of the property. Where possible, the eavestroughs will be directed to the grassed area to provide quality control. There will be a catchbasin located on the south portion of the property to collect the remaining runoff. This proposed development will reduce the amount of stormwater runoff accumulating on the nearby lots within the area.

Based on the Sites proximity to the Saugeen River, no quality control is proposed. The following summarizes the pre and post development flows:

3.3.1 Pre-development Conditions

The pre-development catchment area drawing has been attached as **Appendix B**. The impervious area of the site under pre-development conditions is approx. 0.04 ha or 9.6% of the entire area. The corresponding weighted runoff coefficient has been calculated to be 0.27.

Using the Rational Method and the above impervious area, the pre-development peak flows for the site were calculated for the 1:5 yr. and 1:100 yr. storm events. A summary of the pre-development peak flows is provided below.

- 1:5 year storm = 31 L/s

- 1:100 year storm = 46 L/s

3.3.2 Post Development Conditions

The post development catchment area drawing has been attached as **Appendix B**. Based on the proposed layout of the development, the impervious area will be approx. 0.21 ha or 46.6% of the entire area. The corresponding weighted runoff coefficient has been calculated to be 0.53.

Using the Rational Method and the above impervious area, the post development peak flows for the site were calculated for the 1:5 yr. and 1:100 yr. storm events. A summary of the post development peak flows is provided below.

- 1:5 year storm = 60 L/s
- 1:100 year storm = 91 L/s

The Site will be serviced to direct runoff to the west to an existing culvert that outlets to the Saugeen River. Goss traps will be utilized in the structures to provide quality control for runoff from the parking lot. The Development of the Site has been situated to be outside the Saugeen River floodway. All building openings are proposed to be above the floodplain elevation. Proposed grade at the buildings will also be above for all units except unit 5 and a portion of unit 6. The foundation for these units will be designed to meet SVCA floodproofing requirements.

4.0 TRAFFIC AND PARKING

The proposed development will contain a parking lot located in the middle of the three (3) townhouse buildings for each unit. Queen Street South and South Street West are low volume roads and will not be negatively impacted by the proposed development.

Sidewalks will be installed at this development to access the existing sidewalks on Queen Street South. The proposed sidewalk will lead from the proposed townhouse units and around the proposed parking lot. This will allow better accessibility to the parking lot and the existing sidewalks within the area.

5.0 EROSION AND SEDIMENTATION CONTROL

Erosion and sedimentation control measures will be implemented during construction. Silt fence will be required to be installed around the perimeter of the site.

All proposed erosion and sediment control measures are to be installed to the satisfaction of the engineer and the Municipality of West Grey prior to undertaking any site alterations (i.e., filling, grading, etc.) and remain present throughout the duration of construction.

The General Contractor will conduct daily inspections during construction to ensure that the erosion and sedimentation control measures are working properly.

Erosion and sedimentation control measures to be implemented during construction will consist of the installation of light duty silt fencing around the perimeter of the property.

6.0 SUMMARY AND CONCLUSIONS

This letter has been prepared in support for the proposed townhouse development at 270 Queen Street South in the former Town of Durham.

Based on the finds of this letter, the following conclusions are made:

1. The proposed development will be serviced by connecting to the existing watermain and sanitary main infrastructure on Queen Street South.

2. Stormwater will be maintained on the proposed site with proper grading techniques to drain toward Saugeen River and Queen Street South

3. Erosion and sediment control measures will be implemented throughout the duration of construction.

The above assessment demonstrates that the proposed development can be adequately serviced with water, sanitary and drainage that will not impact surrounding areas. It is therefore recommended that the proposed residential development be approved by the Municipality of West Grey and the County of Grey.

If you have any questions regarding the above, please contact the undersigned at 519-506-5959, extension 101.

Yours truly,

Travis Burnside, P.Eng.
Director

Encl.

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LEGEND

PROPERTY BOUNDARY	SANMH	PROPOSED SANITARY MANHOLE	CB	PROPOSED CATCH BASIN	PROPOSED TEE c/w RESTRAINTS
EDGE OF EXISTING PAVEMENT	SANMH	EXISTING SANITARY MANHOLE	CB	EXISTING CATCH BASIN	PROPOSED CAP c/w THRUST BLOCK
EDGE OF EXISTING GRAVEL	STMMH	PROPOSED STORM MANHOLE	DICB	PROPOSED DITCH INLET CATCHBASIN	PROPOSED BLOWOFF
PROPOSED SANITARY SEWER	STMMH	EXISTING STORM MANHOLE	HYD	PROPOSED HYDRANT SET	BENCHMARK
EXISTING SANITARY SEWER	CBMH	PROPOSED CATCHBASIN MANHOLE	HYD	EXISTING FIRE HYDRANT	PROPOSED ELEVATION
PROPOSED STORM SEWER	TCBMH	PROPOSED TRANSFORMER	BV	PROPOSED GATE VALVE	EXISTING ELEVATION
EXISTING STORM SEWER	TICB	PROPOSED TWIN INLET CATCHBASIN MANHOLE	BV	EXISTING GATE VALVE	EXISTING CONTOUR LINE
PROPOSED SUBDRAIN		PROPOSED TWIN INLET CATCHBASIN		PROPOSED BEND c/w RESTRAINTS	PROPOSED TACTILE PLATES
PROPOSED WATERMAIN		PROPOSED LIGHT POLE			
EXISTING WATERMAIN		EXISTING FENCE			

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

Notes

1. TOPOGRAPHIC INFORMATION DERIVED FROM FIELD SURVEY BY COBIDE ENGINEERING INC. ON JANUARY 05, 2023.
2. LOT FABRIC BASED ON PLAN OF SURVEY COMPLETED BY VAN HARTEN SURVEYING INC. ON NOVEMBER 03, 2022
3. ALL ORGANIC MATERIAL WITHIN 1.2m OF FINISHED PROFILE GRADE TO BE REMOVED FROM ALL AREAS UNDER THE TRAVELLED PORTION OF THE ROAD.
4. COVER OVER WATERMAIN 1.8m MINIMUM AT ALL POINTS INCLUDING WATER SERVICES. WATER SERVICES TO GO UNDER STORM SEWER WHERE 1.8m COVER CANNOT BE ACHIEVED BY GOING OVER TOP.
5. ALL SANITARY SEWER SHALL BE PVC SDR 35, SANITARY LATERALS SHALL BE PVC SDR 28.
6. ALL STORM CATCHBASINS TO HAVE A MINIMUM SUMP OF 600mm AND ALL STORM MANHOLES TO HAVE A MINIMUM SUMP OF 300mm .
7. MAINTAIN 2.50m CLEARANCE BETWEEN STORM/ SANITARY SEWER AND WATERMAIN.
8. STORM SEWERS UP TO AND INCLUDING 900mmØ ARE BOSS 2000. ALL STORM SEWERS 1050mmØ AND LARGER ARE BOSS 3000.
9. ALL WATERMAINS TO BE PVC DR 18 WITH 19mmØ REHAU MUNICIPEX SERVICE TUBING FOR WATER SERVICES.
10. ALL HYDRANT SETS REQUIRE TEST POINT AND HYDRANT MARKER.
11. ALL JOINTS OF SANITARY MANHOLES TO BE CAULKED WITH MIN. 15mm BEAD, INSTALLED ON THE TOP OF JOINT OF EACH SECTION PRIOR TO ABOVE SECTION BEING INSTALLED. CAULKING TO BE SIKAFLEX 1A OR APPROVED EQUIVALENT.
12. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNTIL STAMPED 'ISSUED FOR CONSTRUCTION'.
13. ALL CONSTRUCTION TO BE COMPLETED TO MUNICIPALITY OF WEST GREY STANDARDS.
14. ALL ROOF LEADERS FOR MULTI-BLOCKS TO BE DIRECTED TO FRONT YARDS WHEREVER POSSIBLE.

SCALE 1:200

5 0 2.5 5 10 METRES

20 10 5 0 10 20 FEET

Benchmark Information

BM1
TOP OF IRON BAR, LOCATED AT THE NORTH WEST CORNER OF #278 QUEEN STREET SOUTH. (AS SHOWN ON DRAWING)
ELEVATION 337.40m

BM2
TOP OF STANDARD IRON BAR, LOCATED AT THE SOUTH WEST CORNER OF THE SUBJECTS PROPERTY. (AS SHOWN ON DRAWING)
ELEVATION 337.22m

No.	DATE	DESCRIPTION	BY	APPD
0	MAR 04/25	FIRST SUBMISSION	ID	TLB

REVISION / ISSUE

Seal not valid unless signed and dated

COBIDE ENGINEERING INC
517 - 10th STREET, Hanover, Ontario N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

Title:

PROPOSED TOWNHOUSES

270 QUEEN STREET SOUTH
MUNICIPALITY OF WEST GREY
COUNTY OF GREY

DEVELOPMENT SITE PLAN

Client:	CANDUE 2020 LTD		
Design:	TLB	Scale:	1:200
Drawn:	ID	Approved:	
Checked:	TLB		
Date:	MARCH 2025		Design Engineer
DRAWING No.	06005-C3		

H:\Master Documents_CIVIL 3D\Bak Files\AsPublish_2712\06005 - 270 Queen Street South Base Plan 2025-03-04.dwg Mar 04, 2025 - 8:58am

COBIDE ENGINEERING INC

Subdivision: **270 Queen Street**
Date: February 20, 2025
Designed By: NSL
Checked By: TLB
File Number: 06005

Pre and Post Development Runoff Coefficients

	Area/Width	"C"
House Area =	315	0.90
Semi Area =	0	0.90
Townhouse Area =	0	0.90
Sidewalk Width =	0.00	0.90
Townhouse Road Width =	0.00	0.90
Half-Road Width =	4.75	0.90
House Driveway Area =	295	0.90
Semi/Town Driveway Area =	0	0.90
Pervious Area =		0.20

AREA ID	Total Area (ha)	Houses (#)	Semis (#)	Towns (#)	Townhouse Road (m)	Road (m)	Sidewalk (m)	House Driveways (#)	Semi/Town Driveways (#)	Pervious (ha)	Impervious (ha)	Balanced 'C'
Pre-Dev												
100	0.440									0.398	0.04	0.27
Post-Dev												
200	0.440									0.230	0.21	0.53

Notes:
Taken from the Ministry of the Environment - Guidelines for the Design of Storm Sewers
- Pervious area has a runoff coefficient equal to 0.20

COBIDE ENGINEERING INC

270 Queen Street South, Durham ON

DATE: February 20, 2025
DESIGNED BY: NSL
CHECKED BY: TLB

PRE-DEVLOPMENT VS. POST DEVELOPMENT FLOWS (5-YEAR STORM)

FILE NUMBER: 06005

I = a / ((tc + b) ^c)

a= 968.1
b= 8.09
c= 0.8100

LOCATION			DRAINAGE AREA							PIPE SELECTION					
	FROM M.H.	TO M.H.	AREA (ha)	C	A x C (ha)	ACCUM. AREA (ha)	T of C (min)	I (mm/h)	Q (m3/s)	LENGTH (m)	PIPE SIZE (mm)	SLOPE %	CAP. (FULL) (m3/s)	VEL. (FULL) (m/S)	TIME OF FLOW (min)
Pre-Development															
270 Queen Street South Barn 100	Site	Storm	0.440	0.27	0.12	0.12	10.00	92.77	**0.031**						
Post-Development															
270 Queen Street South Townh 200	Site	Storm	0.440	0.53	0.23	0.23	10.00	92.77	**0.060**						

COBIDE ENGINEERING INC

270 Queen Street South, Durham ON

DATE: February 20, 2025
DESIGNED BY: NSL
CHECKED BY: TLB

PRE-DEVLOPMENT VS. POST DEVELOPMENT FLOWS (100-YEAR STORM)

FILE NUMBER: 06005

I = a / ((tc + b) ^c)

a= 1672.02
b= 10.32
c= 0.8225

LOCATION			DRAINAGE AREA							PIPE SELECTION					
	FROM M.H.	TO M.H.	AREA (ha)	C	A x R (ha)	ACCUM. AREA (ha)	T of C (min)	I (mm/h)	Q (m3/s)	LENGTH (m)	PIPE SIZE (mm)	SLOPE %	CAP. (FULL) (m3/s)	VEL. (FULL) (m/S)	TIME OF FLOW (min)
Pre-Development															
270 Queen Street South Barn 100	Site	Storm	0.440	0.27	0.12	0.12	10.00	140.43	**0.046**						
Post-Development															
270 Queen Street South Townh 200	Site	Storm	0.440	0.53	0.23	0.23	10.00	140.43	**0.091**						