

November 16, 2015
Our File: 215336

Misty Meadows
c/o Cuesta Planning Consultants
978 First Avenue West
Owen Sound, ON N4K 4K5

Attention: Nolan Moss

Re: Preliminary Servicing Review
Proposed Commercial Development
Part of Lot 29, Concession 4
Former Township of Egremont
Municipality of Southgate

Dear Nolan,

As requested, the following is a review of the potential servicing availability for the proposed commercial development located northwest of the intersection of Highway 89 and Grey Road 14 in the geographic hamlet of Conn. The site is described as Part of Lot 29, Concession 4 in the Former Township of Egremont, Municipality of Southgate. It is our understanding that this review is being conducted to support the planning/zoning approval process.

The scope of this review includes review of proposed site uses to establish:

- Potential water supply and sewage needs, and
- Whether conditions exist to support the proposed use.

This review provides a preliminary assessment of the potential for servicing and is not to be considered detailed design. It is our understanding the detailed design and layout considerations would be implemented as part of the site plan and development process. This assessment is based on information provided by the client and publically available background information such as geologic mapping and well records.

Design Daily Sewage Flows and Water Needs

The building can be classified as a "Store" under "Other Occupancies" within the OBC Table 8.2.1.3.B, which states that the daily design sewage flow is the greater of the following:

- 5 L per 1.0 m² of floor area, or;
- 1230 L per water closet.

Considering the proposed building is to be approximately 850 m² and two (2) water closets, the possible daily design sewage flows from the building are 4,250 L or 2,460 L. Consequently, the greater daily design sewage flow of 4,250 L/day (based on floor area) is to be used in the sizing of the septic tank and on-site sewage system.

With respect to water use, this could also be considered the "peak" or maximum daily water use. Assuming a 10-hour day, 4,250 L/day correlates to approximately 7 litres per minute (Lpm), although peak short-term demand would be greater. Based on the proposed nature of the development as a store with two water closets, it is reasonable to expect the short-term water use to be similar to that of a domestic home. Based on Ministry of Environment guidelines, the minimum supply rate for a residential home is considered to be 13.7 litres per minute (Lpm).

Septic Tank Size

The minimum working capacity for a septic tank must be the greater of 3,600 L or three times the daily design sanitary sewage flow for a non-residential occupancy as per the OBC Section 8.2.2.3.(1). Given that the daily design sewage flow is 4,250 L for the proposed building, a septic tank (or tanks) of at least 12,750 L in capacity is recommended. The site area corresponding to such capacity is estimated to be on the range of 10 m².

Size of Leaching Bed

Under a standard OBC approved Class 4 Sewage System, the Owner may be able to select various sub-surface disposal options for the treated effluent. The ultimate area of each of the available options are prescribed within the OBC. As such, two alternatives were examined for sizing: 1) filter bed/absorption trench, and 2) tertiary treatment (i.e., Level IV treatment) with the use of a dispersal bed.

The size of leaching bed will ultimately depend on the ability of the subsurface soil to accept/infiltrate the sewage flows. This property is described by the "T-time" of the soil. The "T-time" of a soil sample has been collected for grain-size analysis and determined to be 40 min/cm, as presented in the letter report by CMT Engineering Ltd. dated August 4, 2015.

The calculation of bed area for each of the alternatives' is outlined in Section 8.7 of the OBC.

As per the OBC Table 8.7.4.1., the soil's percolation time (T) of 40 min/cm requires a maximum loading rate of 6 L/m² per day to the underlying soil for both the absorption trench and filter bed alternatives, including the mantle area. As a result, a daily design sewage flow of 4,250 L would require a minimum footprint of approximately 710 m².

In the event a tertiary treatment option was utilized, a Type A dispersal bed that requires a smaller footprint could be used. In conjunction with a required Level IV treatment unit, the required area of a Type A dispersal bed receiving a daily design sewage flow exceeding 3,000 L is as follows:

$$\text{Area of Contact} = \frac{4,250 \text{ L} \times 40 \text{ min/cm}}{850} = 200 \text{ m}^2$$

The disposal option ultimately selected by the Owner and is to be constructed as per the requirements stated in Section 8 of the OBC. In particular, set back requirements are required for features such as drilled wells, property lines, and structures.

In summary, the area required for installation of a sewage system is estimated to be:

- Approximately 720 m² for a standard Class IV system, or
- Approximately 210 m² for a Tertiary Treatment System with Dispersal Bed.

The actual area will be dependent on the design of the sewage system and the soil conditions beneath the bed. These items are to be confirmed as part of system design.

Water Availability

Currently, a drilled well exists on-site. Based on the well record, the well was completed on December 19, 1997 and is completed in gray limestone (inferred to be dolostone) at a depth of 42.1 m (138 feet). A copy of the well record is enclosed with this letter. According to the well record, the recommended pumping rate is 18.1 Lpm (i.e, 4 gallons per minute) based on a pumping test that was completed at 18.1 to 22.7 Lpm. This rate is considered sufficient to support the proposed development.

To provide further certainty regarding potential well yield, area well records were reviewed. The information from the well records have been extrapolated to estimate maximum potential well yield based on the reported available water column. While it should be recognized that these estimates provide maximum rates, they are considered to provide an approximation of yields for the purpose of this evaluation.

A summary of the analysis is provided on the enclosed Table and shows potential yields vary from 10.6 to 946 Lpm. This data is consistent with the overall hydrogeological setting and properties of the bedrock aquifer system, where significant water quantity is expected. The water quality is expected to be naturally mineralized, consistent with bedrock water supply throughout the area. Water quality issues are typically addressed through on-site treatment systems including water softener and disinfection (such as UV treatment).

Stormwater Management

Stormwater management design is dependent on the specific site layout, grading, and outlet for the property and can be dealt with at the site plan development stage.

Summary

Based on this review, it is reasonable to expect that sufficient domestic water supply is available from the bedrock aquifer system. The well record indicates that the existing well has sufficient yield to support the estimated water usage demands.

The area required for installation of a sewage system is estimated to be:

- Approximately 720 m² for a standard Class IV system, or
- Approximately 210 m² for a Tertiary Treatment System with Dispersal Bed.

It is recommended that the information provided herein, be confirmed as part of the detailed design and site plan/development process.

Yours truly,
GM BLUEPLAN ENGINEERING LIMITED

Per:

A handwritten signature in black ink, appearing to read 'Matthew Nelson', with a long horizontal flourish extending to the right.

Matthew Nelson, P.Geo., P.Eng.

MN/kd

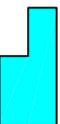
cc: File 215336

CONN COMMERCIAL DEVELOPMENT

LOCATION:
 S PT LOT 29 CONCESSION 4
 GEOGRAPHIC TOWNSHIP OF EGREMONT
 TOWNSHIP OF SOUTHGATE
 GREY COUNTY

APPLICANT:
 MISTY MEADOWS MARKET INC.
 POSTAL BOX 37
 7992 HIGHWAY 89
 CONN, ONTARIO N0G 1N0

LEGEND

	EXISTING PROPERTY BOUNDARIES
	SUBJECT PROPERTY BOUNDARIES
	EXISTING BUILDING ENVELOPES
	VEGETATION
	PROPOSED STRUCTURE



Cuesta PLANNING CONSULTANTS INC.
 Urban and Rural Planning and Resource Management

Project No.	Dwn. By	PLOTTED:
21436	NWMI	August 25, 2015

Drawing:
 BRUCE FULCHER - CONN DEVELOPMENT

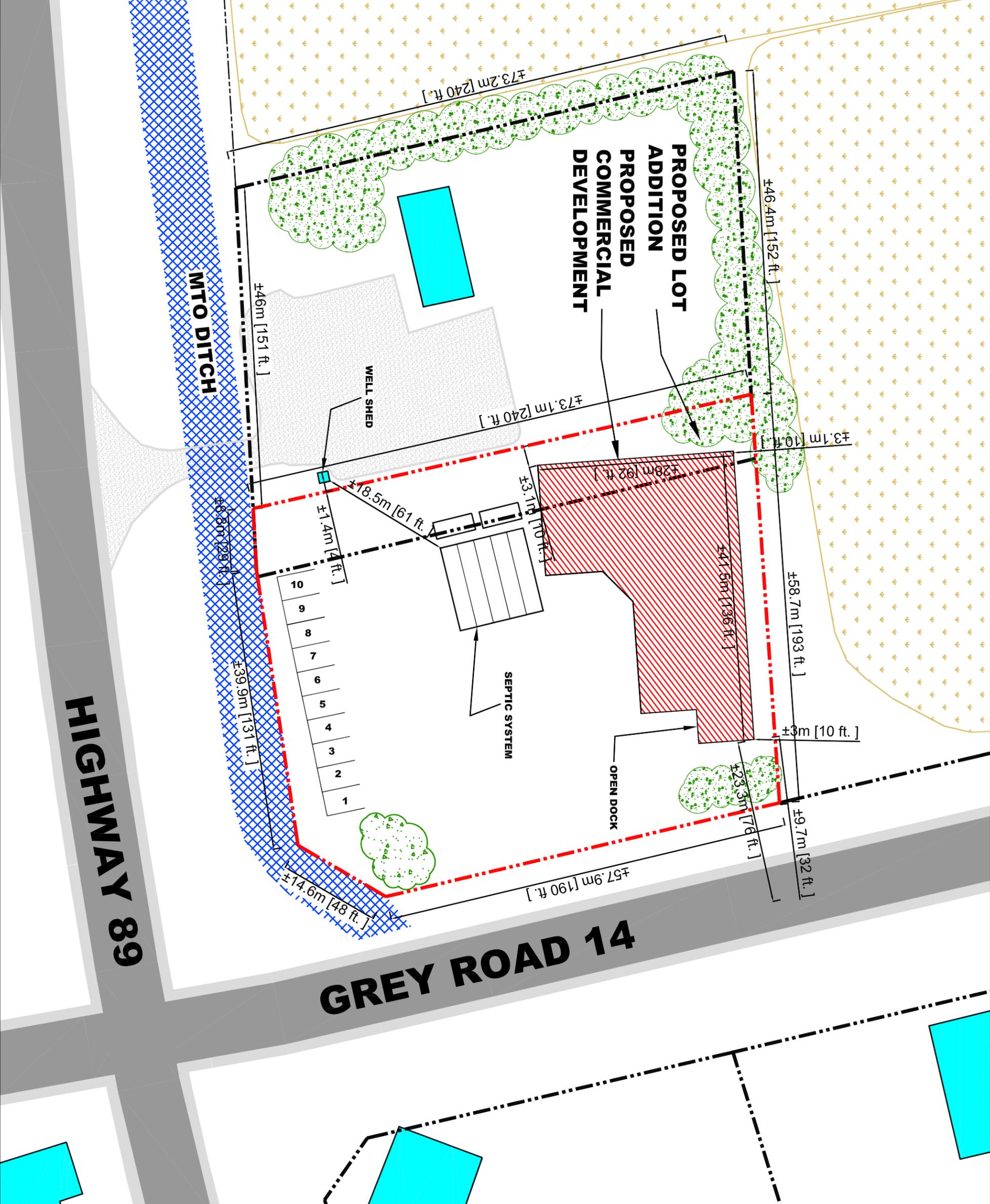


Table 1
MOECC Water Well Survey Summary and Potential Well Yields
Part of Lot 29, Concession 24, Former Township of Egremont

MOE Well ID No	Township	Lot	Conc.	Approx distance from Site	Water Use	Depth of Well (m)	Depth to Bedrock (ft)	Bedrock Thickness (Intersected by Well)	Depth to Water (Water Found)	Static Water Level	Saturated Thickness (H)	Top of Screen/Open Hole	Pumping Rate (Q)		Test Duration		Final Water Level (End of Test)	Drawdown	Transmissivity (T=0.6*Q/s)	Available Drawdown (0.9*H)	Potential Well Yield (Y= 0.54(T*H))	
						(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(GPM)	(m3/sec)	(Hours)	(Sec)	(m)	(m)	(m2/sec)	(m)	(m3/s)
Site Well	Egremont	29	4	Site	Supply	42.0	18.8	75.7	21.0	1.52	40.4	19.5	5	3.79E-04	1	360	17.3	15.8	1.434E-05	36.39	0.00028	16.9
2505229	Proton	3	1	150 m	Supply	31.9	18.2	44.7	31.3	1.22	30.7	18.5	10	7.58E-04	1.5	540	9.12	7.9	5.736E-05	27.63	0.00086	51.4
7160034	Proton	1	1	110 m	Supply	53.2	21.3	104.7	53.2	3.04	50.2	22.5	5	3.79E-04	1.25	450	33.44	30.5	7.457E-06	45.14	0.00018	10.9
7113482	Proton	3	1	150 m	Supply	35.3	22.2	42.7	28.3	3.65	31.6	22.8	10	7.58E-04	12	4320	4.256	0.6	7.457E-04	28.45	0.01146	687.5
6711535	West Luther	1	14	90 m	Supply	24.3	23.1	3.7	24.3	4.56	19.8	24.3	25	1.89E-03	1	360	6.08	1.5	7.457E-04	17.78	0.00716	429.7
6707044	West Luther	1	14	150 m	Supply	33.4	26.4	22.7	31.9	5.17	28.3	26.9	100	7.58E-03	1.5	540	9.12	4.0	1.147E-03	25.44	0.01576	945.8
6708034	West Luther	1	14	130 m	Supply	31.0	24.3	21.7	31.0	3.95	27.1	24.6	15	1.14E-03	1	360	6.08	2.1	3.196E-04	24.35	0.00420	252.1
7126830	Conn	9636 Wellington Rd 14		160 m	Supply	24.3	16.1	26.7	17.3	5.62	18.7	17.0	5	3.79E-04	3	1080	17.328	11.7	1.937E-05	16.83	0.00018	10.6
6712169	(Conn)	1	1	160 m	Supply	50.2	16.4	110.7	50.2	3.95	46.2	18.2	7	5.30E-04	1	360	13.68	9.8	3.263E-05	41.59	0.00073	44.0

