

M.J. Davenport & Associates Ltd.

CONSULTING ENGINEERS AND PLANNERS

MURRAY J. DAVENPORT, P.Eng.

MICHAEL M. DAVENPORT, P.Eng.

CELEBRATING 40 YEARS

ADELAIDE ROAD SUBDIVISION

22805 Adelaide Road

Geographic Town of Mount Brydges

Municipality of Strathroy-Caradoc

FUNCTIONAL SERVICING REPORT

M.J. Davenport & Associates Ltd. have been retained by Liahn Farms Limited and Thames Crest Farms Limited to prepare this Functional Servicing Report in support of a proposed plan of subdivision bounded by Falconbridge Drive, Rougham Road and Adelaide Road in the Geographic Town of Mount Brydges. This report provides the conceptual framework for water distribution, sanitary sewage and storm drainage of a residential subdivision.

This report has been prepared to accompany the submission for Draft Plan approval of a residential Plan of Subdivision.

Site Description

The subject property is bounded by Adelaide Road, Falconbridge Drive, Rougham Road, the Lions Park and houses fronting onto Adelaide Road. The property legal description is Lots 18, 19, 20, 21 & 22 Plan 34M-7 in the Municipality of Strathroy-Caradoc, County of Middlesex.

Development Proposal

The Draft Plan of Subdivision has an area of 26.23 hectares. The plan has 10.79 hectares of residential lands, 2.67 hectares of roads, 11.47 hectares of open space lands and 0.59 hectares of stormwater management facilities.

Single Detached Lots	109
Townhouse Units	98
Sewage Pumping Station Block	1
Stormwater Management Block	1

Open Space Blocks	1
Road Widening Blocks	4
Right-of-Way Widths of 20.1 metres	

Adelaide Road (County Road No. 81)

Adelaide Road is a major arterial road serviced by the County of Middlesex. The development of the plan of subdivision will include upgrading the road across the frontage of the subdivision to full urban standards complete with storm sewers, concrete curb and gutter and concrete sidewalk. A cost sharing agreement with the Municipality of Strathroy-Caradoc, the County of Middlesex and the adjacent developer to address upgrades to the existing Adelaide Road is appropriate.

Falconbridge Drive and Rougham Road

Falconbridge Drive and Rougham Road are owned by the Municipality of Strathroy - Caradoc. The development of the plan of subdivision will include upgrading Falconbridge Drive to full urban standards, complete with storm sewers, concrete curb and gutter, concrete sidewalk and sodded boulevard, on the subdivision side of the road. A cost sharing agreement with the Municipality of Strathroy-Caradoc to address upgrades to the existing Falconbridge Drive and Rougham Road is appropriate.

Internal Roads

The streets within the plan of subdivision will be constructed in accordance with the Strathroy-Caradoc Servicing Standards dated October 2021. The local streets will be constructed with 20.1 metre road allowance width and 8.0 metre wide pavement width.

The urban roads within the plan of subdivision will be constructed based on the following minimum standards subject to the recommendations of a Geotechnical Engineer.

Hot Mix Asphalt HL3 Surface Course	40 mm minimum thickness
Hot Mix Asphalt HL8 Base Course	50 mm minimum thickness
Granular 'A' Gravel	150 mm minimum thickness
Granular 'B' Gravel	300 mm minimum thickness

Concrete sidewalks will be constructed on both sides of the internal streets.

Water Supply

The Mount Brydges hamlet is currently serviced with a municipal water distribution system supplied by the Lake Huron Primary Water Supply Watermain.

The plan of subdivision will be serviced by extending the existing municipal water system on Adelaide Road into the subject property to service each lot.

Hydrant flow testing results completed by LHS Inc. on July 27, 2023 indicated that the projected flows from a single port at 20 psi would produce 919 USGPM and from two ports at 20 psi would produce 890 USGPM.

The Strathroy - Caradoc Servicing Capacity and Constraints Study dated July 2022 recommends “upgrades in the north end of Mount Brydges, namely upsizing the Adelaide Road watermain from Woods Edge Road to Falconbridge Drive as well as a 300mm watermain extension on Falconbridge Drive.”

Upsizing the Adelaide Road watermain from Woods Edge Road to Falconbridge Drive from a 100 mm diameter watermain to a 300 mm diameter watermain will benefit the Adelaide Road Subdivision, the existing homeowners currently serviced by the watermain, plus a proposed draft plan of subdivision on the side of Adelaide Road opposite the Adelaide Road Subdivision. A cost sharing agreement with the municipality and the adjacent developer to address the cost of upsizing the Adelaide Road watermain to 300 mm diameter is appropriate.

Sewage Disposal

The Mount Brydges hamlet is currently serviced with sanitary sewers and two sewage pumping stations that outlet into a waste water treatment plant consisting of rotating biological contactors (RBC), final clarifiers, filter pump chamber, an effluent filtration system, UV disinfection system, chemical storage and feed system for alum and soda ash, effluent outfall and standby generator. The waste water treatment plant operates under a MOE Certificate of Approval No. 7788-8BJRL8 with a rated capacity of 825 cubic metres per day and a peak flow of 1,650 cubic metres per day to service a population of 1,950 persons. The plant has provision for future expansion to 1,180 cubic metres per day (projected population of 2,790 persons).

The census population in 2021 was 2,656 persons.

We propose to extend the existing sanitary sewer along Adelaide Street to service the plan of subdivision. Street 'A' will be serviced by a gravity sanitary sewer.

A sewage pumping station, located near the intersection of Falconbridge Drive and Rougham Road, will pump sewage from the low northwesterly corner of the subdivision lands into the gravity sanitary sewer on Street 'A'.

A preliminary Sanitary Sewer Design Chart is attached for your reference.

The Strathroy - Caradoc Servicing Capacity and Constraints Study dated July 2022 states "the northwest sewage pumping station is a duplex pumping station. The capacity of each installed pump is 31.3 litres per second at 15.78 metres total dynamic head. The future (2046) peak inflow to the Northwest Sewage Pump Station is 37.36 litres per second." i.e. the northwest sewage pumping station will be marginally undersized for the future (2046) conditions.

The report recommends that the pump station performance be reviewed to verify whether the sewage pumps must be upgraded. The sewage pumping station wet well may accommodate the marginally increased sewage flow (37.36 litres per second vs. 31.3 litres per second) by delaying the time that sewage would be pumped into the downstream sanitary sewer system. The depth of sanitary sewage in the wet well would increase for a short period of time during periods of peak flow.

Stormwater Management System

The Functional Planning Report Stormwater Management Component summarizes the preliminary design of the stormwater management system for the proposed development.

A stormwater management pond is proposed in the naturally low area near the intersection of Falconbridge Drive and Rougham Road with outlet into the Coulter Branch of the McEvoy Municipal Drain. The stormwater management pond will provide stormwater quality and quantity control for the plan of subdivision in accordance with the 2003 Ministry of the Environment Stormwater Practices Planning and Design Manual.

The Coulter branch of the McEvoy municipal drain will have to be excavated deeper and wider to remove an existing drainage problem that exists at the intersection of Falconbridge Drive and Rougham Road plus provide an adequate outlet for the stormwater management pond and storm sewers installed on Falconbridge Drive. The existing road crossing culverts will be replaced by storm sewers installed under Falconbridge Drive.

Hydro Distribution System

The adjacent streets, Falconbridge Drive and Rougham Road, are serviced by overhead hydro distribution lines. Adelaide Road is serviced by an underground electrical distribution system.

Hydro One Networks Inc. will design an underground electrical system to service the proposed draft plan of subdivision.

Telephone System and Cable Television System

Internet service, including high speed internet, is provided to Mount Brydges by various companies including Bell Canada and Rogers Cable. Various internet resellers also offer internet services to Mount Brydges customers.

The available high speed internet providers will be extended underground to service the entire development.

An existing Bell Canada easement across the subdivision lands will have to be relocated onto a proposed street (Street 'A') as a condition of draft approval of the plan of subdivision.

Gas Distribution System

Enbridge Gas constructed a low pressure gas main on Falconbridge Drive and a new generating station on the subdivision lands in the Year 2021. Enbridge Gas completed the removal of the high pressure gas mains on easement across the corner of the subdivision lands during the year 2023.

The plan of subdivision will be serviced by Enbridge natural gas.

Conclusions

The subdivision will consist of 20.1 metre wide road allowances serving single family homes and townhouse developments.

Storm sewers will be designed for the 5 year storm event. Major overland flows will be conveyed by the road system to outlet into the McEvoy municipal drain at Adelaide Road and into the Coulter branch of the McEvoy municipal drain at the intersection of Falconbridge Drive and Rougham Road. The increased rate of runoff from the development will be controlled in a stormwater management pond near the intersection of Falconbridge Drive and Rougham Road and in infiltrator trenches located at the intersection of Street 'A' and Adelaide Road.

Each house will be equipped with a sump pump which outlets into the storm sewer for foundation drainage.

The layout and size of the watermain shall be designed as per the recommendations provided in the Strathroy-Caradoc Servicing Capacity and Constraints Study dated 2022. The watermain will follow the road alignment. Minimum 19mm diameter water service connections will be provided to each house.

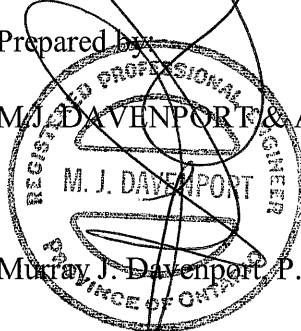
The downstream sanitary sewer system will be designed to accommodate the flows from the proposed development. The proposed sanitary sewer within the plan of subdivision will be 200 mm diameter installed at a minimum 0.50% slope. A sewage pumping station will be constructed near the Falconbridge Drive and Rougham Road intersection to pump sewage from the low corner of the development adjacent to the stormwater management pond to Street 'A'.

Prepared by:

M.J. DAVENPORT & ASSOCIATES LTD.

Murray J. Davenport, P.Eng.

April 8, 2024



JOB: ADELAIDE ROAD SUBDIVISION

A circular professional seal for a Licensed Professional Engineer in the Province of Ontario. The seal contains the following information:

- Top Arc:** LICENSED PROFESSIONAL ENGINEER
- Bottom Arc:** PROVINCE OF ONTARIO
- Center:** J.D. CLARK
- Below Center:** 100226373
- Right Side (Date):** April 5, 2024
- Signature:** A handwritten signature, likely "J.D. Clark", is written across the center of the seal.

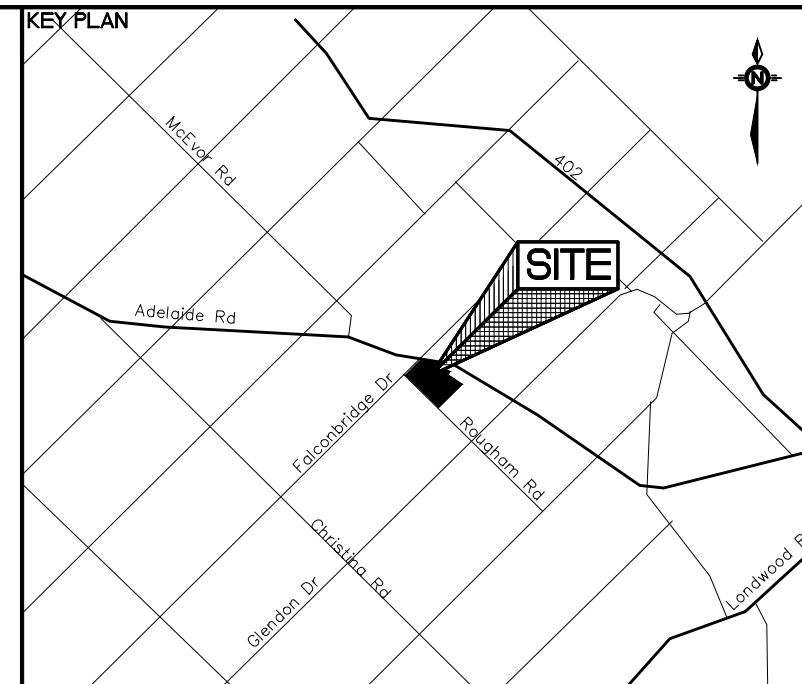
20 0 20 40 100



1 : 1250

SANITARY SEWER DRAINAGE AREA SUMMARY

DESCRIPTION	UNITS/HECTARE	AREA (m ²)	NUMBER OF UNITS
LOW DENSITY (ZONE CATEGORY R1)	30	66,424.00	199
MEDIUM DENSITY (ZONE CATEGORY R2)	75	40,849.00	306
TOTAL AREA FOR INFILTRATION CALCULATION	0	136,700.00	0



1.	REVISED PER SPRIET COMMENT (10/25/21)	02/04/24	JC	MJD
NO.	REVISIONS	DATE	BY	APP'D

BENCHMARKS

BM 1 (U.T.M.) ELEV. 244.141

MOUNT BRYDGES ONE STOREY BROWN INSULBRICK HOUSE (OWNED BY J. SCOTT) ON THE EAST SIDE OF HWY 81, 2.7 KM NO RTH OF THE COMMUNITY HALL IN THE HAMLET OF MOUNT BRYDGES, 0.3KM NORTH OF THE CNR TRACKS (CARADOC) AND 9.5 M EAST OF CENTERLINE OF PAVEMENT. TABLET IS SET HORIZONTALLY IN THE WEST FACE OF CONCRETE FOUNDATION, 155 M NORTH OF THE S.W. CORNER AND 24 CM BELOW SIDING.

STATION: 00819678045

LEGEND

- PROPERTY LIMIT
- PHASE LIMIT
- NEW SANITARY SEWER
- NEW STORM SEWER
- NEW WATERMAIN
- PROPOSED DRAINAGE
- PROPOSED LOT CORNER ELEVATION
- PROPOSED ELEVATION AT HOUSE
- PROPOSED SWALE ELEVATION
- EXISTING DRAINAGE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATERMAIN
- EXISTING LOT CORNER ELEVATION
- EXISTING ELEVATION TO REMAIN THE SAME



M.J. DAVENPORT & ASSOCIATES LIMITED

2010 KEENE ROAD
OTONABEE, ONTARIO K9J 6X7
TEL : (705) 745-6676
FAX : (705) 745-7326

ADELAIDE ROAD SUBDIVISION

22805 ADELAIDE ROAD, MT BRYDGES
TOWNSHIP OF STRATHROY-CARADOC
COUNTY OF MIDDLESEX

SANITARY DRAINAGE AREA PLAN

DESIGNED BY: M.J. DAVENPORT

DRAWN BY: J. ZHOU

DATE: APRIL, 2018

PROJECT NO.: 17-D-5463

SCALE:

1 : 1250

DRWG. NO.:

5463-B1

