

AGENDA

Council -Special Meeting 4:00 PM - Thursday, May 19, 2022 Municipal Office-Hybrid

		Page
1.	CALL TO ORDER	
2.	DISCLOSURE OF PECUNIARY INTEREST	
3.	DELEGATIONS & TIMED EVENTS	
3.1.	Zoning Amendment Application - Durham <u>ZA001-2022 Durham (BM Ross)</u> <u>20246-Planning Report-reduced</u> <u>Planning Report Durham Zoning By-law Amendment</u> <u>Application Comments</u>	2 - 116
3.2.	Drain Consideration - Campbell Leitch Drain <u>Campbell Leitch Drain Report</u> <u>DRAFT-By-law 29 of 2022-Campbell Leitch Drain</u>	117 - 157
3.3.	Drain Consideration: Thompson Drain North and Thompson Drain South <u>Thompson Drain North and Thompson Drain South Report</u> <u>DRAFT-By-law 30 of 2022-Thompson Drain</u>	158 - 190
3.4.	Drain Consideration: McEachren Drain <u>McEachren Drain Report</u> <u>DRAFT -By-law 31 of 2022-McEachren Drain</u>	191 - 234
3.5.	Drain Consideration: Smith Drain <u>Smith Drain Report</u> <u>DRAFT -By-law 32 of 2022-Smith Drain</u>	235 - 262
3.6.	Drain Consideration: MacDougall Drain <u>MacDougall Drain Report</u> <u>DRAFT -By-law 33 of 2022-MacDougall Drain</u>	263 - 287
4.	NEW BUSINESS	

5. ADJOURNMENT

MUNICIPALITY OF BROOKE-ALVINSTON APPLICATION FOR AMENDMENT TO ZONING BY-LAW 9 OF 2013

Note: See page 4 for details of sketch required.	No address assigned (frontage on Broadway Street	BROOKE CON 5 W PT LOT 20; PLAN 5(AL) PT LOT	part numbers and name of street and number, muni known)	LEGAL DESCRIPTION of subject land (such as the	DATE - Subject land was acquired by current owner	Attach additional page if necessary	See Planning Justification Report for a map and	Rezone the site to a site-specific R3 zone to allow detached dwelling lots and to allow street townh	REZONING - Nature and extent of rezoning request	Frontage: 20.1m Depth: 239m	DIMENSIONS OF SUBJECT LAND:	Residential	OFFICIAL PLAN - current designation	e-mail address	ADDRESS	NAME OF HOLDER OF MORTAGE (or Charge or Encumbrance)	TELEPHONE	e-mail address dsdurham6972@outlook.com	ADDRESS 45 Albert St., Norwich, ON P. O. Box 358 N0J 1P0	NAME OF OWNER Steve Durham	FILE NO.
	between 31114 and 3120.	S A C E G I; AND K RP 25R9321 PART 1	cipal address, and assessment roll number, if	municipality, concession and lot numbers,	r on:		further information on the proposed zones.	w minimum lot frontage of 15.0m for single ouse dwellings.	led:	(irregular) Area: <u>4.9 ha</u>		Residential 1 (R1)	ZONING - current zone	e-mail address	ADDRESS	NAME OF HOLDER OF MORTGAGE (or Charge or Encumbrance)	TELEPHONE 519-908-9564	e-mail address jfohkens@bmross.net	ADDRESS 2695 Hamilton Road, Brights Grove, ON N0N 1C0	NAME OF AGENT (if the applicant is an agent authorized by the owner) B.M. Ross and Associates Limited	DATE

If the subject land is within an area where the municipality has pre-determined the minimum and maximum density requirements or the minimum and maximum height requirements, a statement of these is required.

See attached Planning Justification Report.

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Greater than 20 years	Agriculture
LENGTH OF TIME the existing uses of the subject land have continued:	EXISTING USES of the subject land:
arking facilities (specify) distance from subject land fistance from nearest public road	Docking facilities (specify) Pa distance from subject land
and is by water only:	WATER ACCESS - Where access to the subject la
r public road	[] Water [] Other (specify)
jht-of-way [] Private Road	[X] Municipal Road - year round [] Rig
icipal Road - seasonal [] County Road	[] Provincial highway [] Muni
	ACCESS - Access to the subject land will be by:
	N/A
employment, details of the official plan or official plan	If the application is to remove land from an area of e amendment that deals with the matter is required.
	N/A
ith conditions applies, an explanation of how the ating to zoning with conditions is required.	If the subject land is within an area where zoning wi application conforms to the official plan policies rela
	N/A
undary of an area of settlement or implements a new sial plan amendment that deals with the matter is	If the application implements an alteration to the bourarea of settlement, details of the official plan or offic required.

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Height in metres:	TYPE - None.	land, indicate for each:	EXISTING BUILDINGS - STRUCTURES - Where there are any buildings or structures on the sub
			e subject

STRUCTURES - Where there are any buildings or structures on the subject

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Dimensions:	
Floor Area:	
Front lot line setback:	
Rear lot line setback:	
Side lot line setback:	
Side lot line setback:	
TYPE -	

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Height in metres:

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Front Int line	Floor Area:	Dimensions:
enthack.		

Front lot line setback: Rear lot line setback: Side lot line setback: Side lot line setback:

There are no buildings on the site

attach additional page if necessary

PROPOSED USES of the subject land

Single detached, semi-detached, and street townhouse dwellings, as well as open space.

attach additional page if necessary	See attached plan.
	Dimensions: Floor Area: Front lot line setback: Rear lot line setback: Side lot line setback: Side lot line setback:
	DATE CONSTRUCTED
	TYPE - Height in metres:
	Dimensions: Floor Area: Front lot line setback: Rear lot line setback: Side lot line setback:
	DATE CONSTRUCTED
y buildings or structure are proposed to be built	PROPOSED BUILDINGS – STRUCTURES - Where any on subject land, indicate for each: TYPE - See attached planning justification report. Height in metres:

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th the applicable provincial plan or plans?	If yes, does the application conform or does not conflict win YES NO
any provincial plan or plans?	Is the subject land within an area of land designated under YES NOX_
consistent with policy statements issued	Is this application for an amendment to the Zoning By-law under subsection 3 (1) of the Act? YES_XNO
Ä	Future draft plan of subdivision application will be submitte
Ont. Reg. #	[] whether the subject land has ever been the subject of a Minister's Zoning Order
File #	[] previous rezoning application (under section 34) Status
File #	[] severance (under section 53) Status
File #	[] approval of a plan of subdivision (under section 51) Status
File #	[] official plan amendment Status
land is the subject of an application under the	OTHER APPLICATIONS - if known, indicate if the subject Planning Act for:
[] Other means	[X] Sewers [] Ditches [] Swales (specify)
	STORM DRAINAGE is provided to the subject land by:
	2) a hydrogeological report.
	1) a servicing options report; and
vned and operated individual or communal being completed, the following must	If the application would permit development on privately ov septic systems, and more than 4500 litres of effluent would be produced per day as a result of the development accompany this application:
[] Other means (specify)	[] Privately owned/operated communal septic system
[] Privy	[] Privately owned/operated individual septic system
[] Public communal septic	[X] Publicly owned/operated sanitary sewage system system
/:	SEWAGE DISPOSAL is provided to the subject land by
[] Other means (specify)	[] Private well
[] Privately owned and operated	[] Publicly-owned/operated individual well communal well
[] Lake or other water body	[X] Publicly-owned/operated piped water system
	WATER is provided to the subject land by:

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3.1.

PAGE 5 OF 6	
Signature of Commissioner, etc.	~
is9day ofM{a.a.c.h	this
the County of Lander Signature of Applicant	in t
f Brooke-Alvinshin	of
ECLARED before me at the Municipality	DE
All the statements contained in this application and provided by me are true and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath.	
olemnly declare that:	so
Sacon (مرزم) (name of local municipality)	÷
Jordan Fohkens of the City (eg. city, town, Village, of ownship)	J -
DECLARATION OF APPLICANT	
Signature of Witness March 03 - 2020	
Signature of Owner Signature of Owner	
, the undersigned, being the owner of the subject land, hereby authorize B.M. Ross and Associates imited to be the applicant in the submission of this application.	<u> </u>
AUTHORIZATION BY OWNER	

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	PLANS REQUIRED IT WILL BE NECESSARY TO SUBMIT PRELIMINARY SITE PLANS FOR THE DEVELOPMENT AT THE TIME OF THE FILING OF THIS APPLICATION	
	Minimum requirements will be a sketch showing the following	
. <u> </u>	The boundaries and dimensions of the subject land.	
Ņ	The locations, size and type of all existing and proposed buildings and structures on the subject land, indicating the distance of the buildings or structures from the front yard lot line, rear yard lot line and the side yard lot lines.	
ယ္	The approximate location of all natural and artificial features on the subject land and on land that is adjacent to the subject land that, in the opinion of the applicant, may affect the application. Examples include buildings, railways, roads, watercourses, drainage ditches, river or stream banks, wetlands, wooded areas, wells and septic tanks.	
4	The current uses on land that is adjacent to the subject land.	
сл ,	The location, width and name of any roads within or abutting the subject land, indicating whether it is an unopened road allowance, a public traveled road, a private road or a right-of-way.	
6.	Off-street parking, and loading (if required) and access thereto, including the dimension of the spaces and aisles.	
7.	The location and nature of any easement or rights of way affecting the subject land.	

00 Scale of site plan (metric preferred) and north arrow.

The Planning Act contains time-lines regarding the processing of this application. These time lines are based on the date on which the **complete** application was received. A notification will be sent to the applicant when a **complete** application has been received.

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STEVE DURHAM

PROPOSED RESIDENTIAL DEVELOPMENT IN SOUTH ALVINSTON (MUNICIPALITY OF BROOKE-ALVINSTON)

PLANNING JUSTIFICATION REPORT

File No. 20246



STEVE DURHAM

PROPOSED RESIDENTIAL DEVELOPMENT IN SOUTH ALVINSTON (MUNICIPALITY OF BROOKE-ALVINSTON)

PLANNING JUSTIFICATION REPORT



BROOKE CON 5 W PT LOT 20; PLAN 5(AL) PT LOTS A C E G I; AND K RP 25R9321 PART 1

> February 22, 2022 Prepared by B. M. Ross & Associates Limited

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B. M. ROSS AND ASSOCIATES LIMITED Engineers and Planners 2695 Hamilton Rd. Brights Grove, Ont. N0N 1C0 p. (519) 908-9564 www.bmross.net

File No. 20246

STEVE DURHAM

PLANNING JUSTIFICATION REPORT FOR A PROPOSED RESIDENTIAL DEVELOPMENT IN SOUTH ALVINSTON (MUNICIPALITY OF BROOKE-ALVINSTON)

1.0 INTRODUCTION

This report has been prepared on behalf of Steve Durham, in support of a proposed Zoning Bylaw amendment that would allow additional housing options in south Alvinston.

The subject lands are in the Municipality of Brooke-Alvinston and are situated between Broadway Street and River Street, west of the unopened right-of-way of Munro Street. The site is designated 'Residential' according to Part 2 to Schedule "A" of the Official Plan for Alvinston and is zoned Residential 1 (R1).

The purpose of this report is to provide a detailed description of the proposed development and to review current Provincial, County and Municipal planning policies as they relate to the Zoning By-law Amendment application. The report includes the following components:

- description of the site and its location
- description of the proposal
- description of land uses and zoning in the surrounding area
- review of planning framework
- review of relevant planning documents
- review of subdivision criteria in the Planning Act

1.1 Pre-Application Meeting

BMROSS met with staff from the County of Lambton and Municipality of Brooke-Alvinston to discuss the proposal on July 5, 2021, and September 24, 2021. It was determined that the residential development of the lands would require approval of a Zoning By-law amendment before a draft plan of subdivision would be accepted. Staff also informed BMROSS of the submission requirements for the required planning applications.

2.0 LOCATION AND SITE DESCRIPTION

The subject lands are adjacent to Broadway Street to the west and Munro Street (unopened) to the north, in south Alvinston. The property is owned by Steve Durham and is described as Brooke Concession 5 West Part Lot 20; Plan 5(AL) Part Lots A C E G I; and K RP 25R9321 Part 1. The property has an area of approximately 4.9 hectares (12.2 acres), frontage of

approximately 20.1 metres (66 ft.) along Broadway Street and an irregular depth. The lands are currently vacant and used for agriculture.



Figure 1 shows the general location of the subject lands within Alvinston.

Figure 1 – General Location Plan

Photos of the site were taken on November 30, 2021 and are shown in Figure 2.



Taken from West Side of Site (Viewing South)



Taken from West Side of Site (Viewing East)



Taken from West Side of Site (Viewing North)



Taken from West Side of Site (Viewing South-East)



Taken from West Side of Site (Viewing East)

Taken from West Side of Site (Viewing North-East)

Figure 2 - Images of Site

3.0 DESCRIPTION OF DEVELOPMENT PROPOSAL

This proposal includes residential development of the lands for a range of residential housing types (e.g., single detached, semi-detached, and street townhouse dwellings). The proposal also includes a 0.49 ha (1.2 ac.) stormwater management facility and open space area located at the northern portion of the site. Access to the lots is proposed through an internal local road network, with connections to Broadway Street to the west and River Street to the east. As shown on the conceptual lot layout plan in Appendix 'A' and Figure 3, the proposed residential development would have a gross density of 5.7 units per acre, including:

- 19 single detached dwellings
- 30 semi-detached dwellings
- 20 street multiple attached dwellings



Figure 3 – Conceptual Lot Layout Plan

The purpose of this application is to "rezone" the site to allow townhouses and single detached dwellings with lot frontages of 15 metres. The semi-detached dwelling lots are permitted by the current regulations and do not require any zoning changes. A future draft plan of subdivision will be required, and applied for, after the zoning matters are considered.

4.0 SURROUNDING AREA

The subject lands are in south Alvinston, which is in the eastern section of the Municipality of Brooke-Alvinston. The north limit of the property is located adjacent to an unopened right-of-way known as Munro Street and single detached dwelling lots fronting onto Lisgar Street. The site is bounded to the east by a vacant property, to the south by agricultural lands and to the west by single detached dwellings fronting onto Broadway Street. More specifically, the site is surrounded by the following uses and zones:

Direction	Use(s)	Zoning
North	Single detached dwellings	Residential 1 (R1) and Residential 3 (R3)
West	Single Detached dwellings and Existing Abattoir (the Country Butcher)	Residential 1 (R1) and Residential 1(5) (R1(5))
East	Munro Honey & Meadery, Place of Worship, and Single detached dwellings	Residential 1 (R1) and Residential 1(3) (R1(3)), Residential 1(4) (R1(4)) and Residential 1(7) (R1(7))
South	Agriculture	Agricultural 2 (A2)

Table 1 – Uses and Zones in the Area

The land uses and zones are shown on images in Figure 4 and the map in Figure 5.



West of Subject Lands

East of Subject Lands



North of Subject Lands

South of Subject Lands

Figure 4 – Images of Adjacent Lands (Source: Google Streetview 2014)



Contains information licensed under the Open Government Licence - County of Lambton. Air Photo Credit: County of Lambton

Figure 5 – Surrounding Land Uses

5.0 PLANNING FRAMEWORK

The following section reviews the planning framework for the development proposal, which includes the policies in the County of Lambton and Municipality of Brooke-Alvinston Official Plans (OPs) and the regulations in the Municipality of Brooke-Alvinston Zoning By-law 9 of 2013. These documents are reviewed to determine if the applicant's proposal requires amendments.

5.1 County of Lambton Official Plan

As an upper-tier government, the County of Lambton is responsible for providing land use policies to provide guidance to lower-tier municipalities, such as the Municipality of Brooke-Alvinston. The Municipality's Zoning By-law, as well as all amendments to the Zoning By-law, shall conform to the policies in the County of Lambton OP.

The subject lands are designated "Urban Settlement" on Map 1 (Growth Strategy) of the County Official Plan (See Figure 6). The majority of growth in the County is directed to 'Urban Centres' as well as 'Urban Settlements', including residential land uses on full municipal services (Subsections 3.2.1 and 3.2.3 of OP).



Figure 6 - Excerpt from Map 1 in County's OP

The proposed development would be used for low

and medium density residential uses on full Municipal services. For these reasons, an amendment to the County OP is not required. Further analysis of relevant County OP policies is provided in Section 7.2 of this report.

5.2 Municipality of Brooke-Alvinston Official Plan

Building on the County policies, the Municipality's OP provides more detailed guidance that reflects local circumstances, directing development to the most appropriate locations. The subject land is designated 'Residential' on Part 2 of Schedule "A" of the Municipality's OP (See Figure 7). The policies permit low-density residential uses, including single and semi-detached dwellings, duplexes, and triplexes in the Residential designation (Subsection 2.1), provided the density does not exceed 20 units per hectare (8 units per acre). Policies also allow medium-density attached



Figure 7 - Excerpt from Schedule "A" in Town's OP

dwellings up to a maximum of 35 units per residential hectare (14 units per residential acre).

The proposed development includes single detached dwellings, semi-detached dwellings, and townhouse dwellings with a density of approximately 14 units per hectare (5.6 units per acre). For this reason, an amendment to the Municipality's OP is not required. Further analysis of relevant Town OP policies is provided in Section 7.3 of this report.

5.3 Municipality of Brooke-Alvinston Zoning By-Law 9 of 2013

Zoning By-laws are regulatory documents that implement the policies in an OP. The Municipality's Zoning By-law 9 of 2013 is currently in effect.

The subject lands are zoned Residential 1 (R1) (See Figure 8), which permits low-density residential uses, including single detached dwellings, semi-detached dwellings, and duplex dwellings.

The Residential 1 (R1) Zone Regulations require a minimum lot area of $465m^2$ (5,005ft²) and minimum lot frontage of 18m (59 ft.) for single detached dwelling lots and minimum lot area of $300m^2$ (3,229ft²) and minimum lot frontage of 10m (33 ft.) for semi-detached dwelling lots.



Figure 8 - Excerpt from Town's Zoning By-law

The development proposal includes a range of residential uses, including single detached, semidetached, and townhouse dwellings. As townhouse dwellings are not permitted in the R1 zone, an amendment to the Zoning By-law is required to 'rezone' the lands to a zone that permits this use. Relief is also required to allow single detached dwellings on lots that are smaller than what is allowed by the current regulations. The following new R3(4) zone is proposed, which would provide the necessary regulations to allow for the proposed subdivision of the lands.

The following new site-specific R3(4) zone is proposed, to allow single detached dwellings with lot frontages of 15.0m.

"8.3.4 RESIDENTIAL R3(4) ZONE

Permitted Uses

- a) All uses permitted in the R1 Zone
- b) Street Townhouse Dwelling

Site Regulations - All Uses Permitted in the R1 Zone

- c) Single Detached Dwelling lots shall have minimum lot frontage of 15.0m
- d) All other regulations shall comply with the requirements of the R1 Zone

Site Regulations – Street Townhouse Dwelling

e) Regulations shall comply with the requirements of the R3 Zone"

As it applies to the concept plan, the areas of the site that would need to be rezoned are shown on Figure 9 and include the following zone changes:

- Zone Change from R1 to R3(4) to allow single detached dwellings on lots with frontages of 15m (yellow)
- Zone Change from R1 to R3(4) to allow townhouses (red)



Figure 9 - Map of Areas that Require Zone Change

The areas shown in gray on Figure 9 do not require a zoning amendment according to the conceptual plan. However, they are also proposed to be rezoned to an R3(4) zone, in order to provide flexibility to add single detached dwellings and/or townhouse lots in the future.

6.0 SUPPORTING STUDIES

In discussions with the Municipality of Brooke-Alvinston and County of Lambton, it was determined that the following studies and reports were required for the Zoning By-law amendment application:

- Traffic Impact Assessment
- Stormwater Management Report (Included in Functional Servicing Report)
- Functional Servicing Report
- Comprehensive Development Plan
- Minimum Distance Separation (MDS) Review

Planning Justification Report Alvinston Residential Development An archaeological assessment has also been completed on the property, as the lands are considered to have archaeological potential.

6.1 Archaeological Assessment

Stage 1 and 2 Archaeological Assessments were completed on the subject lands by Timmins Martelle in October 2021. The assessments did not result in the discovery of any archaeological resources. For this reason, no further work was recommended, and the lands were deemed to be free of archaeological resources. The Archaeological Assessment report is included in Appendix 'B' of this report.

6.2 Traffic Impact Assessment

A Traffic Impact Assessment (TIA) was prepared by F.R. Berry and Associates in February 2022. The TIA concluded that the development would generate 50 vehicle trips in the morning peak hour and 65 vehicle trips in the afternoon peak hour. Based on this anticipated traffic from the development, as well as future projections, the TIA concluded that all intersections would continue to operate at a high level of service. The TIA is included in Appendix 'C' of this report.

6.3 Functional Servicing Report

A Functional Servicing Report (FSR) was completed by B.M. Ross and Associates Limited in February 2022. The study identified the development would connect to existing infrastructure located to the west at Broadway Street and to the east, along River Street. The FSR also reviewed the Municipality's existing infrastructure to determine if it could accommodate the proposed residential development.

6.3.1 Sanitary

According to the FSR, the development will include gravity sewers with an outlet to a proposed sanitary pump station, which would pump effluent through a forcemain to an existing 200mm sanitary sewer on Broadway Street. The site is tributary to Pump Station #1 and a municipal sewage treatment plant at 3084 River Street.

The FSR completed analysis of the capacity of Pump Station #1 and the Wastewater Treatment Facility. It was determined that capacity is available in the existing Municipal Sanitary system to accommodate the proposed development of these lands.

6.3.2 Water

The proposed development would be serviced with a 200mm watermain connected to existing watermains located in both the Broadway Street and River Street right-of-ways, in order to provide a looped system. According to the FSR, these watermains have diameters of 150mm (Broadway Street) and 200mm (River Street) and will be able to service the development, without impacts to the Municipal system.

6.3.3 Stormwater

Stormwater from the site will be connected from each lot through a 150mm storm connection and rear yard catchbasin. Water will be directed to storm sewers that will discharge to a future storm sewer along Munro Street and River Street before it discharges to the Sydenham River. A dry pond stormwater management facility is proposed at the north-east section of the site, in order to provide stormwater quantity control from a 100-year storm event. The facility will have 5:1 side slopes and a flow restrictor to control discharge to the downstream system to predevelopment levels. Stormwater quality control is proposed through a combination of lot level and end of pipe quality control measures, including the use of flow over landscaped areas and the use of oil-grit separators.

The FSR is included in Appendix 'D' of this report. A conceptual servicing plan is shown in Figure 10 and Appendix 'E' of this report.



6.4

Figure 10 - Conceptual Servicing Plan

Comprehensive Development Plan

A comprehensive development plan is included in Figure 3 and Appendix 'A'. The plan shows the proposed road layout, 69 residential lots, and blocks for a stormwater management facility and open space areas.

6.5 Minimum Distance Separation (MDS) Review

The Province of Ontario has MDS guidelines to address noise and odour impacts associated with livestock facilities on sensitive land uses. The MDS I calculation is used to ensure that new sensitive land uses are located a certain distance away from livestock facilities and manure storage areas.

The MDS guidelines have certain exceptions for when the MDS I calculation applies. Guideline #36 states that MDS I setbacks are not required for proposed land use changes (e.g., rezonings) within approved settlement areas, as it is generally understood that the long-term use of the land is intended to be for non-agricultural purposes.

MDS I setbacks are calculated differently according to the sensitivity of the land use. Type A land uses are characterized by a lower density of human occupancy (e.g., creation of 1 to 3 lots for development outside of a settlement area) and Type B land uses are more sensitive (e.g., creation of 4 or more lots outside of a settlement area). MDS I is required for Type A land uses within 750 metres of a livestock facility and Type B land uses within 1,500 metres of a livestock facility.

The subject lands are located in a settlement area designated for future residential land uses. Based on a review of 2015 Southwest Ontario Orthophotography (SWOOP) from 2015, there don't appear to be any livestock facilities located within 1,500 metres of the site.

As mentioned in Guideline #36, the application is exempt from MDS for the rezoning. As the proposal is not considered a Type A or B use, it is also exempt from a future draft plan of subdivision application.



Figure 11 - MDS Cover Image

For these reasons, we are of the opinion the proposed rezoning complies with MDS guidelines.

7.0 PLANNING ANALYSIS

The proposed zoning amendment is subject to policies contained within the Provincial Policy Statement (PPS 2020), as well as the Lambton County and Municipality of Brooke-Alvinston Official Plans. The following section of this report reviews the current relevant policies to the application.

7.1 Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) provides policy direction on matters of provincial interest related to land use planning and development. Decisions made by approval authorities shall be consistent with the policies found in the PPS. More specifically, the development proposal shall be consistent with policies related to building strong communities, housing, infrastructure, agriculture, economic prosperity, energy and air quality, and water quantity and quality.

a) <u>Building Strong Communities (Section 1 of the PPS)</u>

The PPS promotes efficient land use and development patterns in Settlement Areas to provide for strong, liveable, healthy, and resilient communities, while protecting the environment and public health and safety, and facilitating economic growth. These policies promote efficient development and land use patterns, mix of residential types, and intensification to achieve cost-effective development patterns and standards to minimize land consumption and servicing costs (subsections 1.1.1(a), (b), and (e)).

The PPS directs growth and development to Settlement Areas (subsection 1.1.3.1), which includes the Urban Settlement of Alvinston. Settlement Areas shall provide a mix of land uses that efficiently use land, resources, infrastructure, and public service facilities to avoid the need for their expansion and to support active transportation (subsection 1.1.3.2(a, b, and e)).

The proposed residential development is in Alvinston, which is an Urban Settlement designated for residential land uses. As discussed in the FSR, the development is in a fully serviced area that has capacity to accommodate 69 dwelling units. The development has been designed at a density that is higher than adjacent areas. For these reasons, we are of the opinion the proposal would make efficient use of land and Municipal services and support active transportation, and therefore be consistent with subsections 1.1.1 and 1.1.3 of the PPS.

b) <u>Housing (Subsection 1.4 of the PPS)</u>

The PPS policies require planning authorities to provide for an appropriate range of housing to accommodate the needs of the regional market area. More specifically, planning authorities shall "provide for an appropriate range and mix of housing options and densities to meet projected market-based and affordable housing needs of current and future residents of the regional market area by:

- b) permitting and facilitating: all housing options required to meet the social, health, economic and well-being requirements of current and future residents...
- c) directing the development of new housing towards locations where appropriate levels of infrastructure and public service facilities are or will be available...
- *d)* promoting densities for new housing which efficiently use land, resources, infrastructure, and public service facilities, and support the use of active transportation...

f) establishing development standards for residential intensification, redevelopment and new residential development which minimize the cost of housing and facilitate compact form, while maintaining appropriate levels of public health and safety

(subsections 1.4.3(b, c, d, and f)).

The proposed zoning amendment would provide standards for residential intensification that would increase the range of housing options and address a housing need in the region. As mentioned, the development would be in a fully serviced Settlement Area with infrastructure that can accommodate the proposal. For these reasons, we are of the opinion the proposal is consistent with the Housing policies in the PPS.

c) Infrastructure (Subsection 1.6)

The PPS indicates that infrastructure is to be provided in an efficient manner that prepares for the impacts of a changing climate while accommodating projected needs. Provincial policies provide direction to Municipalities to plan for sewage and water services to accommodate forecasted growth in a manner that promotes the efficient use of Municipal services. Planning for stormwater management shall be integrated with planning for sewage and water services, minimize contaminant loads, maximize the extent and function of vegetative and pervious surfaces and promote stormwater management best practices (subsections 1.6.6.1(a) and 1.6.6.7(a), (b), (c), (e), and (f)).

As mentioned in the FSR, the development would be fully serviced by Municipal sanitary sewers and watermain infrastructure. Stormwater from the subject lands would use best practices to provide quantity and quality control of runoff and direct stormwater over landscaped areas to gravity sewers and to a stormwater management facility. For these reasons, we are of the opinion the proposal is consistent with infrastructure policies in the PPS.

d) Agriculture (Subsection 2.3)

Although the subject lands are farmed, they form part of an Urban Settlement Area that is designated for residential development in the County and Municipality Official Plans. For this reason, the subject lands are considered a 'Settlement Area' and not 'Prime Agricultural Area'. Therefore, the policies found in subsection 2.3 of the PPS do not apply to this proposal.

e) Long-Term Economic Prosperity (Subsection 1.7)

The PPS states that "long-term economic prosperity should be supported by:

- a) Promoting opportunities for economic development and community investment-readiness
- b) Encouraging residential uses to respond to dynamic market-based needs and provide necessary housing supply and range of housing options for a diverse workforce
- e) Encouraging a sense of place, by promoting well-designed built form and cultural planning, and by conserving features that help define character, including built heritage resources and cultural heritage landscapes"

(subsection 1.7.1(a), (b), and (e))

The subject lands are in the fully serviced Urban Settlement of Alvinston, which is a Settlement Area designated for residential development. The 19 new single detached dwelling lots, 40 new semi-detached dwelling lots, and 20 townhouse dwelling would provide a needed supply and

variation of housing to the region. For this reason, we are of the opinion the proposal complies with subsection 1.7 of the PPS.

f) Energy & Air Quality (subsection 1.8)

Planning authorities shall support energy conservation and efficiency, improved air quality, reduced greenhouse gas emissions, and preparing for the impacts of a changing climate through land use and development patterns which:

- a) Promote compact form
- b) Promote the use of active transportation
- g) Maximize vegetation within settlement areas

(subsections 1.8.1 (a), (b) and (g))

The proposal would provide a more compact form of development than is permitted under the current regulations. For these reasons, we are of the opinion the proposal is consistent with subsection 1.8 of the PPS.

g) <u>Water Quality and Quantity (Subsection 2.2)</u>

According to the PPS, "planning authorities shall protect, improve, or restore the quality and quantity of water by implementing necessary restrictions on development and site alteration to: protect all municipal drinking water supplies and designated vulnerable areas and protect, improve or restore vulnerable surface and ground water sensitive surface water features and sensitive ground water features and their hydrologic functions" (subsections 2.2.1f)).

The subject lands contain areas that are identified as a Highly Vulnerable Aquifer (HVA), according to the Thames-Sydenham and Region Source Protection Plan and the County of Lambton Official Plan (Appendix Map A – Source Protection Plans). This area is a low-moderate drinking water threat area that needs to be protected to ensure a clean groundwater supply (subsection 2.5.7 of County OP).

To protect these drinking water threat areas, certain uses (i.e., storage of fuel or commercial fertilizer) are prohibited. Additionally, any planning application for a non-residential land use in an IPZ area or commercial, industrial, or agricultural land use in an HVA is required to submit a Section 59 Restricted Land Use Notice issued by the risk management official under the Clean Water Act.

The subject lands are currently used for agriculture and are proposed to be used for open space and residential land uses. Therefore, a Restricted Land Use Notice is not required for the development. As mentioned in the FSR, the proposed subdivision will have quality and quantity control measures implemented for stormwater on the subject lands. For these reasons, we are of the opinion the proposal is consistent with subsection 2.2 of the PPS.

Discussion

The proposed residential development would be an efficient use of land that would provide additional housing options in Alvinston, in a manner that would be compatible with the surrounding area. As demonstrated by the above policies and commentary, we are of the opinion the proposal is consistent with the policies in the PPS.

7.2 Lambton County Official Plan

i) General

The County of Lambton Official Plan (OP) provides a regional framework for managing growth. The site is designated 'Urban Settlement' on Map 1 Growth Strategy of the Official Plan, which permits residential uses. The following relevant County OP policies apply to this proposal:

ii) Housing

The County of Lambton OP housing goal is to ensure an active, healthy housing market that can provide a range of quality housing suitable to the needs and desires for the residents of Lambton County. Proponents of residential development are encouraged to provide a broad mix and range of lot sizes, dwelling types, and tenure choices suited to the needs and desires of the residents of the community (subsection 2.3.6).

As mentioned, the proponent has proposed a range of housing options and lot sizes, including single, semi-detached, and street townhouse dwellings on lots of various sizes.

iii) County Development and Growth

The County OP contains a development strategy to protect existing investments in infrastructure, as well as manage growth to minimize adverse effects on the natural heritage system, heritage resource features, and agriculture. This strategy supports the proposal as it:

- "creates a focus for development within established Urban Centres and Urban Settlements"
- "directs the majority of growth to areas with full municipal water and sewage services"
- *"ensures the preservation of agricultural lands and the protection of resources and natural heritage features for their economic use and/or environmental benefits"*

(subsection 3.1)

Alvinston is a fully serviced 'Urban Settlement' area in the County's OP, which allows residential uses. As the lands are already designated for residential development, the proposed subdivision would not require agriculturally designated lands to be removed from production.

The proposed development would implement the County's development strategy by adding fully serviced lots in an existing Urban Settlement. The lots would vary in size, with lot frontages between 7m (23 ft.) and 16m (52.5 ft.) and lot areas between 224m² (2,411ft²) and 1,180m² (12,701ft²). Vehicular and pedestrian connections would be provided to the west and east, to integrate the development with the surrounding area. The proposed development would be located on full municipal services and densities that would make more efficient use of land.

For these reasons, we are of the opinion the proposal conforms to the policies in the County OP.

7.3 Municipality of Brooke-Alvinston Official Plan

i) General

Building on the County policies, the Municipality's OP provides more detailed guidance that reflects local circumstances, directing the majority of residential development to the fully serviced 'Residential' designation in Alvinston (Section 2).

As mentioned, the Municipality's Plan allows low density uses in the 'Residential' designation to be developed at densities up to 20 units per hectare (8 units per acre) (Subsection 2.1.1). Policies also allow medium density attached dwellings up to 35 units per residential hectare (14 units per residential acre). In addition to these land use policies, the Municipality's OP also contains the following relevant policies on community development, municipal services, and utilities, as well as implementation of these policies.

ii) Residential Designation

The Municipality encourages new development to take the form of extensions to the built-up area to minimize costs required to extend existing services (subsections 2.2.1(a) and (b)). It also encourages residential intensification in areas that have sufficient servicing capacity and specifically encourages higher densities in new development (subsection 2.2.1(c)). The policies promote the relocation of existing incompatible uses out of residential areas (subsection 2.2.1(e)) and for development to proceed in a manner that does not impose a financial burden on the Municipality (subsection 2.2.1(e))

The proposed development is adjacent to other residential uses to the west, east, and north, and would be connected to two adjacent streets, which were intended to provide connections to a future subdivision on the subject lands. The proposed development would remove an existing incompatible use (i.e., agriculture) in a Residential designation, and provide a density that would make more efficient use of land and Municipal services.

For these reasons, we are of the opinion the proposed residential lots would be an appropriate form of residential intensification and conform to the Residential Designation policies in the OP.

iii) Compatibility Guidelines for Residential Areas

The Municipality requires new development to be compatible with the surrounding residential area. In assessing the compatibility of a proposal, the following criteria should be used:

- Disruption of established uses on adjacent sites or surrounding areas
- Creation of a disruptive visual impression which negatively affects the urban quality of the area; and
- Generation of activity, noise or traffic levels which put undue pressure on the area and its infrastructure and other support facilities (subsection 2.2.18)

The proposed development would back onto existing residential areas and provide setbacks that meet current by-law requirements. As mentioned in the TIA and FSR, the proposed development would not put undue pressure on the area and its infrastructure. For these reasons, we are of the opinion the proposal would be compatible with the surrounding residential area.

iv) Physical Character of the Area

The OP policies also require development in Residential areas to respect the established physical character of the area. However, the policies are clear that this does not necessarily mean that it should be the same as the surrounding area. In assessing development proposals, the OP states that particular regard shall be had for:

- the size and configuration of lots
- heights, massing, scale, and dwelling types of nearby properties
- predominant building types in the area
- setbacks of buildings from the street and lot lines; and
- landscape or building features that contribute to a unique character in the area

(subsection 2.2.18)

The south Alvinston area contains a range of land uses, including a place of worship, agriculture, and residential. Residential lots in the area are primarily single detached dwellings on lots with frontages between 16.5m (54 ft.) and 60.0m (197 ft.) and areas between 730m² (7,858ft²) to over 4,400m² (47,361ft²). The area also contains row housing (Alvinston Estates) at 8019 Millpond Avenue and lands zoned for high density residential development along Francis Street and Millpond Avenue.

The proposed development would back onto existing single detached dwelling lots to the west and north and would be buffered from areas to the north and east. The massing and scale of the proposed dwellings would be consistent with other dwellings in the aera, and the setbacks would comply with existing zoning standards. For these reasons, we are of the opinion the proposed development would respect they physical character of the area.

v) Applications for Medium Density

The OP contains policies for medium density residential proposals (e.g., row housing), including where they should be located. These policies direct these uses to lands near arterial and collector roads, major open space areas, existing neighbourhood parks, schools and other community facilities, and commercial uses. Medium density residential areas should provide a physical transition between low- and high-density developments and provide a buffer adjacent to low density areas. Medium density developments are allowed up to a maximum density of 40 units per hectare and height of three storeys (subsection 2.2.15).

The proposed street townhouses in this application are proposed in the northcentral portion of the property, nearest to the collector road of River Street. The townhouses are proposed adjacent to a future open space area and are surrounded by lower density residential uses, which would provide a transition to nearby single detached dwelling lots. The proposed zoning would provide a density less than 40 units per hectare and height less than three storeys. For these reasons, we are of the opinion the proposal conforms to the medium density policies in the OP.

vii) Housing Mix

The OP encourages a broad mix of housing in the Municipality, including mixing densities and housing designs within individual developments. However, increased densities shall consider the preservation of open space and trees, the ability of Municipal services to accommodate the increased density, and compatibility with existing development patterns (subsection 2.2.14).

The proposal includes a broad mix of housing in the form of single detached, semi-detached, and townhouse dwellings. As shown on the conceptual lot layout plan, the proposal will include open space areas, preserve trees, and include additional street trees.

viii) Buffering from Agricultural Lands

When residential development is proposed on lands adjacent to agricultural lands, adequate buffering and/or mitigation measures shall be provided between the development and the agriculture lands, where necessary. The specifics of the buffering will be specified within subdivision agreements (subsection 2.2.11).

The southern portion of the lands are adjacent to agricultural lands and are proposed to have residential lots that back onto the agricultural lands. A future draft plan of subdivision application would contain a wooden fence to provide mitigation in the form of screening. Further information on buffering will be provided during the draft plan of subdivision process.

ix)) Sanitary Sewage

The Plan requires all development in the sewer service area to be serviced by sewer facilities (subsection 3.1.1.1) and the states that the Municipality will make no commitment or approve any development that would cause the capacity of a sewage treatment plant to be exceeded. In certain cases, a new pumping station and/or sewer line extensions may be required (subsection 3.1.1.3).

As mentioned in the FSR, the proposed development will include new sanitary sewers, pump station, and forcemain. The report also concluded that there is sufficient capacity in the Municipality's pump station and wastewater treatment plant to service the proposed development.

x) Water

The Plan requires all development in the water service area to be connected by municipal piped water facilities. Policies also state that the developer is responsible for any required extensions (subsection 3.2.1.1).

As mentioned in the FSR, the proposed development would be connected to watermains along both River Street and Broadway Street and that the proposed density of the development would not impact the Municipal water system.

xi) Archaeological Surveys

The Municipality's OP states that the approval of developments will include the conservation of sites with a significant degree of archaeological potential.

As mentioned, the proponent had a Stage 1 and 2 Archaeological Assessment completed on the property. The assessment concluded that further archaeological work was not required, and that the property was clear of archaeological resources.

8.0 SUMMARY

The proposed residential development is located in an area that is designated and zoned for residential uses. The proposed lots would respect the physical character of the surrounding area and provide additional housing options in Alvinston. As demonstrated by traffic and servicing reports, the proposed increase in density would not have any adverse impact on the Municipal road or infrastructure networks.

In conclusion, based on a review of the Provincial Policy Statement (2020), issued under Section 3 of *Planning Act* and current Official Plan policies of the Municipality of Brooke-Alvinston and the County of Lambton, it is our opinion that the proposed application is in general conformance with the intent of these policies, has regard for the criteria listed in subsection 51(24) of the Planning Act and serves as the best use for the subject lands.

All of which is respectfully submitted.

B. M. ROSS AND ASSOCIATES LIMITED

rdan Fohkens Per

Jordan Fohkens Planner



Per Matthe Pearson

Matthew J. Pearson, RPP, MCIP Senior Planner

Planning Justification Report Alvinston Residential Development

APPENDIX 'A' Conceptual Lot Layout Plan



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### **APPENDIX 'B'**

### **Archaeological Assessment**

Stage 1-2 Archaeological Assessment Proposed Residential Development Part of Lots A, C, E, G, I, Plan 5 and Lot K, Plan 25-R9321 Part I Municipality of Brooke-Alvinston Part of Lots 19 and 20, Concession 5 Geographic Township of Brooke Lambton County, Ontario

**Original Report** 

**Submitted to:** Ministry of Heritage, Sport, Tourism and Culture Industries

### **Prepared for:**

BM Ross and Associates 2695 Hamilton Road P.O. Box 400 Brights Grove, ON N0N IC0

### Prepared by:

TMHC Inc. 1108 Dundas Street, Unit 105 London, ON N5W 3A7 519-641-7222 <u>tmhc.ca</u>

Licensee: PIF No: Project No: Dated:

Matthew Beaudoin, Ph.D., P324 P324-0696-2021 2021-093 November 24, 2021



Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON

# **EXECUTIVE SUMMARY**

A Stage I and 2 archaeological assessment was conducted for a proposed residential development in Alvinston, Ontario. The subject property is roughly 4.56 hectares (11.27 acres) in size covering part of Lots A, C, E, G, and I, Plan 5 and Lot K, Plan 25R-9321 Part I, located within part of Lots 19 and 20, Concession 5, in the Geographic Township of Brooke, Alvinston, Municipality of Brooke-Alvinston, Lambton County, Ontario. The subject property contains an agricultural field and a manicured lawn. In 2021 TMHC was contracted by B.M. Ross and Associates Limited to carry out the assessment, which was conducted in accordance with the provisions of the *Planning Act* and *Provincial Policy Statement*. The purpose of the assessment was to determine whether there were archaeological resources present within the subject property.

The Stage I background study included a review of current land use, historic and modern maps, past settlement history for the area and a consideration of topographic and physiographic features, soils and drainage. It also involved a review of previously registered archaeological resources within I km of the subject property and previous archaeological assessments within 50 m. The background study indicated that the property had potential for the recovery of archaeological resources due the proximity (i.e., within 300 m) of features that signal archaeological potential namely:

- watercourses (Sydenham River);
- mapped 19th century structure (J.C. Creary's Saw Mill); and
- mapped 19th century thoroughfares (River Street, Lisgar Street, Francis Street, and Munro Street).

The subject property consists of an agricultural field and a grassed area. The agricultural field was subject to pedestrian survey at a 5 m transect interval (98.16%; 4.81 ha). For the grassed area, the Stage 2 survey employed a shovel test pit survey at a 5 m transect interval (1.02%; 0.5 ha). Disturbed soils were encountered in a portion of the grassed area associated with a former laneway and the test pit interval was extended to 10 m to determine the extent and nature of the disturbance (0.82%; 0.04 ha).

All work met provincial standards and no archaeological material was documented during the assessment. As such, the subject property should be considered free of archaeological concern and no further archaeological assessment is recommended.

Our recommendations are subject to the conditions laid out in Section 5.0 of this report and to the MHSTCI's review and acceptance of this report into the provincial registry.


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Stage I-2 Archaeological Assessment Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON

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## PROJECT PERSONNEL

Project Manager	Matthew Beaudoin, Ph.D. (P324)		
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	Peter Epler, B.A. (R418)		
Field Director(s)	Marya D'Alessio, M.A. (R1163)		
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	Kaitlyn Schisler, B.Sc.		
	Paton Manzara		
	James Syme		
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Report Writer	Christopher Kerns, Ph.D. (P1269)		
Senior Review	Matthew Beaudoin, Ph.D. (P324)		

# **ACKNOWLEDGEMENTS**

**BM** Ross and Associates

Jordan Fohkens



# **TERRITORIAL ACKNOWLEDGEMENT**

The subject property is located on the traditional lands of the Anishinaabek (Ah-nish-in-a-bek), Haudenosaunee (Ho-den-no-show-nee), Lūnaapéewak (Len-ahpay- wuk), and Attawandaron (Add-a-won-darun) peoples, on lands connected with Longwoods Treaty No. 21. This land continues to be home to diverse Indigenous peoples (e.g., First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society.



# **ABOUT TMHC**

Established in 2003, with a head office in London, Ontario, TMHC provides a broad range of archaeological assessment heritage planning and consultation services throughout the Province of Ontario, founded on over forty years of progressive and responsible experience. We provide consulting services for Indigenous communities, municipal heritage planning and training, public outreach and educational programs, and have established specialties in community engagement, cemetery investigations, faunal analysis and ground penetrating radar surveys. Since TMHC's inception, we have evolved with the needs of our clients, the demands of the regulatory environment, and the growth in the industry.

Since 2004, TMHC has held retainers with Infrastructure Ontario (formerly the Ontario Realty Corporation), Hydro One, the Ministry of Transportation and the City of Hamilton. Presently, TMHC was successfully added to the Infrastructure Ontario, Ministry of Transportation, Hydro One, Metrolinx, and Niagara Parks retainers. In addition, TMHC has successfully managed a wider variety of highly sensitive, large, and complicated projects and have a proven track record in successfully managing and navigating them to completion. In 2013, TMHC earned the Ontario Archaeological Society's award for Excellence in Cultural Resource Management.

# **KEY STAFF BIOS**

Matthew Beaudoin, PhD., Principal, Manager – Archaeological Assessments

Matthew Beaudoin received a Ph.D. in Anthropology from Western University in 2013 and became a Principal at TMHC in 2019. During his archaeological career, Matthew has conducted extensive field research and artifact analysis on Indigenous and Settler sites from Labrador and Ontario. In addition, Matthew has also conducted ethnographic projects in Labrador. Since joining TMHC in 2008, Matthew has been involved with several notable projects, such as the Imperial Oil's Waterdown to Finch Project, the Camp Ipperwash Project, and the Scugog Island Natural Gas Pipeline Project.

Matthew is an active member of the Canadian Archaeological Association, the Ontario Archaeological Association, the Ontario Historical Society, the World Archaeology Congress, the Council for Northeastern Historical Archaeology, the Society for American Archaeology, and the Society for Historical Archaeology.



# **STATEMENT OF QUALIFICATIONS AND LIMITATIONS**

The attached Report (the "Report") has been prepared by Timmins Martelle Heritage Consultants Inc. (TMHC) for the benefit of the Client (the "Client") in accordance with the agreement between TMHC and the Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents TMHC's professional judgment in light of the Limitation and industry standards for the preparation of similar reports;
- may be based on information provided to TMHC which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context; and
- was prepared for the specific purposes described in the Report and the Agreement.

TMHC shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. TMHC accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

TMHC agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but TMHC makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Except (1) as agreed to in writing by TMHC and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

TMHC accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of TMHC to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.



## **QUALITY INFORMATION**

Report prepared by:

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Christopher Kerns, Ph.D. (P1269) Report Writer/Archaeologist

Monthe Bali

Licensee/Senior Review:

Matthew Beaudoin, Ph.D. (P324) Principal/Manager of Archaeological Assessment



# I PROJECT CONTEXT

### I.I Development Context

#### I.I.I Introduction

A Stage I and 2 archaeological assessment was conducted for a proposed residential development in Alvinston, Ontario. The subject property is roughly 4.56 hectares (11.27 acres) in size covering part of Lots A, C, E, G, and I, Plan 5 and Lot K, Plan 25R-9321 Part I, located within part of Lots 19 and 20, Concession 5, in the Geographic Township of Brooke, Alvinston, Municipality of Brooke-Alvinston, Lambton County, Ontario. The subject property contains an agricultural field and a manicured lawn. In 2021 TMHC Inc. was contracted by B.M. Ross and Associates Limited to carry out the assessment, which was conducted in accordance with the provisions of the *Planning Act* and *Provincial Policy Statement*. The purpose of the assessment was to determine whether there were archaeological resources present within the subject property.

All archaeological assessment activities were performed under the professional archaeological license of Matthew Beaudoin, Ph.D. (P324) and in accordance with the *Standards and Guidelines for Consultant Archaeologists* (MTC 2011, "Standards and Guidelines"). Permission to enter the property and carry out all required archaeological activities, including collecting artifacts when found, was given by Jordan Fohkens.

#### 1.1.2 Purpose and Legislative Context

The Ontario Heritage Act (R.S.O. 1990) makes provisions for the protection and conservation of heritage resources in the Province of Ontario. Heritage concerns are recognized as a matter of provincial interest in Section 2.6.2 of the Provincial Policy Statement (PPS 2020) which states:

development and site alteration shall not be permitted on lands containing archaeological resources or areas of archaeological potential unless significant archaeological resources have been conserved.

In the PPS, the term conserved means:

the identification, protection, management and use of *built heritage resources, cultural heritage landscapes* and *archaeological resources* in a manner that ensures their cultural heritage value or interest is retained. This may be achieved by the implementation of recommendations set out in a conservation plan, archaeological assessment and/or heritage impact assessment that has been approved, accepted or adopted by the relevant planning authority and/or decision-maker. Mitigative measures and/or alternative development approaches can be included in these plans and assessments.

Sections 2 (d) and 3.5 of the *Planning Act* stipulate that municipalities shall have regard for their conservation of features of significant architectural, cultural, historical, archaeological or scientific interest. Therefore, the purpose of a Stage I background study is to determine if there is potential for cultural resources to be found on a property for which a change in land use is pending. If a property is found to have potential for cultural resources, a Stage 2 assessment is required, involving a search for archaeological resources.



# 2 STAGE I BACKGROUND REVIEW

### 2.1 Research Methods and Sources

A Stage I overview and background study was conducted to gather information about known and potential cultural heritage resources within the subject property. According to the *Standards and Guidelines*, a Stage I background study must include a review of:

- an up-to-date listing of sites from the Ministry of Heritage, Sport, Tourism and Culture Industries' (MHSTCI) PastPortal for 1 km around the property;
- reports of previous archaeological fieldwork within a radius of 50 m around the property;
- topographic maps at 1:10,000 (recent and historical) or the most detailed scale available;
- historical settlement maps (e.g., historical atlas, survey);
- archaeological management plans or other archaeological potential mapping when available; and,
- commemorative plaques or monuments on or near the property.

For this project, the following activities were carried out to satisfy or exceed the above requirements:

- a database search was completed through MHSTCI's PastPortal system that compiled a list of registered archaeological sites within 1 km of the subject property (completed November 5, 2021)
- a review of known prior archaeological reports for the property and adjacent lands;
- Ontario Base Mapping (1:10,000) was reviewed through ArcGIS and mapping layers provided by geographynetwork.ca;
- detailed mapping provided by the client was also reviewed; and,
- a series of historic maps and photographs was reviewed related to the post-1800 land settlement.

Additional sources of information were also consulted, including modern aerial photographs, local history accounts, soils and physiographic data provided by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), and both 1:50,000 (Natural Resources Canada) and finer scale topographic mapping.

When compiled, background information was used to create a summary of the characteristics of the subject property, in an effort to evaluate its archaeological potential. The Province of Ontario (MTC 2011; Section 1.3.1) has defined the criteria that identify archaeological potential as:

- previously identified archaeological sites;
- water sources;
  - primary water sources (e.g., lakes, rivers, streams, creeks);
  - o secondary water sources (e.g., intermittent streams and creeks, springs, marshes, swamps);
  - features indicating past water sources (e.g., glacial lake shorelines, relic river or stream channels, shorelines of drained lakes or marshes, cobble beaches);
  - o accessible or inaccessible shorelines (e.g., high bluffs, sandbars stretching into a marsh);
- elevated topography (e.g., eskers, drumlins, large knolls, plateau);
- pockets of well-drained sandy soils;
- distinctive land formations that might have been special or spiritual places (e.g., waterfalls, rock outcrops, caverns, mounds, promontories and their bases);
- resource areas, including:

Stage 1-2 Archaeological Assessment



Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON

- o food or medicinal plants (e.g., migratory routes, spawning areas, prairies);
- o scarce raw materials (e.g., quartz, copper, ochre, or chert outcrops);
- o early Settler industry (e.g., fur trade, logging, prospecting, mining);
- areas of early 19th-century settlement, including:
  - early military locations;
  - o pioneer settlement (e.g., homesteads, isolated cabins, farmstead complexes);
  - wharf or dock complexes;
  - pioneer churches;
  - early cemeteries;
- early transportation routes (e.g., trails, passes, roads, railways, portage routes);
- a property listed on a municipal register, designated under the Ontario Heritage Act, or that is a federal, provincial, or municipal historic landmark or site; and,
- a property that local histories or informants have identified with possible archaeological sites, historical event, activities, or occupations.

In Southern Ontario (south of the Canadian Shield), any lands within 300 m of any of the features listed above are considered to have potential for the discovery of archaeological resources.

Typically, a Stage I assessment will determine potential for Indigenous and 19th-century period sites independently. This is due to the fact that lifeways varied considerably during these eras, so the criteria used to evaluate potential for each type of site also varies.

It should be noted that some factors can also negate the potential for discovery of intact archaeological deposits. The *Standards and Guidelines* (MTC 2011; Section 1.3.2) indicates that archaeological potential can be removed in instances where land has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources. Major disturbances indicating removal of archaeological potential include, but are not limited to:

- quarrying;
- major landscaping involving grading below topsoil;
- building footprints; and,
- sewage and infrastructure development.

Some activities (agricultural cultivation, surface landscaping, installation of gravel trails, etc.) may result in minor alterations to the surface topsoil but do not necessarily affect or remove archaeological potential. It is not uncommon for archaeological sites, including structural foundations, subsurface features and burials, to be found intact beneath major surface features like roadways and parking lots. Archaeological potential is, therefore, not removed in cases where there is a chance of deeply buried deposits, as in a developed or urban context or floodplain where modern features or alluvial soils can effectively cap and preserve archaeological resources.

## 2.2 Project Context: Archaeological Context

### 2.2.1 Subject Property: Overview and Physical Setting

The subject property is a roughly 4.56 ha (11.27 ac) parcel consisting of an active agricultural field and a small manicured grass access route located on the southern end of the Village of Alvinston, Ontario (Maps 1-2). It is bounded to the south by agricultural fields and to the north, east, and west by residential properties.

The subject property is falls within the eastern edge of the St. Clair Clay Plains physiographic region (Map 3), as defined by Chapman and Putnam (1984:147-149). The region is an extensive clay plain covering over 2,000 square miles east of the St. Clair River and south of the Lake Huron shoreline (Chapman and Putnam 1984: 147). The plain shows very little notable relief yet minor elevation changes have a marked effect on soils and vegetation (Chapman and Putnam 1984: 147). The St. Clair Clay Plain was formerly the bed of glacial lakes Whittlesey and Warren. The former shorelines of Glacial Lake Warren have been documented immediately east of the subject property and roughly 500 m to the southwest (Chapman and Putnam 1984: 147).

The subject property lies between two former shorelines where the soils have been classified as Brisbane Loam and Burford Loam. Brisbane Loam is classified as an imperfectly drained grey-brown podzolic soil, while Burford loam is classified as a well-drained grey-brown podzolic soil (Matthews et al 1957:52-53).

The subject property lies within the Sydenham River watershed. The Sydenham River is roughly 250 m northeast of the subject property, and the Gollier-Davis Drain is roughly 150 m to the southwest (Map 5).

### 2.2.2 Summary of Registered or Known Archaeological Sites

According to PastPortal (accessed November 5, 2021) there are three registered archaeological sites within 1 km of the subject property (Table 1). However, further review of the individual site locations has demonstrated that there are only two known sites within 1 km of the subject property (AeHI-33 and AeHI-61). Both sites are further than 300 m from the current subject property. AeHI-33 is a Late Woodland period village site identified by David Riddell in 1992 during an archaeological survey along the Sydenham River. AeHI-61 is a Late Woodland period artifact scatter identified by David Riddell in 1994 during additional surveys of the Sydenham River area.

Borden Number	Site Name	Time Period	Affinity	Site Type	Status	Distance
AeHI-31	Cemetery	Woodland, Late	Aboriginal, Iroquoian	village		> Ikm
AeHI-33	Haagsma	Woodland, Late	Aboriginal, Iroquoian	village		< I km
AeHI-61	Sewage	Woodland, Late	Aboriginal: Western Basin	Unknown		< Ikm

Table	I: Registered	Archaeological	Sites within	I km of the S	Subject Prop	perty
			••••••		/	/



#### 2.2.3 Summary of Past Archaeological Investigations within 50 m

During the course of this study, no records were found for any archaeological investigation within 50 m of the subject property. However, it should be noted that the MHSTCI currently does not provide an inventory of archaeological assessments to assist in this determination.

#### 2.2.4 Dates of Archaeological Fieldwork

The Stage 2 fieldwork was conducted on November 5, 2021, in sunny and cool weather conditions under the direction of Marya D'Alessio, M.A. (R1163).

#### Table 2: Dates of Fieldwork, Weather Conditions and Field Director

Dates of Fieldwork	Weather Conditions	Field Director
November 5, 2021	Sunny and cool	M. D'Alessio, M.A. (R1163)

## 2.3 Project Context: Historical Context

### 2.3.1 Indigenous Settlement in Lambton County

Our knowledge of the Indigenous occupation of the Lambton County area is incomplete. Nevertheless, based on our knowledge of existing sites and using models generated from Province-wide and region-specific archaeological data, it is possible to provide a basic summary of Indigenous settlement in Lambton County. There is archaeological and historical evidence of Indigenous occupation in the area from Paleo times through the period of European contact and into the period of earliest European settlement. The general themes, time periods and cultural traditions of Indigenous settlement, based on archaeological evidence, are provided below and in Table 3.

Period	Time Range (circa)	Diagnostic Features	Archaeological Complexes
Early Paleo	9000-8400 BCE	fluted projectile points	Gainey, Barnes, Crowfield
Late Paleo	8400-8000 BCE	non-fluted and lanceolate points	Holcombe, Hi-Lo, Lanceolate
Early Archaic	8000-6000 BCE	serrated, notched, bifurcate base points	Nettling, Bifurcate Base Horizon
Middle Archaic	6000-2500 BCE	stemmed, side & corner notched points	Brewerton, Otter Creek, Stanly/Neville
Late Archaic	2000-1800 BCE	narrow points	Lamoka
Late Archaic	1800-1500 BCE	broad points	Genesee, Adder Orchard, Perkiomen
Late Archaic	1500-1100 BCE	small points	Crawford Knoll
Terminal Archaic	1100-950 BCE	first true cemeteries	Hind
Early Woodland	950-400 BCE	expanding stemmed points, Vinette pottery	Meadowood
Middle Woodland	400 BCE-500 CE	dentate, pseudo-scallop pottery	Saugeen/Couture
Transitional Woodland	500-900 CE	first corn, cord-wrapped stick pottery	Princess Point/Riviere au Vase
Late Woodland	900-1300 CE	first villages, corn horticulture, longhouses	Glen Meyer/Younge
Late Woodland	1300-1400 CE	large villages and houses	Uren, Middleport/Springwell
Late Woodland	1400-1650 CE	tribal emergence, territoriality	Neutral Iroquois/Wolf
Contact Period - Indigenous	1700 CE-present	treaties, mixture of Indigenous & European items	Ojibwa
Contact Period - Settler	1796 CE-present	industrial goods, homesteads	pioneer life, municipal settlement

#### Table 3: Chronology of Indigenous Settlement in Lambton County



### 2.3.1.1 Paleo Period

The first human populations to inhabit the Lambton County region arrived between 12,000 and 10,000 years ago, coincident with the end of the last period of glaciation. Climate and environmental conditions were significantly different then they are today; local environs would not have been welcoming to anything but short-term settlement. Termed Paleoindians by archaeologists, Ontario's Indigenous peoples would have crossed the landscape in small groups (i.e., bands or family units) searching for food, particularly migratory game species. In this area, caribou may have provided the staple of the Paleo period diet, supplemented by wild plants, small game, birds and fish.

Given the low density of populations on the landscape at this time and their mobile nature, Paleo period sites are small and ephemeral. They are sometimes identified by the presence of fluted projectile points manufactured on a highly distinctive whitish-grey chert named "Fossil Hill" (after the formation) or "Collingwood." This material was acquired from sources near the edge of the escarpment on Blue Mountain. It was exploited by populations from as far south as the London area, who would have traveled to the source as part of their seasonal round.

#### 2.3.1.2 Archaic Period

Settlement and subsistence patterns changed significantly during the Archaic period as both the landscape and ecosystem adjusted to the retreat of the glaciers. Building on earlier patterns, early Archaic period populations continued the mobile lifestyle of their predecessors. Through time and with the development of more resource rich local environments, these groups gradually reduced the size of the territories they exploited on a regular basis. A seasonal pattern of warm season riverine or lakeshore settlements and interior cold weather occupations has been documented in the archaeological record.

Since the large cold weather mammal species that formed the basis of the Paleo period subsistence pattern became extinct or moved northward with the onset of warmer climate conditions, Archaic period populations had a more varied diet, exploiting a range of plant, bird, mammal and fish species. Reliance on specific food resources like fish, deer and nuts becomes more pronounced through time and the presence of more hospitable environments and resource abundance led to the expansion of band and family sizes. In the archaeological record, this is evident in the presence of larger sites and aggregation camps, where several families or bands would come together in times of plenty. The change to more preferable environmental circumstances led to a rise in population density. As a result, Archaic sites are more plentiful than those from the earlier period. Artifacts typical of these occupations include a variety of stemmed and notched projectile points, chipped stone scrapers, ground stone tools (e.g., celts, adzes) and ornaments (e.g., bannerstones, gorgets), bifaces or tool blanks, animal bone (where and when preserved) and waste flakes, a by-product of the tool making process.

#### 2.3.1.3 Early, Middle and Transitional Woodland Periods

Significant changes in cultural and environmental patterns are witnessed in the Woodland period (c. 950 BCE-1700 CE). By this time, the coniferous forests of earlier times were replaced by stands of mixed and deciduous species. Occupations became increasingly more substantial in this period, culminating in major semi-permanent villages by 1,000 years ago. Archaeologically, the most significant changes by Woodland times are the appearance of artifacts manufactured from modeled clay and the construction of house structures. The Woodland period is often defined by the occurrence of pottery, storage facilities and residential areas similar to those that define the incipient agricultural or Neolithic period in Europe.



Early and Middle Woodland period peoples are also known for a well-developed burial complex and ground stone tool industry. Unique Early Woodland period ground stone items include pop-eyed birdstones and gorgets. In addition, there is evidence of the development of widespread trading with groups throughout the northeast. The recovery of marine shells from the Gulf of Mexico in the Lake Superior area indicates that exchanges of exotic materials and finished items from distant places were commonplace.

#### 2.3.1.4 Late Woodland Period

During the Late Woodland period, much of Southwestern Ontario was occupied by two groups: Iroquoians and what are thought by archaeologists to be Algonquin speaking populations (the term "Western Basin Tradition" has been used to describe this cultural complex). In the east, the Iroquoian occupants were the Attawandaron, a tribal group described by European missionaries and whose historic homeland was significantly further east. Like other known Iroquoian groups including the Huron (Wendat) and Petun (Tionontati), the Attawandaron practiced a system of intensive horticulture based on three primary subsistence crops (corn, beans and squash). Their villages incorporated a number of longhouses, multi-family dwellings that contained several families related through the female line. The Jesuit Relations describe several Attawandaron centres in existence in the 17th century, including a number of sites where missions were later established. While precontact Attawandaron sites may be identified by a predominance of well-made pottery decorated with various simple and geometric motifs, triangular stone projectile points, clay pipes and ground stone implements, sites post-dating European contact are recognized through the appearance of various items of European manufacture. The latter include materials acquired by trade (e.g., glass beads, copper/brass kettles, iron axes, knives and other metal implements) in addition to the personal items of European visitors and Jesuit priests (e.g., finger rings, stoneware, rosaries, glassware). The Attawandaron were dispersed and their population decimated by the arrival of epidemic European diseases and inter-tribal warfare. Many were adopted into other Iroquoian communities.

In southwestern Ontario west of the London area, archaeologists have also documented the in-situ development of Late Woodland period archaeological traditions from Middle Woodland period precedents that are believed to have an Algonquin cultural origin, quite distinct from Iroquoian populations who lived to the east. The archaeological record of these groups has been labeled the "Western Basin Tradition." During the Late Woodland period, complex settlements are characteristic of these people and, at their peak, are characterized by fortified villages containing large, likely extended family, structures. Some of the villages are surrounded by earthworks. There is evidence for the cultivation of corn and beans by roughly 900 CE. The pottery traditions of these people varied significantly from those of their Iroquoian neighbors. Early vessels, called Wayne ware, are small, thin-walled pots covered with vertical cord marking and tool impressions. Vessels become more elaborate through time, incorporating multiple bands of tool impressions, castellated rims and incised decoration. Late pottery is characteristically bag-shaped and often incorporates dentate stamping as well as appliqué strips and strap handles, similar to some Mississippian tradition pottery. As was not the case with much Iroquoian pottery, clay fabrics were mixed with shell temper.



### 2.3.2 Treaty History

The subject property is encompassed by the Longwoods Purchase, Treaty No. 21, which was originally signed March 9, 1819 between the British Crown and the Chippewa Nation. This earliest treaty was considered provisional and negotiations continued through two more agreements: Treaty No. 280 ½ and Treaty No. 25. Treaty No. 25 is considered the confirmatory treaty for the area (Canada 1891a, 1891b). Chippewas of the Thames First Nation was the sole Indigenous nation signatory of the Longwoods Treaty.

Two reserves were set aside as part of the Longwoods Treaty. The existing reserve at Delaware and, what was referred to as the Big Bear Reserve along the Sydenham River. Big Bear had been the location of a Chippewa village that had relocated from the lower Thames in the late-18th century (Ferris 2009). The Crown, however, mistakenly sold the Big Bear Reserve and the remaining Big Bear families moved to the Chippewas of the Thames reserve at Delaware in 1832 (Curnoe 1996:18-19; Ferris 2009; Jones 1860,1861). It was not until 2013, that the Government of Canada compensated the Chippewas of the Thames for this mistake with a settlement worth over \$119 million (COTTFN 2019).

### 2.3.3 Nineteenth-Century and Municipal Settlement

Historically the subject property falls within part of Lots 19 and 20, Concession 5, in the Geographic Township of Brooke, Lambton County, Ontario. A brief discussion of 19th-century settlement and land use in the township is provided below in an effort to identify features signaling archaeological potential.

#### 2.3.3.1 Lambton County

Prior to the 1830s Lambton County was sparsely occupied by people of European descent. One of the reasons for this was that historical Lambton County was composed of mainly forested and swampy areas that made settling and traveling to the County difficult. A few French settlers were living along the banks of the St. Clair River. An unfortified British military reserve was set up in the along the eastern bank of the St. Clair River at the entrance to Lake Huron, in the location of what was to eventually become the Village of Point Edward around 1800. This military reserve was established to protect the entrance of Lake Huron from possible American invaders (Elford 1967: 114). It is thought that the earliest European settlement in Lambton County was focused along Bear Creek (or the Sydenham River) in what has come to be known as the Baldoon Settlement (H. Belden & Co. 1880:4). This area was settled by Highland Scotch immigrants who came to the area around 1804 under the direction of Lord Selkirk (H. Belden & Co. 1880:4). However, no sizable European populations settled in the County until the early 1830s when there was an influx of British settlers. By 1834, there were 1,728 settlers in the county and by 1891 the population had increased to 58,810 people (Elford 1967: 3-5). By 1835, the ten townships that would eventually comprise the County were laid out and surveyed. It was not until 1850 that Lambton became a provisional county and three years later it became an independent municipality (Elford 1967). By 1881, nearly half the county was still covered by forested lands (Matthews et al. 1957:23).

The Grand Trunk Railway first opened in 1859 and helped increase the County's shipping profile and provided passage to new immigrants. Transportation through the County was considerably hindered by the lack of good thoroughfares. Given that much of the county was essentially a vast level clay plain with few streams and rivers, it was poorly drained and good, dry roads were hard to come by. Swamplands often prohibited the establishment of early through roads. Nonetheless, a few early major transportation routes offered some solace to travelers. These included the Egremont/London Road (now Highway 22), the Plank Road (connecting



#### Stage I-2 Archaeological Assessment Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON

Sarnia to Petrolia) and the Fourth Line (Confederation Line). The Plank Road was "planked" between 1862 and 1865 following the discovery of oil in Enniskillen Township (Elford 1967:41-42).

#### 2.3.3.2 Brooke Township

The township survey was initiated in 1832 by Samuel Smith. Fourteen years later the township only had a total of 169 settlers. The decade between the first two censuses (1851 and 1861) saw a tripling of the Township's population, with the majority of residents being of Scottish, Irish, English or American descent. By 1871, the population had increased substantially and by 1881 the township was home to 3,492 people (Elford 1967:36-37). Early municipal settlement was hindered by the fact that much of the township was swamp and therefore uncleared. By the mid-19th century much of the land in the township was still comprised of Crown and Clergy Reserves and many landowners were non-residents who had been given land grants but had no intention of ever settling here. The poorly drained township lands became more habitable and desirable for agricultural after drainage improvements were made in the 1870s (Elford 1967:39). Early on there were few passable roads in Brooke. In 1847, only about three miles of road were mapped for all of the township and as late as 1880, many of the side roads had not yet been open (Elford 1967:40).

#### 2.3.3.3 Alvinston

Archibald Garner is credited with founding Alvinston when he arrived in the area in 1835 (MBA 2021). Gardner built a saw and mill on the east bank of the Sydenham River in 1837 (Johnston 1925:21; MBA 2021), and at that time it was the only grist-mill within a 50-mile radius (MBA 2021). The town was initially known as Gardiner's Mill, and then was later known as Brennan's Mills after J.W. Brennan purchased the mill complex from Garner in 1846 (Johnston 1925:21; MBA 2021). A post office was established in the village of Alvinston in 1854 (MBA 2021). By 1864, Alvinston had the grist mill, two hotels and a blacksmith shop. The village grew substantially after the Canadian Southern Railway was built through Alvinston in 1872 (MBA 2021). When Alvinston was incorporated as a village in 1880, it held two flour mills, one stove factory, one planning mill, one foundry, one cabinet factory, four wagon and blacksmith shops, two brick yards, ten stores, four hotels, one livery stable, one school of two rooms, five churches and a township hall (MBA 2021). Two private banks, Fawcett's and John Conn and Company, failed at the end of the 19th century and many villagers lost their savings and some businesses had to close. However, the abundance of farm produce and timber in the surrounding area led The Grand Trunk railway to construct a line through Alvinston in 1892 (MBA 2021).

#### 2.3.4 Review of Historic Maps

Historically the subject property falls within part of Lots 19 and 20, Concession 5, in the Geographic Township of Brooke, Lambton County, Ontario. A review of 19th- and early 20th-century maps was completed.

The 1880 H. Belden & Co. Illustrated Historical Atlas of Lambton County depicts the portion of the subject property on Lot 20, Concession 5 as subdivided land that was part of the Alvinston town plot, while Lot 19, Concession 5 is associated with J.C. Creary's saw mill (Map 6). The layout of streets within Alvinston are already established at this time and included the alignments of Courtright Line and River Street. Both Lisgar and Francis streets are both depicted in their current alignment, while Munro Street (no longer present) is depicted bisecting the subject property.

The 1911 Topographic Map of the area depicts a grist mill on the subject property along what was once Munro Street (DMD 1911; Map 7). Whether the grist mill is the same as the saw mill previously indicated on the 1880 map is unclear. A number of buildings are depicted within the vicinity of the subject property on the



1911 map, but their date of construction remains uncertain. The Grand Trunk rail line is also depicted immediately east of the subject property on the 1911 map. As it was not constructed until 1892, it did not appear on the earlier 1880 map of the area.

#### 2.3.5 Review of Heritage Properties

There are no designated heritage properties within Alvinston. Further, there are no commemorative plaques or monuments within the immediate vicinity of the subject property.

### 2.4 Analysis and Conclusions

As noted in Section 2.1, the Province of Ontario has identified numerous factors that signal the potential of a property to contain archaeological resources. Based on the archaeological and historical context reviewed above, the subject property is in proximity (i.e., within 300 m) to features that signal archaeological potential, namely:

- watercourses (Sydenham River);
- mapped 19th century structure (J.C. Creary's Saw Mill); and
- mapped 19th century thoroughfares (River Street, Lisgar Street, Francis Street, and Munro Street).

#### 2.5 Recommendations

Given that the subject property demonstrated potential for the discovery of archaeological resources, a Stage 2 archaeological assessment was recommended. In keeping with provincial standards, the active agricultural land was recommended for pedestrian survey and the manicured lawn was recommended for test pit survey, both at a 5 m transect intervals. As the subject property is considered to have archaeological potential pending Stage 2 field inspection, a separate map detailing zones of archaeological potential is not provided herein (MTC 2011; Section 7.7.4, Standard I and Section 7.7.6, Standards I and 2).



# **3 STAGE 2 ARCHAEOLOGICAL ASSESSMENT**

### 3.1 Field Methods

All fieldwork was undertaken in good weather and lighting conditions. No conditions were encountered that would hinder the identification or recovery of artifacts. The property boundaries were determined in the field based on proponent mapping, landscape features, property fencing, and GPS co-ordinates.

The majority of the subject property (4.81 ha; 98.16%) is comprised of agricultural fields, which were subject to pedestrian survey. The pedestrian survey at 5 m intervals was carried out following ploughing of the agricultural field and soil weathering under heavy rains (Images I). Surface visibility conditions were good to excellent (80% or greater). It was anticipated that if cultural material was identified the survey transects would be reduced to 1 m or less and a minimum of a 20 m radius around each find would be intensively examined to determine the spatial extent of each site. Soils within the agricultural field consisted of a brown sandy loam with gravel and cobble inclusions (Image 2).

Grassed conditions were present along the access route from Broadway Street (0.05 ha; 1.02%). This area was subject to a standard test pit survey at 5 m intervals (Image 3). Each test pit measured at least 30 cm (shovel-width) in diameter and was excavated into the first 5 cm of subsoil. The soil from each test pit was passed through 6 mm hardware cloth in an effort to retain any artifacts that may be present. Once screening was finished, the stratigraphy in the test pits was examined and then the pits were backfilled as best as possible, tamped down by foot and shovel and re-capped with sod. Test pitting extended up to 1 m from all standing features, including trees. It was anticipated that if cultural material was found, the test pit survey would be intensified (reduced to 2.5 m) to determine the size of any sites identified. If insufficient archaeological materials were recovered from the intensification test pits to gather additional information. The test pits in the grassed areas along the access route contained 35 cm of brown sandy over yellow-orange silty sand subsoil (Image 4).

Disturbed soils were encountered along the northern side of the access route related to an existing laneway (0.04 ha; 0.82%). Judgmental test pit survey at 10 m intervals was implemented for this area to determine the extent and nature of the laneway disturbance (Image 5). The disturbed soils consisted of 10 cm of brown clay loam with gravel inclusions, over 15 cm of light brown silty sand with gravel inclusions, over 20 cm of dark brown sandy loam, over yellow-orange silty sand subsoil (Image 6).

The results of the Stage 2 archaeological assessment, as well as the location and orientation of all report photographs, are presented on Map 8. Map 9 depicts the results on the proponent mapping, and Map 10 presents the unaltered proponent map.



### 3.2 Record of Finds

No archaeological materials or sites were identified during the Stage 2 archaeological assessment of the subject property. Table 4 provides an inventory of the documentary records generated during this project.

All files are currently being stored at the TMHC corporate office located at 1108 Dundas Street, Unit 105, London, ON, N5W 3A7.

### **Table 4: Documentary Records**

Date	Field Notes	Field Maps	Digital Images	
November 5, 2021	Digital and hard copies	Digital and hard copies	45 Images	

### 3.3 Analysis and Conclusions

A Stage 2 field assessment was carried out in keeping with the MHSTCI' Standards and Guidelines (MTC 2011). The pedestrian and test pit survey did not result in the documentation of archaeological resources. As such, the subject property should be considered free of archaeological concern.

### 3.4 Recommendations

All work met provincial standards and no archaeological material was documented during the assessment. As such, the subject property should be considered free of archaeological concern and no further archaeological assessment is recommended.

Our recommendations are subject to the conditions laid out in Section 5.0 of this report and to the MHSTCI' review and acceptance of this report into the provincial registry.



# 4 SUMMARY

A Stage I and 2 archaeological assessment was conducted for a proposed residential development in Alvinston, Ontario. The subject property is roughly 4.56 hectares (11.27 acres) in size covering part of lots A, C, E, G, and I, Plan 5 and Lot K, Plan 25R-9321 Part I, located within part of Lots 19 and 20, Concession 5, in the Geographic Township of Brooke, Alvinston, Municipality of Brooke-Alvinston, Lambton County, Ontario. The Stage I assessment revealed that the property had potential for the discovery of archaeological resources and a Stage 2 survey was recommended and carried out. The Stage 2 assessment (test pit and pedestrian assessment at a 5 m intervals) did not result in the documentation of archaeological resources. As such, the subject property should be considered free of archaeological concern and no further archaeological assessment is recommended.



# **5 ADVICE ON COMPLIANCE WITH LEGISLATION**

This report is submitted to the MHSTCI as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the MHSTCI, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the Ontario Heritage Act for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the Ontario Heritage Act.

Should previously undocumented (i.e., unknown or deeply buried) archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the Ontario Heritage Act.

The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and Crystal Forrest, A/Registrar of Burial Sites, Ontario Ministry of Government and Consumer Services. Her telephone number is 416-212-7499 and e-mail address is <u>Crystal.Forrest@ontario.ca</u>.



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# 7 IMAGES



Stage 1-2 Archaeological Assessment Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON

### Image I: Pedestrian Survey at 5 m Intervals

Looking North



Image 2: Surface Visibility





Stage I-2 Archaeological Assessment Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON

### Image 3: Test Pit Survey at 5 m Intervals

Looking East



Image 4: Typical Test Pit





Stage 1-2 Archaeological Assessment Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON

### Image 5: Overgrown Laneway Disturbance

Looking West



Image 6: Typical Disturbed Test Pit





# 8 MAPS



Stage 1-2 Archaeological Assessment Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON



Map 1: Location of the Subject Property in Lambton County, ON



Map 2: Aerial Photograph Showing the Location of the Subject Property



Stage I-2 Archaeological Assessment Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON



Map 3: Physiography Within the Vicinity of the Subject Property

Stage I-2 Archaeological Assessment Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON





Map 4: Soils Within the Vicinity of the Subject Property

Stage I-2 Archaeological Assessment Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON



tmhc



Map 5: Drainage Within the Vicinity of the Subject Property





Map 6: Location of the Subject Property Shown on the 1880 Map of Lambton County

Stage I-2 Archaeological Assessment



Proposed Residential Development, Part of Lots 19 & 20, Concession 5, Alvinston, ON



Map 7: Location of the Subject Property on 1911 Topographic Map


Map 8: Stage 2 Field Conditions and Assessment Methods





Map 9: Stage 2 Field Conditions and Assessment Methods Shown on Proponent Mapping





Map 10: Unaltered Proponent Mapping

## Ministry of Heritage, Sport, Tourism, and Culture Industries

Archaeology Program Unit Programs and Services Branch Heritage, Tourism and Culture Division 5th Floor, 400 University Ave. Toronto ON M7A 2R9 Tel.: (416) 414-7787 Email: Jessica.Marr@ontario.ca

## Ministère des Industries du patrimoine, du sport, du tourisme et de la culture

Unité des programme d'archéologie Direction des programmes et des services Division du patrimoine, du tourisme et de la culture 5e étage, 400 ave. University Toronto ON M7A 2R9 Tél. : (416) 414-7787 Email: Jessica.Marr@ontario.ca



Nov 25, 2021

Matthew Beaudoin (P324) Timmins Martelle Heritage Consultants Inc. 105 - 1108 Dundas London ON N5W 3A7

RE: Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "Stage 1-2 Archaeological Assessment Proposed Residential Development Part of Lots A, C, E, G, I, Plan 5 and Lot K, Plan 25-R9321 Part 1 Municipality of Brooke-Alvinston Part of Lots 19 and 20, Concession 5 Geographic Township of Brooke Lambton County, Ontario", Dated Nov 24, 2021, Filed with MHSTCI Toronto Office on N/A, MHSTCI Project Information Form Number P324-0696-2021, MHSTCI File Number 0015819

Dear Dr. Beaudoin:

The above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18, has been entered into the Ontario Public Register of Archaeological Reports without technical review.¹

Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require further information, please do not hesitate to send your inquiry to <u>Archaeology@Ontario.ca</u>

cc. Archaeology Licensing Officer Jordan Fohkens,BM Ross and Associates Jordan Fohkens,BM Ross and Associates

1In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent; or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.

#### **APPENDIX 'C'**

**Traffic Impact Assessment** 

## PROPOSED RESIDENTIAL SUBDIVISION BROADWAY STREET, ALVINSTON TOWNSHIP OF BROOKE-ALVINSTON

## **TRAFFIC IMPACT ASSESSMENT**

F. R. Berry & Associates February 2022



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Figure 7	Total Traffic 2029



## PROPOSED RESIDENTIAL SUBDIVISION BROADWAY STREET, ALVINSTON TOWNSHIP OF BROOKE-ALVINSTON

### TRAFFIC IMPACT ASSESSMENT

#### 1. INTRODUCTION AND BACKGROUND

Mr. and Mrs. Steve and Deb Durham have proposed the development of a residential subdivision in the community of Alvinston, Township of Brooke-Alvinston. The location of the site is shown in **Figure 1**.

The development will be built in phases and will have access initially to Broadway Street and later also to River Street. The purpose of this report is to determine the potential vehicle trip generation of the development and to assess the impact of these trips on traffic flow and safety on adjacent streets.

#### 2. EXISTING CONDITIONS

Local streets in the area, including Broadway Street and Millpond Avenue are paved with grass swales. There are no sidewalks. River Street is also a local street with residential frontage in the vicinity of the site access. These streets are under the jurisdiction of the Township of Brooke-Alvinston. Posted speed limits on all these streets is 50km/h.

Nauvoo Road, Lambton County Road 79, is a two lane arterial road with gravel shoulders and a posted speed limit of 50km/h in the vicinity of its intersection with Millpond Avenue.

Land uses in the area are primarily low density residential with agricultural uses to the south.

For the purposes of this assessment, traffic counts were made at the intersections of Millpond Avenue with Nauvoo Road and River Street on Wednesday, January 26, 2022. Peak hour turning volumes derived from these counts are shown in **Figure 2**. Count reports are contained in Appendix A.

Currently, because of the Covid-19 pandemic, traffic patterns have been disrupted and are generally lighter than normal. In addition, traffic volumes in the

Page 8

summer, particularly on County roads, tend to be higher than in the winter. To compensate for these two factors, the traffic volumes shown in Figure 2 were increased by one-third. The adjusted peak hour volumes are shown in Figure 3.

-2-

#### 3. PROPOSED DEVELOPMENT

The site plan for the proposed development is shown in Figure 4. A total of 69 dwelling units is proposed as follows:

19 single family homes

30 semi-detached homes

20 townhouses (5 fourplex buildings)

Construction is anticipated to begin in 2023 and be completed within five to ten years. Initially, access will be to Broadway Street only. As the development progresses, a second access to River Street will be opened on an existing right of way.

Based on regression equations contained in the Institute of Traffic Engineers (ITE) Trip Generation Manual, Tenth Edition, peak hour vehicle trip generations for the completed subdivision were estimated as shown in Table 1. For the purposes of this estimate, semi-detached dwellings were considered to be in the same category as detached dwellings.

At full build-out, the development will generate 50 vehicle trips in the morning peak hour and 65 vehicle trips in the afternoon peak hour.

The assignment of site generated trips is shown in Figure 5. Based on the subdivision layout as well as existing traffic volumes on Nauvoo Road and River Street, it was estimated that about 25 percent of the site generated trips would use the direct access to River Street. At the intersections of Millpond Avenue with Nauvoo Road and River Street, peak hour trips were assigned generally in proportion to the existing turning movements at these intersections. At the intersection of Millpond Road and Broadway Street, turning volumes were assigned in proportion to the ratio of peak hour volumes on Nauvoo Road and River Street. Turns to and from Nauvoo Road and River Street were assigned in proportion to directional flows on these streets.

The assignments indicate that, at full build-out, the proposed development would add 37 vehicle trips to Broadway Street in the morning peak hour and 49 vehicle trips in the afternoon peak hour. This would be a significant increase over existing traffic volumes using the street but would still result in a relatively low

Page 81

volume for a residential street. No site generated traffic is likely to use Lisgar Street or Francis Street.

#### 4. PROJECTED TRAFFIC

An estimated completion date of 2029 was assumed for the development. Adjusted peak hour turning volumes from **Figure 3** were projected to 2029 assuming an annual growth rate of one percent. This growth rate is typical of rural communities where no major developments are anticipated. While no changes to the existing residential neighbourhood are expected, the growth factors were applied to all turning movements, not just through traffic on River Street and Nauvoo Road.

Projected 2029 background traffic volumes are shown in **Figure 6**. Projected total traffic volumes are shown in **Figure 7**. The turning movements shown in **Figure 7** were obtained by adding site generated traffic from **Figure 5** to background traffic from **Figure 6**.

#### 5. ANALYSIS

The peak hour volumes shown in **Figure 7** can easily be accommodated on the existing local street system. For local residential streets, an average daily volume of 1 000 vehicles and a corresponding peak hour volume of 100 vehicles is considered to be a reasonable capacity limit. These volumes would only be exceeded on Nauvoo Road.

Level of service analyses were not made at the two key intersections because of the low volumes of projected traffic. Based on experience with similar intersection volumes, approach volumes at both intersections would operate at level of service A with average delays of less than ten seconds. Sight distance is not an issue.

Consideration was given to the impact of the left turn movement from Nauvoo Road southbound to Millpond Avenue eastbound. Using MTO criteria, this movement was assessed to determine if a left turn lane would be justified. The assessment is contained in Appendix B. Projected 2029 total volumes would be well below the threshold for a left turn lane. As noted above, sight distance is not an issue.



### 6. SUMMARY AND CONCLUSIONS

The proposed residential development will generate 50 vehicle trips in the morning peak hour and 65 vehicle trips in the afternoon peak hour. These trips will be distributed over the adjacent street system, including Nauvoo Road and River Street.

Projected peak hour turning movements at key intersections will not be large enough to create significant delays. All intersections will operate at a high level of service.

A left turn lane on Nauvoo Road at Millpond Avenue will not be warranted.





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ITE Land Use		AM Pe	ak Ho	5		PM Pe	ak Ho	5
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210 Single-Family Detached Housing 49du	u,bə	40	6	30	u,bə	51	32	19
Total	14	50	12	38		65	41	24
				Table		-		
				Vehic	le Trip (	Gener	ation	

## APPENDIX 'D'

**Conceptual Servicing Report** 

## Municipality of Brooke-Alvinston Conceptual Servicing Report Proposed Residential Development



# BROOKE CON 5 W PT LOT 20; PLAN 5(AL) PT LOTS A C E G I; AND K RP 25R9321 PART 1

Prepared by B. M. Ross and Associates Limited on behalf of Steve and Deb Durham



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Appendix A	Conceptual Servicing Plan
Appendix B	Sanitary Sewer Flow Calculation



B. M. ROSS AND ASSOCIATES LIMITED Engineers and Planners 2695 Hamilton Rd. Brights Grove, Ont. N0N 1C0 p. (519) 908-9564 www.bmross.net

File No. 20246

#### **STEVE AND DEB DURHAM**

#### CONCEPTUAL SERVICING REPORT PROPOSED RESIDENTIAL DEVELOPMENT MUNICIPALITY OF BROOKE-ALVINSTON

#### **1.0 INTRODUCTION**

This report has been prepared on behalf of Steve and Deb Durham in support of an application to amend the Municipality of Brooke-Alvinston Zoning By-law to allow additional housing options in south Alvinston. More specifically, the amendment would allow for a draft plan of subdivision application to proceed that would create 69 residential lots with access from Broadway Street and a future extension of Munro Street, in the Town of Alvinston. The proposed subdivision layout is included in the following drawing in Appendix A:

• 20246-Durham Subdivision - Conceptual Servicing Plan

The proposed development has an approximate area of 4.9ha and is proposed to be developed with the following:

- 19 single detached dwellings
- 30 semi-detached dwellings
- 20 street multiple attached dwellings
- 0.49ha block for a Storm Water Management (SWM) basin and a Sanitary Pumping Station

The purpose of this Functional Servicing Report is to provide a description of the proposed municipal infrastructure and demonstrate that the Town has infrastructure capacity to accommodate the proposed intensification.

#### 2.0 ROADS

The proposed site access shall be provided through a 20.117m wide road allowance from the existing Broadway Street right-of-way extending east and then north with a connection to the existing Munro Street right-of-way.

The proposed local road within the subdivision shall be constructed with an 8.5m asphalt width and mountable curb and gutter as per OPSD-600.100, completed with a 1.5m wide concrete sidewalk.

A geotechnical investigation will be completed by a Geotechnical Consultant to be determined, to explore the subsurface soil and groundwater conditions and to provide recommendations for foundation design and construction, site servicing, excavations, pavements and construction and inspection testing requirements.

#### 3.0 WATER

Water servicing for the proposed development will be provided by conventional PVC municipal watermains complete with isolation gate valves, hydrants, and individual 25mm CTS PEX water service connections to each residential lot.

The proposed 200mm watermain will connect to the existing 150mm municipal watermain on Broadway Street with a 200x150 reducer and a 150x150 tee. At River Street, the proposed 200mm watermain will connect to the existing 200mm watermain with a 200x200 tee.

#### 4.0 SANITARY

Sanitary servicing within the development will be provided by conventional PVC gravity sewers with an outlet to a proposed sanitary pumping station and discharging through a proposed 100mm forcemain into the existing 200mm municipal sanitary sewer on Broadway Street. The flow will travel north 530m by existing gravity sewers along Broadway Street discharging into the existing terminal sanitary pumping station (PS1) located at Municipal #3113 River Street, PS1 discharges south-east through a 200mm forcemain into the existing municipal wastewater treatment plant (WWTP) located at Municipal #3084 River Street.

The 2020 Alvinston Wastewater Treatment Facility Annual Performance Report issued on March 31, 2021 provided by the Municipality's Public Works Department indicates the annual average daily flow for 2020 was 285.8m³/day, or 48% of the plant's rated design capacity of 600m³/day. Sanitary flow from the proposed development has been calculated and is attached for reference to this report as Appendix B. The total calculated average daily flow is 69.8m³/day (based on a 337 L/cap. d) so using the 2020 information provided, the total annual average daily flow would be 355.6m³/day, or 59% of the plant's rated design capacity of 600m³/day. Therefore, the capacity of the WWTP appears to be sufficient for the proposed development.

The lots in the Plan of Subdivision will be provided with individual 150mm diameter PVC sanitary service connections with cleanouts at property line.

#### 5.0 STORM DRAINAGE

#### 5.1 Existing Drainage Outlets

The existing Collier Davis Drain is currently the legal outlet for the south limit properties on Broadway Street and the proposed development land. The drain crosses a small section of the south-west limit of the proposed development. The Collier Davis Drain is a 200mm diameter tile that flows south to Courtright Line and then westerly as an open channel located in the north boulevard of Courtright Line. The Collier Davis Drain has insufficient depth and will not be able to accommodate the storm runoff from the proposed development.

There is an existing 200mm diameter River Street drain along the east side of River Street with a 250mm discharge easterly through a Municipal Lane into the Sydenham River, however analysis has confirmed that they this drain has no surplus capacity to accommodate storm runoff from the development for conveyance to the Sydenham River.

#### 5.2 Storm Sewers

Storm drainage within the proposed development will be by conventional gravity sewers, conveying storm runoff to a stormwater management facility (SWMF) on site. The discharge from the SWMF will then flow easterly along Munro Street to River Street. The existing River Street Drain will be replaced and upgraded from Munro Street approximately 60m north and then easterly through the existing municipal R.O.W. to convey site runoff to the Sydenham River.

The storm sewers in the development shall be designed using a 2-year design storm for the minor system in accordance with the current MECP Guidelines. Each residential lot shall be provided with a 150mm PVC storm service connection, and a rear yard catchbasin. Sump pump discharges complete with check valves shall be connected to the individual storm service laterals.

The ultimate receiver of storm runoff from the development lands will be the Sydenham River.

#### 5.3 Stormwater Management

On-site storage is required for quantity control of storm runoff. A storage system to detain surplus runoff volumes from the post-development conditions will be accommodated by a proposed dry pond SWM basin located in the northeast corner of the development lands.

The proposed SWM basin will be designed to provide storage for surplus runoff from storm events up to the 100-yr storm event for the entirety of the proposed development. The basin will have 5:1 side slopes, an inlet headwall with energy dissipation features, and rip rap protection over the basin bottom to reduce erosion potential. The outlet from the SWM basin will consist of a grated outlet structure with an outlet pipe sized as a flow restrictor to control discharge to the downstream system to predevelopment levels.

To address stormwater quality control, it is proposed to implement a combination of lot level and end of pipe quality control measures in the development. Roof drainage shall be discharged to ground surface and directed to flow overland through landscaped areas towards rear yard catchbasins and the road to promote filtration and absorption of runoff. The catchbasins and manholes on the proposed road shall be provided with appropriate sumps and the gravity collection sewers shall flow through an oil-grit-separator (OGS) on the inlet pipe to the SWM basin to collect suspended sediments, oils, and floatable debris and reduce the potential for conveyance of contaminants to the downstream receiver. The multi-component SWM approach will be designed to meet MECP guidelines for quantity and quality control for the proposed residential development. The storm sewer infrastructure will be designed to capture and convey runoff for the minor system. Major storm runoff in excess of what can be accommodated by the minor collection system will flow overland along the road allowance to the SWMF.

In order to ensure the stormwater quality control features continue to function properly, the catchbasins, manholes, and OGS devices shall be inspected annually to monitor the amount of oil and sediment collected. The catchbasin and OGS sumps should be pumped out and accumulated deleterious materials disposed of as required. The inlet and outlet devices in the OGS unit shall also be checked for any trapped debris or blockages and be cleaned as required.

#### 6.0 UTILITIES

Utility servicing of the development will consist of an underground primary and secondary hydro distribution system and street lighting designed by Bluewater Power Distribution Corp., communication infrastructure by Brooke Telecom and/or Bell Canada, and natural gas servicing by Enbridge.

#### 7.0 CONSTRUCTION

The municipal servicing and road construction aspects of the project will be constructed by a general contractor selected through a tendering process. Construction review and contract administration services shall be provided by B.M. Ross and Associates Limited.

We trust that this Functional Servicing Report is sufficient for your present requirements in support of the proposed amendment to the Municipality's Zoning By-law. Should any point require clarification, please contact the undersigned.

All of which is respectfully submitted.

B. M. ROSS AND ASSOCIATES LIMITED

Per

Alex Morfin, P.Eng.

## **APPENDIX** A

## **Conceptual Servicing Plan**



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## **APPENDIX B**

## **Sanitary Sewer Flow Calculation**

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B. M. ROSS AND ASSOCIATES LIMITED   C     Engineers and Planners   C     2695 Hamilton Road, P.O. Box 400   C     Brights Grove, ON NON 1C0   N     p. (519) 908-9564   N					Design Cr q _p = average q _{ici} = average M _p = Harm M _{ici} = I.C.I.	<u>iteria:</u> ge daily per c ge daily flow on peaking fa peaking facto peak extrane	apita flow (33 for I.C.I. land actor = (1 + 1 or (based on	87 L/cap. d) use (35m ³ /ha.d 4 / (4 + (P / 100 equiv. Pop.) 2 L/ha s)	) D)^0.5))	P = Population $Q_p$ = peak population $Q_{ici}$ = peak I. A = Area (han $Q_{ext}$ = peak end $Q_d$ = peak de	on (SF @ 3 per opulation flow = C.I. flow = q _{ici} M ) extraneous flow esign flow = Q	s/unit) P q _p M _p / 86 I _{ici} A / 86.4 ( = I A (L/s) + Q _{isi} + Q _{isi}	- 400 (L/s) L/s) (L/s)			
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SEWER LOCA	TION		INDIV	IDUAL	CUMUI	LATIVE	Peaking	Population	Peak Ext.	Peak Design			SEWER P	IPE DATA		
Street	From	То	Pop: P	Area: A	Pop: P	Area: A	Factor: M	Flow: Q _p	Flow: Q _i	Flow: Q _d	Length	Pipe Size	Material	Grade	Capacity	Velocity
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Street A	Street A	PS	207	4.510	207	4.510	4.14	3.34	0.90	4.25	12	200	PVC DR35	0.40	21.02	0.67
Forcemain																
Street A	PS	Broadway St			207	4.510		PS Discharg	je	6.00	163.5	100	PVC DR26		6.00	0.76

Average Daily Flow = 69.8 m³/day (based on a 337 L/cap. d)

## APPENDIX 'E' Conceptual Servicing Plan



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CRAVEL DRIVE	REMOVE EXAMPLE AND DRIVES	KISTING CONC. SIDEWALK S ND PLACE
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	Design By: PS	Checked By: AM
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31 2	Brooke-A	Alvinston
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	Concentual	ervicing Plan
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		20240
	Scale (24x36)	Drawing No
	Horizontal : 1:500	2
V		_



May 10, 2022

Members of Council of the Municipality of Brooke-Alvinston 3236 River St, Box 28 Alvinston, ON N0N 1A0

Attention: Janet Denkers, Clerk

Dear Madame:

Re: Application for Zoning By-law Amendment
Pt. Lot 20, Conc. 5; Part Lots A, C, E, G and I, Plan 8; and Part 1, 25R9321
East of Broadway Street and South of Lisgar Street
Owner: Steve Durham
Agent: B.M. Ross and Associates Limited
Municipality of Brooke-Alvinston

#### Background

The applicant has applied to change the zoning on lands located to the east of Broadway Street and to the south of Lisgar Street from the "Residential 1 (R1)" Zone to a site-specific "Residential 3 (R3)" Zone. The proposed zoning amendment would add street townhouses as a permitted use on the property. Single-detached dwellings, semi-detached dwellings and duplex dwellings would continue to be permitted uses.

The proposed site-specific "R3" Zoning would also allow lots proposed for singledetached dwellings to have a minimum frontage of 15 metres.

#### Comments

#### Provincial Policy Statement

The 2020 Provincial Policy Statement (PPS) encourages new residential development to locate within existing settlement areas (Section 1.1.3). Section 1.1.3.6 of the PPS states that new development should be adjacent to an existing built-up area and should be served by full municipal services. The subject lands are adjacent to areas already developed for housing and will represent an orderly expansion to Alvinston's built-up area. The proposed development will be served by full municipal services.



Section 1.4.1 states that municipalities are to provide for an appropriate range and mix of housing options and densities. The "Residential 1 (R1)" zone currently allows single-detached dwellings, semi-detached dwellings and duplex dwellings on the subject property. Adding townhouse dwellings as a permitted use on part of the property will contribute to the range and mix of housing options offered in Alvinston.

#### Lambton County Official Plan

The subject lands are designated "Urban Settlement" by the County of Lambton Official Plan. Section 3.2.1 of the Official plan states that the majority of growth will be directed to Urban Centres and Urban Settlements.

Section 3.2.3 of the County Official Plan states that one of the goals for Urban Settlements is to strengthen and/or develop land uses, services, and functions similar to Urban Centres although to a lesser scale and variety. The subject lands are intended to be developed for a residential subdivision. The proposed zoning amendment will assist in providing a variety of dwelling types. This will help in attracting additional residents to Alvinston and these residents will provide additional demand for uses, services and functions offered by the community.

Section 3.2.3 further states that development within Urban Settlements with municipal water and sanitary services will occur on full municipal services. According to the applicant's conceptual servicing report, the subject lands will be developed on full municipal services. The report states that the proposed development can be adequately served by the existing municipal services. A detailed servicing report will be required when a proposed draft plan of subdivision is submitted for review and approval.

#### Brooke - Alvinston Official Plan

The subject land is designated "Residential" by the Brooke - Alvinston Official Plan. Section 2.1 of the Official Plan states that various types of dwellings will be included in Residential Areas. It also states that preference will be given to locating similar densities of development together. In this regard, this Section states that: Varieties of residential dwelling types will not be mixed indiscriminately but will be arranged in a gradation so that higher density developments will complement those of lower density, with sufficient spacing to maintain privacy, and amenity.

The subject property abuts an existing low-density residential area to the west along Broadway Street. The applicant's concept plan suggests that single detached dwellings or townhouse lots could be located adjacent to this area. The applicant has requested that the zoning amendment allow flexibility in deciding the type of dwelling to be placed on the future lots. The existing lots to the west are relatively modest in size. Therefore, we recommend that single-detached dwellings and semi-detached dwellings would be appropriate on the future lots that will abut existing lots along Broadway Street. This would also provide greater conformance with Section 2.1 of the Official Plan.

We recommend that townhouse dwellings should be restricted to those areas that do not abut existing residential lots on the east side of Broadway Street.

Section 2.1.1 states that the primary residential uses permitted in the Residential Areas are low-density housing types including single and semi-detached dwellings, duplexes, and triplexes. The density of such residential uses is not to exceed 20 units per hectare (8 units per acre). Medium density attached dwellings are also allowed up to a maximum of 35 units per residential hectare (14 units per residential acre).

The applicant has indicated that the proposed development will have a density of approximately 14 units per hectare (5.6 units per acre).

While several multi-unit housing options exist in Alvinston, the community's housing stock is primarily comprised of single detached dwellings. The applicant's intention to include approximately 30 semi-detached dwellings and approximately 20 street townhouses will be in conformity with Section 2.2.5 of the Official Plan, which promotes a mix of housing types for low income, medium income and upper income households.

#### Brooke-Alvinston Zoning By-law

The subject lands are currently zoned "Residential 1 (R1)" by the Brooke-Alvinston Zoning By-law. The "R1" Zone permits low-density residential uses, including single detached dwellings, semi-detached dwellings, and duplex dwellings.

The applicant has proposed rezoning the property to a site-specific "Residential 3(4) Zone". The R3(4) zone would allow all uses permitted in the "R1" Zone as well as street townhouse dwellings. This zone would also allow single detached dwelling lots to have a minimum lot frontage of 15 metres.

We have no concerns with adding townhouse dwellings as a permitted use on part of the subject property. As noted above, this will help to provide a mix of housing types within Alvinston. However, townhouse dwellings should be restricted to those areas of the subject property that do not abut existing residential lots on the east side of Broadway Street. The strip of land that abuts the existing residential lots should continue to be zoned "R1".

The "Residential 1 (R1) Zone" regulations require a minimum lot area of 465 square metres (5,005 square feet) and a minimum lot frontage of 18 metres (59 feet) for single detached dwelling lots. As noted, the applicant has proposed

amending the Zoning By-law to allow lots used for single-detached dwellings to have a minimum frontage of 15 metres (49.2 feet).

We have no concerns with this amendment. The reduced lot frontages will allow the efficient use of land. The required minimum lot area of 465 square metres (5,005 square feet) will continue to apply to the lots used for single-detached dwellings. This will help to ensure that the lots are generally compatible with other lots in this area of Alvinston.

We recommend that the property, except for the strip of land along the existing residential lots, should be rezoned to a site-specific "R1" Zone. This would more clearly indicate that none of the permitted uses in the "R3" zone are allowed. The zone would add street townhouses as a permitted use, subject to the applicable regulations in the "R3" Zone. The Zone would also state that lots for single detached dwellings would be allowed to have a minimum frontage of 15 metres.

#### Broadway Street Access

Although a proposed draft plan of subdivision has not yet been submitted for review and approval, the applicant has provided a conceptual plan showing how the development will be designed and configured. We are concerned with the proposed access to Broadway Street shown on the plan. The access will be located in very close proximity to 2 existing single detached dwellings. According to the applicant's conceptual plan, the new access will be situated within a right-of-way that will be located approximately 4 metres (13.1 feet) from the dwelling to the north and 1.3 metres (4.26 feet) from the dwelling to the south.

The "R1" Zone requires a minimum exterior side yard of 3 metres for single detached dwellings. While the lot to the north will comply with the minimum required exterior side yard, the lot to the south will have an exterior side yard that is very undersized.

According to the conceptual plan, the new street's surface will be located approximately 9.3 metres (30.5 feet) from the dwelling to the north and approximately 6.7 metres (22 feet) from the dwelling to the south. We are concerned that these dwellings and the residents' enjoyment of their properties will be significantly impacted by the traffic using this access due to the roadway's proximity to their properties (i.e. lights, noise).

The applicant is advised that this concern will be addressed during our review of a future draft plan of subdivision.


# Recommendation

Our Department has no objection to Council passing a zoning by-law amendment, subject to the following:

- 1) The strip of land that abuts the existing residential lots on the east side of Broadway Street should continue to be zoned "Residential 1 (R1)". An exception could be added to the "R1" Zone that would allow any of the lots intended for single detached dwellings to have a minimum frontage of 15 metres.
- 2) The property, except for the strip of land along the existing residential lots, should be rezoned to a site-specific "R1" Zone. The zone would allow all uses permitted by the "R1" Zone and would add street townhouses as a permitted use, subject to the applicable regulations in the "R3" Zone. If Councill prefers, the site-specific "R1" zone could limit the number of townhouse units allowed to be within the property.
- 3) The site-specific "R1" Zone should also state that lots for single detached dwellings would be allowed to have a minimum frontage of 15 metres.

Input from the public meeting will be helpful in the preparation of a proposed zoning by-law amendment for consideration at a future Council meeting,

Sincerely,

formatt

Rob Nesbitt, MCIP RPP Senior Planner



Suzanne Upshall PO Box 486 3151 River Street Alvinston ON 519 898 5788 May 1,2022

Janet Denkers Clerk Municipality of Brooke-Alvinston 3236 River Street Alvinston ON

RE:Proposed Zoning By-law Amendment which would amend the Municipality of Brooke-Alvinston Comprehensive Zoning By-law 9 of 2013 by changing the zoning on lands located to the east of Broadway Street and to the south of Lisgar Street.

I am writing to request notification of the above-mentioned proposed Zoning By-law Amendment being passed, as well as any plans involving that same property and the development of Munroe Street, Alvinston.

Thank you.

Suzanne Upshall



# Letter of Request Re: Zoning By-Law Amendment - E of Broadway to S of Lisgar

This is a written request for the property located at:

Assessment Roll #: 381512003002200

Con 5 S PT Lot 19 N 1/2 of S 1/2 Lot 19

911898 Ontario Limited c/o Dan Kucera, requests that an 8' fence between the new residential area and the existing agricultural area be installed.

The length of the requested fence is approximately 54 meters.

This divider would define the lot boundaries for safety reasons.

Thank you,

la V-

Dan Kucera

We are composing this letter to express our strong opposition to the proposed rezoning by-law amendment of the land located to the east of Broadway Street and to the south of Lisgar Street from the "Residential 1 (R1)" zone to a site-specific "Residential 3 (R3)" zone. Please take this into consideration when making your decision.

Thank-you for your time & consideration,

Grie + Paul ARAM

Received by email + addressed to Council May 9, 2022

email: paulmahoivlich Egmail.com



Suzanne Upshall PO Box 486 3151 River Street Alvinston ON 519 898 5788 May 1,2022

Council and Clerk Municipality of Brooke-Alvinston 3236 River Street Alvinston ON

The intent of this communication is to voice strong objection to the Proposed Zoning By-Law Amendment affecting the lands located to the east of Broadway Street and to the south of Lisgar Street, and to the development of Munroe Street to access the proposed higher density subdivision.

My family owns the property on the southwest intersection of Munroe Street and River Street, where I have resided for almost 18 years. (Civic address of 3151 River Street as indicated by the red dot on the enclosed diagram)During this time, Munroe Street has been a little-used ,single-laned dirt track. I have been responsible for the large easement along that dirt lane ,and I have invested considerable time, energy and money maintaining it-mowing, planting fruit trees, flowers, and herbs-thus augmenting the attractiveness and usefulness of the area. This easement is also where my driveway has been located since moving here.

The property was chosen for it's affordability as well as for it's safe,quiet location. The proposed amendment and ensuing development would destroy those qualities. Increased property taxes will add undue pressure to financial burdens; established fruit trees, flowering shrubs, and other plantings will be destroyed; and the original driveway location may be entirely lost, without a suitable, available alternative. Egregiously, the constant disruption, traffic and noise will drastically reduce my enjoyment of my property, and alter the character of the place forever by transforming a quiet, naturalized , pretty spot into a barren, busy thorough fare. Precisely the urbanization and commotion I moved to Alvinston to avoid.

Most significantly, the development of Munroe Street and proposed higher density subdivision would dramatically reduce the resale value and market appeal of this property. The loss in this investment would be financially devastating and unjust.

For all these reasons, I must reiterate my vehement objection to the proposed amendment to the Municipality of Brooke-Alvinston Comprehensive Zoning By-Law 9 of 2013.

Thank you for your consideration.

Suzanne upshall

@ 8089 Lisgar Street. I disapone Township of Brook-Alvinston Small town's To whom it my concern. I live See 242 HOMP town Keet ne 40 viewit should not BU ENVIROMENTA all they Also I feel Lungry S farmland. tor 7 23 05 to meny 20 hw go behind -601 5:42 Say 0 2 home's bought home's in money behi H Je.S here bought 3 heighbours 0420 50 The reason I ちかい Signa building 050 go residental live Stay farm tarm Kand of housing reason and 40. devolopme losing the building people that people are 229 GC 4 do not Stu:00 20 ere, 9 PO

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#### MUNICIPALITY OF BROOKE-ALVINSTON NOTICE OF PUBLIC MEETING

CONCERNING A PROPOSED ZONING BY-LAW AMENDMENT

**TAKE NOTICE** that the Council of the Corporation of the Municipality of Brooke-Alvinston will hold a **Public Meeting on May 19, 2022 at 4 p.m. virtually via ZOOM** to consider a proposed Zoning By-law Amendment under Section 34 of the Planning Act, R.S.O. 1990, as amended.

THE PROPOSED ZONING BY-LAW AMENDMENT would amend the Municipality of Brooke-Alvinston Comprehensive Zoning By-law 9 of 2013 by changing the zoning on lands located to the east of Broadway Street and to the south of Lisgar Street from the "Residential 1 (R1)" Zone to a site-specific "Residential 3 (R3)" Zone. The proposed "R3" Zoning would allow lots proposed for single-detached dwellings to have a minimum frontage of 15 metres. The zoning would also allow portions of the property to be used for other residential uses, including semi-detached dwellings, duplexes and street townhouses.

THE KEY MAP shows more particularly the lands affected.

**ANY PERSON** may attend the public meeting and/or make written or oral representation either in support of or in opposition to the proposed Zoning By-law Amendment. If you wish to submit a written or make an oral presentation at the public hearing, please contact the Municipality of Brooke-Alvinston <u>no later than 4:30 p.m. on May 18, 2022</u>. The public meeting will be held via a ZOOM Teleconference format.

**WRITTEN SUBMISSIONS** in respect of the proposed Zoning By-law Amendment can be made to the Clerk of the Municipality of Brooke-Alvinston.

**IF A PERSON** or public body does not make oral submissions at the public meeting or make written submissions to the Municipality of Brooke-Alvinston before the Zoning By-law Amendment is passed the person or public body is not entitled to appeal the decision of the Municipality of Brooke-Alvinston to the Ontario Land Tribunal.

**IF A PERSON** or public body does not make oral submissions at a public meeting or make written submissions to the Municipality of Brooke-Alvinston before the Zoning By-law Amendment is passed they may not be added as a party to the hearing of an appeal before the Ontario Land Tribunal unless, in the opinion of the Tribunal, there are reasonable grounds to do so.

**IF YOU WISH** to be notified of the proposed Zoning By-law Amendment being passed, you must make a written request to the Clerk of the Municipality of Brooke-Alvinston.

**THE PROPOSED AMENDMENT** will be available for public inspection during regular office hours at the Brooke-Alvinston Municipal Office, located at 3236 River Street in Alvinston.



Janet Denkers Municipality of Brooke-Alvinston 3236 River Street, Box 28 Alvinston, ON NON 1A0 ~ Telephone: 519-898-2173 Fax: 519-898-5653 Email: jdenkers@brookealvinston.com

Dated: April 14, 2022

*3151 River St.



4218 Oil Heritage Road, P.O. Box 1928 Petrolia, Ontario, NON 1R0 Phone: (519) 882-0032 Fax: (519) 882-2233 www.dobbineng.com

March 21, 2022

The Mayor and Council Municipality of Brooke Alvinston 3236 River Street Alvinston, Ontario N0N 1A0

Gentlemen and Madame:

# **Re: Campbell Leitch Drain**

In accordance with your instructions, I have undertaken an examination of the Campbell Leitch Drain with regards to improving the existing crossing in the E1/2 Lot 28, Concession 6 in the Municipality of Brooke Alvinston and constructing a crossing in the E1/2 Lot 1, Concession 10 in the Township of Adelaide Metcalfe.

# Authorization under the Drainage Act

This Engineers Report has been prepared under section 78 of the Drainage Act as per the request of an affected Owner.

Section 78 of the Drainage Act states that, where, for the better use, maintenance or repair of any drainage works constructed under a bylaw passed under this Act, or of lands or roads, it is considered expedient to change the course of the drainage works, or to make a new outlet for the whole or any part of the drainage works, or to construct a tile drain under the bed of the whole or any part of the drainage works as ancillary thereto, or to construct, reconstruct or extend embankments, walls, dykes, dams, reservoirs, bridges, pumping stations, or other protective works as ancillary to the drainage works, or to otherwise improve, extend to an outlet or alter the drainage works or to cover the whole or any part of it, or to consolidate two or more drainage works, the Council whose duty it is to maintain and repair the drainage works or any part thereof may, without a petition required under section 4 but on the report of an Engineer appointed by it, undertake and complete the drainage works as set forth in such report.

# Existing Drainage

The existing drainage works consists of an open channel that extends from the south side of Maple Ridge Line in the Municipality of Brooke Alvinston south and west to the southeast side of Calvert Drive in the Township of Adelaide Metcalfe.

-2-

It provides outlet to the Moore Drain on the southeast side of Calvert Drive and a water course approx. 300 metres south of Maple Ridge Line.

The drainage works was constructed under an engineer's report dated July 19, 1983 at which time the existing channel was reconstructed and straightened throughout its length and one low level crossing was constructed.

# **Onsite Meeting**

An onsite meeting was held on November 26, 2020.

The low level crossing in the E1/2 Lot 28, Concession 6 is too high and is holding back water. Maintenance of the channel is scheduled and it can be confirmed if the crossing is too high once the channel has been cleaned. If the crossing is to be replaced, then he would like it moved to the east side of the property.

The owner of the E1/2 Lot 1, Concession 10in the Township of Adelaide Metcalfe also requested a low level crossing on his property.

It was discussed that the proposed low level crossings shall include pipes for low flow with provision for overtopping during heavier rainfall.

# Discussion

The Campbell Leitch Drain has been cleaned out and the low level crossing in the E1/2 Lot 28, Concession 6 needs to be replaced.

There is currently only one crossing on the Campbell Leitch Drain located in the E1/2 Lot 28, Concession 6.

# Recommendations

It is therefore recommended that the following work be carried out:

- 1. The low level crossing in the E1/2 Lot 28, Concession 6 in the Municipality of Brooke Alvinston is to be replaced on the east side of the property.
- 2. A low level crossing is to be constructed in the E1/2 Lot 1, Concession 10 in the Township of Adelaide Metcalfe.

# Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying Specification of Work and the Profile, which form part of this Report. There has been prepared an Estimate of Cost in the amount of \$42,451.00 including the cost of engineering. A Plan has been prepared showing the location of the work and the approximate drainage area.

# Assessment

As per section 21 of the Drainage Act, the Engineer in his report shall assess for benefit and outlet for each parcel of land and road liable for assessment.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works may be assessed for benefit. (Section 22)

Lands and roads that use a drainage works as an outlet, or for which, when the drainage works is constructed or improved, an improved outlet is provided either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse may be assessed for outlet. The assessment for outlet shall be based on the volume and rate of flow of the water artificially caused to flow into the drainage works from the lands and roads liable for such assessments. (Section 23)

The Engineer may assess for special benefit any lands for which special benefits have been provided by the drainage works. (Section 24)

A Schedule of Assessment for lands and roads affected by the work and therefore liable for the cost thereof has been prepared as per the Drainage Act. Also, I assessed any affected public utility or road authority, as per section 26 of the Drainage Act, any increased costs for the removal or relocation of any of its facilities and plant that may be necessitated by construction or future maintenance and repair work. The cost of any fees for permits or approvals or any extra work required by any affected Utility, Road Authority, Conservation Authority, Ministry, Government Agency, etc., federal or provincial, shall be assessed to that organization requiring the permit, approval, or extra work.

The cost of each low level crossings has been assessed with approximately 50% of the cost applied as benefit assessment to the benefitting property and the remaining 50% of the cost has been assessed as outlet assessment on upstream lands and roads based on equivalent hectares.

The cost of revising the Schedule of Maintenance has been assessed to all properties based on equivalent hectares.

## <u>Allowances</u>

Under section 29 of the Drainage Act, the Engineer in his report shall estimate and allow in money to the Owner of any land that it is necessary to use for the construction or improvement of a drainage works or for the disposal of material removed from a drainage works. This shall be considered an allowance for right of way.

Under section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled thereto to damage, if any, to ornamental trees, fences, land, and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages.

Allowances will be made under section 30 of the Drainage Act for damages to lands and crops occasioned by the disposal of excavated material.

# Access and Working Area

Access for the installation and the future maintenance and repair of the proposed crossing in the E1/2 Lot 28, Concession 6 shall be from Maple Ridge Line along the existing lane or along the east fence line. The working area shall extend 10 metres in each direction from the ends of the crossing and 15 metres from the top of bank. Access for the installation and the future maintenance and repair of the proposed crossing in the E1/2 Lot 1, Concession 10 shall be from Calvert Drive along the existing lane and along the channel. The working area shall extend 10 metres in each direction from the ends of the crossing and 15 metres from the top of bank.

Access for the maintenance and repair of the open channel shall be from Maple Ridge Line and Sexton Road in the Municipality of Brooke Alvinston and from Sexton Road and Calvert Drive in the Township of Adelaide Metcalfe along existing lanes or property lines and along the drainage works.

The working area shall extend for a distance of 15 metres from the top of the channel bank.

# Drain Classification

The existing municipal drainage works is classified as a class "F" drain within the Municipality of Brooke Alvinston. It is also classified as a class "F: drain downstream from Maple Ridge Line to its outlet to Morrogh Creek, a distance of approx. 1,220 metres. It is classified as a class "E" drain in the Township of Adelaide Metcalfe. These classifications are according to the Ontario Ministry of Agriculture, Food and Rural Affair's Agricultural Information Atlas.

Class "F" drains are intermittent or ephemeral (dry for more than two consecutive months). Authorization is not required if work is done in the dry.

The proposed crossing construction will have very little effect on the drainage works if carried out during low or no flow in the channel. The in channel work to construct each low level crossing will not likely take more than 1 day. The work area is to be maintained in a dry condition by the Contractor during construction.

# Restrictions

No trees and shrubs shall be planted nor shall permanent structures be erected within 10 metres of either side of the proposed drain without prior written permission of Council. If trees are planted that interfere with access for future maintenance of the drainage works, they shall be removed at the expense of the Owner.

Attention is also drawn to sections 80 and 82 of the Drainage Act that refer to the obstruction of a drainage works.

# Agricultural Grant

It is recommended that application for subsidy be made for eligible agricultural properties. Any assessments against non agricultural properties are shown separately in the Schedule of Assessment.

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# Maintenance

A Schedule of Maintenance has been prepared for maintenance of the open channel. The crossings located along the length of the drain shall be maintained with 50% of the cost assessed to the benefitting property and 50% of the costs assessed to upstream properties pro rata with the equivalent hectares contained in the Schedule of Maintenance.

These above conditions will apply unless otherwise altered under the provisions of the Drainage Act.

All of the above is submitted for your consideration.

Yours truly,

Rayaloble

Ray Dobbin, P. Eng.

LICENSED R.O. DOBBIN

Campbell Leitch Drain Municipality of Brooke-Alvinston March 21, 2022

# ALLOWANCES

Allowances have been made as per section 30 of the Drainage Act for damages to lands and crops.

Conc.	Lot or pt. Lot	Roll No.	Owner	Section 30
Municipality	of Brooke Alvinsto	n	×	
6	E1/2 L28	30-084	K. Campbell	237.00
Township of	f Adelaide Metcalfe	•		
10	E1/2 L1	2-009	M. French	290.00
			Total Allowances	\$527.00

Campbell Leitch Drain Municipality of Brooke-Alvinston March 21, 2022

# **Estimate of Cost**

Replace Access Culverts on the Campbell Leitch Drain

Allowand	es:	Quantity	Unit	Material	Labour	527.00
Culvert N	lo. 1 (E1/2 L28, C6)					
	R. & D. of Existing Culvert		LS		620.00	
	S. & I. 600 mm dia. HDPE	36.0	m	5,400.00	620.00	
	S. & I. bedding material	15.0	tonne	465.00	310.00	
	S. & I. Concrete	92.0 14.0	m3	2,800.00	1,240.00	
				11,287.00	3,720.00	15,007.00
Culvert N	lo. 3 (E1/2 L1, C10)					
	S. & I. 600 mm dia. HDPE	36.0	m	5,400.00	620.00	
	S. & I. bedding material	15.0	tonne	465.00	310.00	
	S. & I. gabion stone	92.0	tonne	2,622.00	930.00	
	S. & I. Concrete	14.0	m3	2,800.00	1,240.00	i i
				11,287.00	3,100.00	14,387.00
Silt Fenc	e	2	each	250.00		500.00
Miscellar	neous					1,508.00
				Sub Total		31,929.00
				Engineering		9,112.00
				Inspection		1,020.00
				SCRCA Fee		390.00
				Total Estimat	e	\$42,451.00

Municipality of Brooke-Alvinston Campbell Leitch Drain March 21, 2022

# SCHEDULE OF ASSESSMENT

To replace the crossing in the E1/2 Lot 28, Concession 6 in the Municipality of Brooke Alvinston and to construct a crossing in the E1/2 Lot 1, Concession 10 in the Township of Adelaide Metcalfe.

Agricultural Land

10.00 10,007.00 447.00 101.00	10,565.00
10.00 29.00 447.00 101.00	587.00
9,978.00	9,978.00 587.00
2623793 Ontario Inc. K. Campbell W McAlpine J. & J. Douglas	Total Benefit Total Outlet
30-083 30-084 30-085 30-12701	
2.50 18.80 54.90 12.40	
W1/2 L28 E1/2 L28 L29 L29	
4 0	

10,565.00

Total - Agricultural

Schedule of Assessn	nent (cont'd)					2 of 8
Conc. Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Public Lands: Roads						2 of 8
Maple Ridge Line Sexton Road (1/2)	1.00 2.00		Municipality of Brooke Alvinston Municipality of Brooke Alvinston		10.00 49.00	10.00 49.00
			Total Benefit Total Outlet	0.00	59.00	59.00
			Total - Public Lands: Roads Total - Agricultural	59.00 10,565.00		
			Total - Municipality of Brooke Alvinston	\$10,624.00		
Township of Adelai	de Metcalfe					
Agricultural Land	-					
<ul> <li>9 W1/2 L1</li> <li>10 W1/2 L1</li> <li>10 W1/2 L1</li> <li>NE1/4 L1</li> <li>SE1/4 L1</li> <li>SE1/4 L1</li> <li>Vpt. L2</li> <li>Ept. L2 &amp; L3</li> <li>Ept. L2 &amp; L3</li> <li>11 L1</li> <li>12 S1/2 L18</li> <li>N1/2 L19</li> </ul>	2.10 40.00 15.68 34.50 35.00 16.20 40.50	20-00101 20-010 20-009 20-008 20-008 20-011 20-011 20-011 20-018	<ul> <li>A. Dixon Challoner</li> <li>A. Berghammer</li> <li>P. Van Lierop</li> <li>P. Van Lierop</li> <li>W. Wright</li> <li>T. Field</li> <li>1838107 Ontario Ltd.</li> <li>A. Langford</li> <li>T. Field</li> </ul>	9,978.00	30.00 581.00 228.00 311.00 501.00 508.00 235.00 17.00 588.00	30.00 581.00 228.00 10,289.00 501.00 508.00 235.00 17.00 588.00

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Schec	dule of Assessme	int (cont'd)					3 of 8
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Agricu	ultural Land (cont	(p					
12	S1/2 L19	40.50	20-032	G. Walker		588.00	588.00
	N1/2 L20	40.50	20-017	T. Field		588.00	588.00
	S1/2 L20	38.90	20-033	G. Campbell		565.00	565.00
	N1/2 L21	39.70	20-016	E. VanLierop		576.00	576.00
	pt.S1/2 L21	13.00	20-03701	E. VanLierop		189.00	189.00
	pt.S1/2 L21	26.30	20-037	M. Kerrigan		382.00	382.00
	NE1/4 L22	19.00	20-015	D. Bowman		276.00	276.00
	NW1/4 L22	42.10	20-014	G. Oke		611.00	611.00
	N1/2 L23						
	S1/2 L22	39.30	20-038	K & E McNally Farms Ltd.		571.00	571.00
13	S1/2 L16	4.10	20-06401	K. DeGroot		60.00	60.00
	S1/2 L17	24.30	20-065	G. Campbell		353.00	353.00
	N1/2 L18	30.40	20-052	J. VanBerkel		441.00	441.00
	pt.S1/2 L18	34.80	20-066	D. Baer		505.00	505.00
	pt.S1/2 L18	4.50	20-067	H. MacKellar		65.00	65.00
	NE1/4 L19	20.20	20-051	P. VanLierop		293.00	293.00
	NW1/4 L19	19.80	20-050	G. Walker		287.00	287.00
	pt.SE1/4 L19	4.50	20-066	D. Baer		65.00	65.00
	pt.SE1/4 L19	14.60	20-067	E. McNally		212.00	212.00
	SW1/4 L19	19.40	20-068	D. MacMillan		282.00	282.00
	NE1/4 L20	19.40	20-050	B. Walker		282.00	282.00
	NW1/4 L20	19.80	20-049	A. Hendrix		287.00	287.00
	S1/2 L20	36.40	20-069	D. MacMillan		528.00	528.00

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Schedule of Asses	sment (cont'd)						4 of 8
Conc. Lot or Part	Affected Hect.	Roll No.	Owner		Benefit	Outlet	Total
Agricultural Land (c	cont'd)						
NE1/4 L21	16.20	20-047	Hendrix Farms Limited			235.00	235.00
NW1/4 L21	14.10	20-046	G. Walker			205.00	205.00
SE1/4 L21	8.10	20-070	K & E McNally Farms Ltd.			118.00	118.00
N1/2 L22	14.20	20-046	G. Walker			206.00	206.00
14 N1/2 L15	22.30	20-089	E. Bryant			324.00	324.00
SE1/4 L15	8.90	20-096	C. Towers			129.00	129.00
SW1/4 L15	20.20	20-097	R. Galbraith			293.00	293.00
NE1/4 L16	18.60	20-08801	R. Vreeken			270.00	270.00
NW1/4 L16	18.20	20-087	Ken DeGroot Farms Ltd.			264.00	264.00
S1/2 L16	38.50	20-099	1838107 Ontario Ltd.			559.00	559.00
N1/2 L17	38.50	20-086	Roger Buurma			559.00	559.00
S1/2 L17	39.70	20-100	B. Stubbs			576.00	576.00
N1/2 L18	36.80	20-085	S. Noone			534.00	534.00
S1/2 L18	32.80	20-101	1838107 Ontario Ltd.			476.00	476.00
N1/2 L19	22.30	20-084	M. Kerrigan			324.00	324.00
SE1/4 L19	16.20	20-102	J. McGill	ļ		235.00	235.00
			Total Benefit		9,978.00	16,312.00	26,290.00
			Total Outlet		16,312.00		
			Total - Agricultural		26,290.00		

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edul	of Assessmen	t (cont'd)							5 of 8
	Lot or Part	Affected Hect.	Roll No.		Owner	U.	Benefit	Outlet	Total
gri	cultural Lands								
pt.	N1/2 L20	0.57	20-01702	D. Wells				14.00	14.00
pt.	S1/2 L20	0.80	20-034	K. Hoogstra				17.00	17.00
pt.	S1/2 L21	0.13	20-035	M. Gerow				10.00	10.00
pt.	S1/2 L21	0.13	20-036	T. Barley				10.00	10.00
pt	S1/2 L21	0.13	20-03601	D. Russell				10.00	10.00
pt.	NW1/4 L20	0.16	20-048	D. Baer				10.00	10.00
pt.	NE1/4 L21	0.10	20-04701	F. Russell				10.00	10.00
pt.	NE1/4 L21	0.10	20-04702	F. Russell				10.00	10.00
pt.	NE1/4 L16	0.85	20-088	K. Haggis				18.00	18.00
pt.	S1/2 L16	0.43	20-098	K. Reycraft				12.00	12.00
pt.	N1/2 L18	1.50	20-08501	D. Sim				28.00	28.00
pt.	N1/2 L18	1.10	20-08502	G. Davis				22.00	22.00
pt.	L1			Hydro One					
pt.	L20, 21, 22, 23								
pt.	L18, 19, 20								
		18.10		Hydro One				526.00	526.00
				Total Benefit Total Outlet	3		0.00 697.00	697.00	697.00
				Total - Agricul	tural		697.00		

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Schedule of Assessm	ent (cont'd)					6 of 8
Conc. Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Public Lands: Roads						
Sexton Road (1/2)	2.00		Township of Adelaide Metcalfe		87.00	87.00
McDougall Drive Calvert Drive	06.0 06.9		I ownsnip of Adelaide Metcaire County of Middlesex		401.00	401.00
Walkers Drive	4.80		Township of Adelaide Metcalfe		209.00	209.00
Scotchmere Drive	4.20		Township of Adelaide Metcalfe		183.00	183.00
Inadale Drive (1/2)	1.90		Township of Adelaide Metcalfe		110.00	110.00
McArthur Road	3.00		Township of Adelaide Metcalfe		131.00	131.00
Taits Road	5.10		Township of Adelaide Metcalfe		222.00	222.00
			Total Benefit	00.0	1,365.00	1,365.00
			Total Outlet	1,365.00		
			Total - Public Lands: Roads	1,365.00		
			Total - Non Agricultural	697.00		
			Total - Agricultural	26,290.00		
				\$28,352.00		

Schedule of Ass	essment (cont'	(P				7 of 8
Conc. Lot c Par	or Affecte t Hect.	d No.	Owner	Benefit	Outlet	Total
Municipality of	Southwest Mi	ddlesex	,	2		
Agricultural Land	-					
4 N1/2 L15	34.40	6-186	D. Crawford		499.00	499.00
N1/2 L16	ד 16.20 ד 15.40	7-058 6_211	A. Carruthers c Towers		235.00	235.00
pt.N1/2 L1	5 12.60	6-210	o. rowers R. Kouwenberg		224.00 183.00	224.00 183.00
S1/2 L15	20.20	6-20802	V. Towers		293.00	293.00
N1/2 L16	39.70	7-082	R. Kouwenberg		576.00	576.00
S1/2 L16	31.60	7-059	W. Carruthers		458.00	458.00
N1/2 L17	24.30	7-081	468676 Ontario Ltd.		353.00	353.00
NE1/4 L18	2.00	7-080	S. Marko		29.00	29.00
			Total Benefit Total Outlet	0.00 2,850.00	2,850.00	2,850.00
			Total - Agricultural	2,850.00		
Non Agricultural	Lands					
5 pt.N1/2 L1 Hydro ROW	5 1.60 2.80	6-211 8-102	J. Dale Hydro One		29.00 41.00	29.00 41.00
			Total Benefit Total Outlet	0.00 70.00	70.00	70.00
			Total - Non Agricultural	70.00		

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Schedule of	^r Assessme	int (cont'd)					8 of 8
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Public Land	s: Roads (c	cont'd)					
Public Land	s: Roads						
Inadale Driv Olde Drive McArthur R	/e (1/2) ɔad	2.00 0.50 6.90		Municipality of Southwest Middlesex Municipality of Southwest Middlesex Municipality of Southwest Middlesex		116.00 138.00 301.00	116.00 138.00 301.00
				Total Benefit Total Outlet	0.00 555.00	555.00	555.00
				Total - Public Lands: Roads Total - Non Agricultural Total - Agricultural	555.00 70.00 2,850.00		
			Tot	al - Municipality of Southwest Middlesex Total - Township of Adelaide Metcalfe Total - Municipality of Brooke Alvinston	3,475.00 28,352.00 10,624.00		
				Total Assessment	\$42,451.00	N	

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3.2.

Campbell Leitch Drain Municipality of Brooke-Alvinston March 21, 2022

# SCHEDULE OF MAINTENANCE

To maintain and repair the channel from its outlet at Maple Ridge Line in the Municipality of Brooke Alvinston upstream to the southeast side of Calvert Drive in the Township of Adelaide Metcalfe

Conc.	Lot or Part	Affected Hect.	Roll- No.	Owner		Benefit	Outlet	Total
Municipali	ty of Brooke A	lvinston						
Agricultur	al Land					Ä		
6 W1/	'2 L28	2.50	30-083	2623793 Ontario Inc.		135.00		135.00
E1/2	2 L28	18.80	30-084	K. Campbell		327.50	16.70	344.20
L29		54.90	30-085	W McAlpine		587.50	48.90	636.40
7 L29		12.40	30-12701	J. & J. Douglas	I		11.00	11.00
				Total Benefit Total Outlet	I,	1,050.00 76.60	76.60	1,126.60
				Total - Agricultural		1,126.60		

Schedule c	of Maintenan	ce (cont'd)					2 of 8
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Public Lano	ds: Roads						2 of 8
Maple Ridg Sexton Roa	ge Line ad (1/2)	1.00 2.00		Municipality of Brooke Alvinston Municipality of Brooke Alvinston	52.50	2.70 5.30	2.70 57.80
				Total Benefit Total Outlet	52.50 8.00	8.00	60.50
				Total - Public Lands: Roads Total - Agricultural	60.50 1,126.60		
			Total - Mur	nicipality of Brooke Alvinston	\$1,187.10		
Township o	of Adelaide N	Aetcalfe					
Agricultura	l Land						
9 W1/2	2 L1	2.10	20-00101	A. Dixon Challoner		1.90	1.90
10 W1/2 NF1/	2 L1 /4 I 1	40.00 15.68	20-010 20-009	A. Berghammer P. Van Lierop	260.00	35.60 14.00	295.60 14.00
SE1/	4 L1	21.42	20-00910	P. Van Lierop	155.00	19.10	174.10
Wpt.	L2	34.50	20-008	W. Wright		30.70	30.70
Ept.	L2 & L3	35.00	20-007	T. Field		31.20	31.20
11 L1		16.20	20-011	1838107 Ontario Ltd.		14.40	14.40
12 S1/2	L18	1.20	20-031	A. Langford		1.10	1.10
N1/2	L19	40.50	20-018	T. Field		36.00	36.00

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Sched	lule of Maintenand	cont'd)						3 of 8
Conc.	Lot or Part	Affected Hect.	Roll No.	MO	ner	Benefit	Outlet	Total
Agricu	Itural Land (cont'c	(F						
42	S1/2 L19	40.50	20-032	G. Walker			36.00	36.00
_	N1/2 L20	40.50	20-017	T. Field			36.00	36.00
-	S1/2 L20	38.90	20-033	G. Campbell			34.60	34.60
_	N1/2 L21	39.70	20-016	E. VanLierop			35.30	35.30
	pt.S1/2 L21	13.00	20-03701	E. VanLierop			11.60	11.60
	pt.S1/2 L21	26.30	20-037	M. Kerrigan			23.40	23.40
	NE1/4 L22	19.00	20-015	D. Bowman		35.00	16.90	51.90
_	NW1/4 L22 &	42.10	20-014	G. Oke			37.50	37.50
	N1/2 L23							
·	S1/2 L22	39.30	20-038	K & E McNally Farm	ıs Ltd.		35.00	35.00
<del>.</del> 9	S1/2 L16	4.10	20-06401	K. DeGroot			3.60	3.60
-	S1/2 L17	24.30	20-065	G. Campbell	17		21.60	21.60
_	N1/2 L18	30.40	20-052	J. VanBerkel			27.10	27.10
	pt.S1/2 L18	34.80	20-066	D. Baer			31.00	31.00
	pt.S1/2 L18	4.50	20-067	H. MacKellar			4.00	4.00
_	NE1/4 L19	20.20	20-051	P. VanLierop			18.00	18.00
_	NW1/4 L19	19.80	20-050	G. Walker			17.60	17.60
	pt.SE1/4.L19	4.50	20-066	D. Baer			4.00	4.00
	pt.SE1/4 L19	14.60	20-067	H. MacKellar			13.00	13.00
	SW1/4 L19	19.40	20-068	J. McGill			17.30	17.30
	NE1/4 L20	19.40	20-050	G. Walker			17.30	17.30
. –	NW1/4 L20	19.80	20-049	P. VanLierop			17.60	17.60

Schedule of Mainter	nance (cont'd)					4 of 8
Conc. Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Agricultural Land (c	onťd)					
13 S1/2 L20	36.40	20-069	E. McNally		32.40	32.40
NE1/4 L21	16.20	20-047	Hendrix Farms Limited		14.40	14.40
NW1/4 L21	14.10	20-046	G. Walker		12.60	12.60
SE1/4 L21	8.10	20-070	K & E McNally Farms Ltd.		7.20	7.20
N1/2 L22	14.20	20-046	G. Walker		12.60	12.60
14 N1/2 L15	22.30	20-089	E. Bryant		19.80	19.80
SE1/4 L15	8.90	20-096	C. Towers		7.90	7.90
SW1/4 L15	20.20	20-097	R. Galbraith		18.00	18.00
NE1/4 L16	18.60	20-08801	R. Vreeken		16.60	16.60
NW1/4 L16	18.20	20-087	Ken DeGroot Farms Ltd.		16.20	16.20
S1/2 L16	38.50	20-099	1838107 Ontario Ltd.		34.30	34.30
N1/2 L17	38.50	20-086	Roger Buurma		34.30	34.30
S1/2 L17	39.70	20-100	B. Stubbs		35.30	35.30
N1/2 L18	36.80	20-085	S. Noone		32.80	32.80
S1/2 L18	32.80	20-101	1838107 Ontario Ltd.		29.20	29.20
N1/2 L19	22.30	20-084	M. Kerrigan		19.80	19.80
SE1/4 L19	16.20	20-102	J. McGill		14.40	14.40
			Total Benefit	450.00	1,000.20	1,450.20
)00			Total Outlet	1,000.20		
			Total - Agricultural	1,450.20		

Schec	tule of Maintenanc	cont'd	(	•				5 of 8
Conc.	Lot or Part	Affected Hect.	Roll No.		Owner	Benefit	Outlet	Total
Non A	igricultural Lands							
12	pt.N1/2 L20	0.57	20-01702	D. Wells			1.00	1.00
	pt.S1/2 L20	0.80	20-034	K. Hoogstra			1.10	1.10
	pt.S1/2 L21	0.13	20-035	M. Gerow			1.00	1.00
	pt.S1/2 L21	0.13	20-036	T. Barley			1.00	1.00
	pt.S1/2 L21	0.13	20-03601	D. Russell			1.00	1.00
13	pt.NW1/4 L20	0.16	20-048	D. Baer			1.00	1.00
	pt.NE1/4 L21	0.10	20-04701	F. Russell			1.00	1.00
	pt.NE1/4 L21	0.10	20-04702	F. Russell			1.00	1.00
14	pt.NE1/4 L16	0.85	20-088	K. Haggis			1.10	1.10
	pt.S1/2 L16	0.43	20-098	K. Reycraft			1.00	1.00
	pt.N1/2 L18	1.50	20-08501	D. Sim			1.70	1.70
	pt.N1/2 L18	1.10	20-08502	G. Davis			1.30	1.30
10	pt. L1			Hydro One				
12	pt. L20, 21, 22, 23	~						
13	pt. L18, 19, 20							
5		18.10		Hydro One			32.20	32.20
				Total Benefit Total Outlet		0.00 45.40	45.40	45.40
				Total - Agricultu	ıral	45.40		

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Schedule of Mainter	nance (cont'd)					6 of 8
Conc. Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Public Lands: Roac	st					
Sexton Road (1/2)	2.00		Township of Adelaide Metcalfe	52.50	5.30	57.80
McDougall Drive	0.50		Township of Adelaide Metcalfe		1.30	1.30
Calvert Drive	6.90		County of Middlesex	32.50	24.60	57.10
Walkers Drive	4.80		Township of Adelaide Metcalfe		12.80	12.80
Scotchmere Drive	4.20		Township of Adelaide Metcalfe		11.20	11.20
Inadale Drive (1/2)	1.90		Township of Adelaide Metcalfe		6.80	6.80
McArthur Road	3.00		Township of Adelaide Metcalfe		8.00	8.00
Taits Road	5.10		Township of Adelaide Metcalfe		13.60	13.60
			Total Benefit	85.00	83.60	168.60
			Total Outlet	83.60		
			Total - Public Lands: Roads	168.60		
			Total - Non Agricultural	45.40 1 460 20		
			i otal - Agricultural	1,430.20		
	Ϋ́	otal - To	wnship of Adelaide Metcalfe	1,664.20		

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Schedule of Mai	ntenance (cont'	d)				7 of 8
Conc. Lot o	or Affecte t Hect.	d Roll No.	Owner	Benefit	Outlet	Total
Municipality of S	outhwest Middl	esex				
Agricultural Land						
4 N1/2 L15	34.40	6-186	D. Crawford		30.60	30.60
N1/2 L16	16.20	7-058	A. Carruthers		14.40	14.40
5 pt.N1/2 L1	5 15.40	6-211	S. Towers		13.70	13.70
pt.N1/2 L1	5 12.60	6-210	R. Kouwenberg		11.20	11.20
S1/2 L15	20.20	6-20802	V. Towers		18.00	18.00
N1/2 L16	39.70	7-082	R. Kouwenberg		35.30	35.30
S1/2 L16	31.60	7-059	W. Carruthers		28.10	28.10
N1/2 L17	24.30	7-081	468676 Ontario Ltd.		21.60	21.60
NE1/4 L18	2.00	7-080	S. Marko		1.80	1.80
			Total Benefit Total Outlet	0.00 174.70	174.70	174.70
			Total - Agricultural	174.70		
Non Agricultural	Lands					
5 pt.N1/2 L1 Hydro ROW	5 1.60 2.80	6-211 8-102	J. Dale Hydro One		1.80 2.50	1.80 2.50
			Total Benefit Total Outlet	0.00 4.30	4.30	4.30
			Total - Non Agricultural	4.30		

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Schedule o	f Maintenan	ce (cont'd)						8 of 8
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	÷	Benefit	Outlet	Total
Public Lanc	ls: Roads (c	ont'd)						
Public Lanc	ts: Roads							
Inadale Dri ^v Olde Drive McArthur R	ve (1/2) oad	2.00 0.50 6.90		Municipality of Southwest Middlesex Municipality of Southwest Middlesex Municipality of Southwest Middlesex			7.10 8.40 18.40	7.10 8.40 18.40
				Total Benefit Total Outlet		0.00 33.90	33.90	33.90
				Total - Public Lands: Roads Total - Non Agricultural Total - Agricultural		33.90 4.30 174.70		
			Total - Mur Total - Tow Total - Mur	nicipality of Southwest Middlesex /nship of Adelaide Metcalfe nicipality of Brooke Alvinston		212.90 ,664.20 ,187.10	9	
				Total Assessment	\$	,064.20		

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3.2.

Campbell Leitch Drain Municipality of Brooke Alvinston March 21, 2022

# **SPECIFICATION OF WORK**

## 1. Scope of Work

The work to be included in this specification includes the replacement of one low level crossing (E1/2 Lot 28, Concession 6) in the Municipality of Brooke Alvinston and the construction of one low level crossing (E1/2 Lot 1, Concession 10) in the Township of Adelaide Metcalfe on the Campbell Leitch Drain.

# 2. General

Each tenderer must inspect the site prior to submitting his tender and satisfy himself by personal examination as to the local conditions that may be encountered during this project. The Contractor shall make allowance in the tender for any difficulties which he may encounter. Quantities or any information supplied by the Engineer is not guaranteed and is for reference only.

All work and materials shall be to the satisfaction of the Drainage Superintendent who may vary these specifications as to minor details but in no way decrease the proposed capacity of the drain.

The Contractor shall be responsible for the notification of all utilities prior to the start of construction.

# 3. Plans and Specifications

These specifications shall apply and be part of the contract along with the General Specifications for Open Drains. This Specification of Work shall take precedence over all plans and general conditions pertaining to the contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the plans and described in these specifications. Any work not described in these specifications shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

Any reference to the Owner contained in these contract documents shall refer to the Municipality of Brooke Alvinston or the Engineer authorized by the Municipality to act on its behalf.

# 4. Removal of Existing Crossing

The existing low level crossing in the E1/2 Lot 28, Concession 6 consists of a poured slab on the bottom of the channel. The concrete shall be removed and disposed offsite by the Contractor. The channel in the area shall be excavated to match the channel bottom upstream and downstream. The sideslopes shall be graded to a minimum 2:1 slope.

-2-

### 5. Installation of Low Level Crossings

The Contractor shall supply, install, and backfill 600 mm dia. HDPE smooth wall pipe (320 kPa) in each location.

These specifications may be varied to the satisfaction of the Drainage Superintendent at the time of future crossing replacement to match the site/field conditions that may exist at that time.

The proposed access culvert shall be installed in the same general location as the existing access culverts. The culvert shall be installed with the inverts 10% (minimum 150 mm) below the original channel bottom. The location of the culvert may be moved upstream or downstream to the approval of the Engineer.

All pipes shall be minimum 10 metres in length unless otherwise designated below providing a minimum travel width of 7.3 metres.

#### CULVERT TO BE REPLACED:

Pipe No. 1 - E1/2 L28, Concession 6 (roll no. 30-084) – shall be replaced under this report with 3 x 12 metre lengths of 600 mm dia. HDPE pipe with quarry stone and concrete surface.

### **CULVERT TO BE CONSTRUCTED:**

Pipe No. 3 - E1/2 L1, Concession 10 (roll no. 20-009) – shall consist of 3 x 12 metre lengths of 600 mm dia. HDPE pipe with rip rap and concrete surface.

The HDPE pipe shall be smooth wall pipe (320 kPa). The upstream ends of the pipes are to be cut at a 45 degree angle to allow trash to flow over the crossing.

All culverts shall be constructed with the invert of the pipe buried 10% below the channel bottom. The crossing in the E1/2 Lot 28, Concession 6 shall be constructed on the east side of the property. The crossing in the E1/2 Lot 1, Concession 10 shall generally be installed approx. 150 metres north west of Calvert Drive. The exact location shall be confirmed with the Owner at the time of construction.

The approach slopes shall also be graded to the satisfaction of the Owner to allow equipment to pass over the crossing. The approach's will also be excavated to allow placement of minimum 300 mm of quarry stone flush with the existing ground.

The bottom of the excavation shall be excavated to the required depth with any over excavation backfilled with granular material or drainage stone. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with drainage stone from the bottom of the excavation to the top of the pipe. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300 mm so that the pipe is not displaced.

The pipes shall be backfilled with 100 mm x 250 mm quarry stone or approved equal from the top of the bedding to approx. 300 mm above the pipes. The stone shall extend to the channel bottom on both the upstream and downstream sides of the crossing. The stone shall also extend up each approach to a minimum height of 1200 mm above the top of the pipes or to match the top of the banks. Filter fabric (Terrafix 250R or approved equal) shall be placed under all areas to receive quarry stone with any joints overlapped a minimum 600 mm. The quarry stone shall then be placed.

Concrete shall then be placed over the quarry stone to fill in the gaps and voids. It shall extend to the bottom of the quarry stone on each end. The surface left generally level with the top of the quarry stone with a raked finish.

If an Owner requests a longer culvert than that specified above, the extra cost shall be assessed to the Owner as a special benefit assessment. If tile outlets cannot be avoided, the tile outlet shall be extended upstream or downstream to an outlet. Any tile outlets extended as a result of extra length requested by an Owner shall be extended at the Owner's expense.

The Contractor shall maintain a dry working area during construction. The Contractor shall install a silt fence downstream of the work area. The silt fence shall consist of filter fabric or manufactured silt fence supported with posts.

-4-

After completion of the construction, the temporary dams and any collected sediment shall be removed. The final removal shall be the silt fence.

# 6. Tile Outlets

Tile outlets in the area of the extended crossings shall be extended with equivalent sized PE solid tubing and rodent grate. In the case of concrete or clay tile, the tile end shall be excavated into the bank a minimum of 3 metres. Connections to the existing tile shall be with a manufactured coupler. Any washouts from surface water or at tile ends shall be repaired with rip rap (100 mm x 250 mm quarry stone or gabion stone) and filter fabric (Terrafix 270R or approved equal).

# 7. Silt Fence

The Contractor shall construct a silt fence in the Campbell Leitch Drain downstream of the proposed crossings.

The silt fences shall consist of filter fabric approved for the purpose or straw bales across the bottom and to a height of 1 metre on each bank (OPSD 219.110). Either method shall be properly staked in place. The silt fence shall remain in place until construction is complete. Any sediment that has collected upstream of the silt fence shall be removed prior to the removal of the silt fence.

# 8. Excavation of Open Channel (future maintenance)

The open channel shall be excavated and maintained to the depths and grades as per the profile and drawings as contained in this engineer's report dated June 14, 1966. The channel shall be excavated to the proper depth using a laser or similar approved device with a labourer onsite to ensure correctness of grade and to confirm location of tile ends.

All high spots above grade shall be removed. The sediment shall be removed leaving a rounded bottom with the intent not to undercut the existing sideslopes.

For future maintenance and repair, the excavated material shall be cast on private lands adjacent to the channel at least 1.5 metres clear of the bank. It shall generally be placed on the low side of the channel and opposite any bush lands. Excavated material shall not be placed in low runs or swales outletting surface water to the channel. The excavated material shall be levelled to a maximum depth of 100mm and left in a condition suitable for cultivation.
# 9. Brushing (future maintenance)

All brush, trees, woody vegetation, etc. shall be removed from the sideslopes of the existing channel and within 1.5 metres of the top of the bank. Other brush and trees may be removed from the side the equipment is operating to allow access for the equipment. Trees and brush in the channel bottom shall be removed in their entirety including stumps and disposed offsite. Trees and brush on the sideslopes shall be close cut. A stump killer pesticide manufactured for the purpose shall be applied to stumps according to manufacturer's specifications.

It is recommended that a mechanical grinder attached to an excavator be used for the removal of brush and trees. Any brush and trees too large to grind shall be close cut with the logs and brush disposed offsite by the Contractor. The Contractor shall be responsible for obtaining all necessary permits for any disposal sites.

Certain trees may be left in place at the direction of the Drainage Superintendent. Any trees to be salvaged by the individual Owners shall be removed by the Owners with all resulting brush and branches cleaned up prior to the start of construction. If the Contractor agrees to remove any trees and set them aside for an Owner, the Owner will be responsible for any cleanup as above.

# **10. Environmental Considerations**

The Contractor shall take care to adhere to the following considerations.

- All excavated and stockpiled material shall be placed a minimum of 1.5 metres from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All granular and erosion control materials shall be stockpiled a minimum of 3.0 metres from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank and all surface water runs and open inlets that enter the drain.

• All construction in the channel shall be carried out during periods of low flow. Silt fence shall be installed downstream of the proposed structure or excavation for the duration of the construction.

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The Contractor shall maintain a dry working area during construction. The Contractor shall install a silt fence downstream of the work area. The silt fence shall consist of filter fabric or manufactured silt fence supported with posts as per OPSD 219.110.

# 11. Benchmarks

The benchmarks are based on geodetic elevations. Benchmarks

Other elevations are available at each culvert replacement location. These elevations are on the existing structures and shall be moved prior to the removal of the culverts.

# 12. Miscellaneous

Any subsurface drains encountered upstream of the culvert that conflict with the proposed culvert shall be extended to an outlet to the open channel to the approval of the Drainage Superintendent.

Any fences that must be removed to allow construction or maintenance shall be reinstalled by the Contractor using the existing materials.

It will be the Owner's responsibility to mark all tile and tile mains prior to maintenance being carried out.





~		
UAL)	-	
ON W/ CONCRETE AP (QUARRY STONE) RRAFIX 270 R OR EQUAL) S = 300mm		
R.O. DOBBIN	MUNZER Q	022
DKE-ALVINSTON DRAIN AIL	2 OF 2	Last Updated: March 21, 20

# **ENCLOSURE**

a.

1 of 6

Campbell Leitch Drain Municipality of Brooke-Alvinston March 21, 2022

# **ESTIMATED NET ASSESSMENT**

Conc.	Lot or Part	Roll No.	Owner	Total Assess.	Less Grant	Less Allow.	Net Assess.
Municipali	ty of Brooke /	Alvinston					
Agricultura	al Land						
6 W1/	'2 L28	30-083	2623793 Ontario Inc.	10.00	3.33		6.67
E1/2 L29	2 L28	30-084 30-085	K. Campbell W McAlpine	10,007.00 447.00	3,335.67 149.00	237.00	6,434.33 298.00
7 L29		30-12701	J. & J. Douglas	101.00	33.67		67.33
Public Lar	lds: Roads		•				
Maple Rid Sexton Ro	ge Line ad (1/2)		Municipality of Brooke Alvinston Municipality of Brooke Alvinston	10.00 49.00			10.00 49.00
Township	of Adelaide N	1etcalfe					
Agriculturs	al Land						
9 W1/	2 L1	20-00101	A. Dixon Challoner	30.00	10.00		20.00
10 W1/	2 L1	20-010	A. Berghammer	581.00	193.67		387.33
	/4 L1	600-0Z	P. Van Lierop	228.00	/6.00	290.00	-138.00

Estima	ted Net Assessn	nent (cont'd)		ĸ				2 of 6
Conc.	Lot or Part	Roll No.	ŇO	ner	Total Assess.	Less Grant	Less Allow.	Net Assess.
Agricul	tural Land (cont'	d)				24		1.07
10	SE1/4 L1	20-00910	P. Van Lierop		10,289.00	3,429.67		6,859.33
>	Vpt. L2	20-008	W. Wright		501.00	167.00		334.00
ш	Ept. L2 & L3	20-007	T. Field		508.00	169.33		338.67
11 L		20-011	1838107 Ontario L	-td.	235.00	78.33		156.67
12 \$	31/2 L18	20-031	A. Langford		17.00	5.67		11.33
2	41/2 L19	20-018	T. Field		588.00	196.00		392.00
U)	31/2 L19	20-032	G. Walker		588.00	196.00		392.00
2	41/2 L20	20-017	T. Field		588.00	196.00		392.00
0)	31/2 L20	20-033	G. Campbell		565.00	188.33		376.67
2	V1/2 L21	20-016	E. VanLierop		576.00	192.00		384.00
0	ot.S1/2 L21	20-03701	E. VanLierop		189.00	63.00		126.00
12 ם	ot.S1/2 L21	20-037	M. Kerrigan		382.00	127.33		254.67
. «	VE1/4 L22	20-015	D. Bowman		276.00	92.00		184.00
۷	VW1/4 L22 &	20-014	G. Oke		611.00	203.67		407.33
	N1/2 L23							
0)	31/2 L22	20-038	K & E McNally Far	ms Ltd.	571.00	190.33		380.67
13 0	31/2 L16	20-06401	K. DeGroot		60.00	20.00		40.00
0)	S1/2 L17	20-065	G. Campbell		353.00	117.67		235.33
2	V1/2 L18	20-052	J. VanBerkel		441.00	147.00		294.00
	ot.S1/2 L18	20-066	D. Baer		505.00	168.33		336.67
	ot.S1/2 L18	20-067	H. MacKellar		65.00	21.67		43.33
~	VE1/4 L19	20-051	P. VanLierop		293.00	97.67		195.33
~	VW1/4 L19	20-050	G. Walker		287.00	95.67		191.33

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Net Assessm	ent (cont'd)					3 of 6
Lot or	Roll	Owner	Total	Less	Less	Net
Part	No.		Assess.	Grant	Allow.	Assess.
L Hana - 2   1						
i Lanu (cont u	(					
E1/4 L19	20-066	D. Baer	65.00	21.67		43.33
E1/4 L19	20-067	H. MacKellar	212.00	70.67		141.33
/4 L19	20-068	J. McGill	282.00	94.00		188.00
'4 L20	20-050	G. Walker	282.00	94.00		188.00
/4 L20	20-049	P. VanLierop	287.00	95.67		191.33
L20	20-069	E. McNally	528.00	176.00		352.00
'4 L21	20-047	Hendrix Farms Limited	235.00	78.33		156.67
/4 L21	20-046	G. Walker	205.00	68.33		136.67
4 L21	20-070	K & E McNally Farms Ltd.	118.00	39.33		78.67
L22	20-046	G. Walker	206.00	68.67		137.33
L15	20-089	E. Bryant	324.00	108.00		216.00
4 L15	20-096	C. Towers	129.00	43.00		86.00
/4 L15	20-097	R. Galbraith	293.00	97.67		195.33
4 L16	20-08801	R. Vreeken	270.00	90.00		180.00
/4 L16	20-087	Ken DeGroot Farms Ltd.	264.00	88.00		176.00
L16	20-099	1838107 Ontario Ltd.	559.00	186.33		372.67
L17	20-086	Roger Buurma	559.00	186.33		372.67
L17	20-100	B. Stubbs	576.00	192.00		384.00
L18	20-085	S. Noone	534.00	178.00		356.00
L18	20-101	1838107 Ontario Ltd.	476.00	158.67		317.33
L19	20-084	M. Kerrigan	324.00	108.00		216.00
4 L19	20-102	J. McGill	235.00	78.33		156.67
	Net Assessm Lot or Lot or Part [1/4 L19 /4 L19 /4 L20 /4 L20 /4 L21 /4 L15 /4 L20 /4 L21 /4 L21 /4 L15 /4 L16 /4 L15 /4 L16 /4 L16 /4 L16 /4 L17 /4 L16 /4 L17 /4 L16 /4 L16 /4 L17 /4 L16 /4 L16 /4 L16 /4 L17 /4 L16 /4 L16 /4 L17 /4 L16 /4 L19 /4 L19 /4 L10 /4 L10	Net Assessment (cont'd) Lot or Roll Part No. I Land (cont'd) I Land (cont'd) 20-066 21/4 L19 20-066 20-069 4 L21 20-046 4 L21 20-046 4 L21 20-046 4 L21 20-046 4 L21 20-069 7 4 L21 20-069 7 4 L15 20-096 7 4 L15 20-096 7 4 L15 20-097 7 4 L15 20-097 7 4 L16 20-098 7 4 L16 20-098 7 4 L16 20-088 7 4 L17 20-088 7 4 L16 20-088 7 4 L16 20-088 7 4 L17 20-088 7 4 L16 20-088 7 4 L16 20-088 7 4 L17 20-088 7 4 L16 20-088 7 4 L16 20-088 7 4 L17 20-088 7 4 L16 20-088 7 4 L17 20-088 7 4 L16 20-088 7 4 L16 20-088 7 4 L17 20-088 7 4 L16 20-088 7 4 L16 20-088 7 4 L16 20-088 7 4 L17 20-088 7 4 L18 20-088 7 4 L18 20-088 7 4 L18 20-088 7 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Net Assessment (contd)       Lot or     Roll     Owner       Part     No.     Owner       Part     No.     Owner       ILand (contd)     I.and (contd)     Owner       1:14 L19     20-066     D. Baer       1:14 L19     20-066     D. Baer       1:14 L19     20-068     J. McGill       4 L20     20-069     P. Vanlierop       1:4 L19     20-069     P. Vanlierop       1:4 L19     20-069     F. McNally       4 L21     20-043     P. Vanlierop       1:4 L20     20-046     G. Walker       1:4 L21     20-046     G. Walker       1:4 L21     20-089     E. Bryant       1:15     20-098     E. Bryant       1:15     20-098     F. Galbraith       1:16     20-088     R. Vreeken       1:15     20-098     R. Stubbs       1:16     20-088     I.333107 Ontario Ltd.       1:17     20-088     I.338107 Ontario Ltd.       1:18     20-088     S. Noone <td>Net Assessment (contid)     Contid)       Lot or     Roll     Owner     Total       Jand (contid)     No.     Assess.     Assess.       I.Land (contid)     Correct     N. MacKellar     Contal     Assess.       I.Land (contid)     Accord     N. MacKellar     Cotal     Assess.       I.Land (contid)     Accord     N. MacKellar     Cotal     Assess.       I.Land (contid)     Accord     N. MacKellar     Cotal     Station       4.L19     20-068     U. MacKellar     Cotal     Station     Station       4.L20     20-049     P. VanLierop     Station     Station     Station       4.L21     20-046     G. Walker     Station     Station     Station       4.L21     20-046     G. Walker     Station     Station     Station       4.L15     20-046     G. Walker     Station     Station     Station       4.L21     20-046     G. Walker     Station     Station     Station       4.L15     20-046     G. Walker     St</td> <td>Net Assessment (corrtd)     Lot or     Roll     Cowner     Total     Less       Land (contd)     No.     Owner     Total     Less     Grant       Land (contd)     No.     Owner     Total     Less     Grant       Land (contd)     20-066     D. Baer     65.00     21.67       7.14 L19     20-067     H. MacKellar     212.00     94.00       7.14 L19     20-069     E. McSill     287.00     97.67       7.4 L19     20-069     E. McNally     287.00     94.00       4.1 L20     20-046     G. Walker     235.00     76.00       4.1 L1     20-046     G. Walker     235.00     78.33       4.1 L2     20-046     G. Walker     235.00     76.00       14.15     20-046     G. Walker     235.00     78.33       14.15     20-046     G. Walker     236.00     76.00       14.15     20-048     G. Walker     236.00     78.33       14.20     20-048     G. Walker     236.00     76.33<td>Net Assessment (contd)     Total     Less     Allow.       Part     No.     Owner     Total     Less     Grant     Allow.     &lt;</td></td>	Net Assessment (contid)     Contid)       Lot or     Roll     Owner     Total       Jand (contid)     No.     Assess.     Assess.       I.Land (contid)     Correct     N. MacKellar     Contal     Assess.       I.Land (contid)     Accord     N. MacKellar     Cotal     Assess.       I.Land (contid)     Accord     N. MacKellar     Cotal     Assess.       I.Land (contid)     Accord     N. MacKellar     Cotal     Station       4.L19     20-068     U. MacKellar     Cotal     Station     Station       4.L20     20-049     P. VanLierop     Station     Station     Station       4.L21     20-046     G. Walker     Station     Station     Station       4.L21     20-046     G. Walker     Station     Station     Station       4.L15     20-046     G. Walker     Station     Station     Station       4.L21     20-046     G. Walker     Station     Station     Station       4.L15     20-046     G. Walker     St	Net Assessment (corrtd)     Lot or     Roll     Cowner     Total     Less       Land (contd)     No.     Owner     Total     Less     Grant       Land (contd)     No.     Owner     Total     Less     Grant       Land (contd)     20-066     D. Baer     65.00     21.67       7.14 L19     20-067     H. MacKellar     212.00     94.00       7.14 L19     20-069     E. McSill     287.00     97.67       7.4 L19     20-069     E. McNally     287.00     94.00       4.1 L20     20-046     G. Walker     235.00     76.00       4.1 L1     20-046     G. Walker     235.00     78.33       4.1 L2     20-046     G. Walker     235.00     76.00       14.15     20-046     G. Walker     235.00     78.33       14.15     20-046     G. Walker     236.00     76.00       14.15     20-048     G. Walker     236.00     78.33       14.20     20-048     G. Walker     236.00     76.33 <td>Net Assessment (contd)     Total     Less     Allow.       Part     No.     Owner     Total     Less     Grant     Allow.     &lt;</td>	Net Assessment (contd)     Total     Less     Allow.       Part     No.     Owner     Total     Less     Grant     Allow.     <

Estimat	ed Net Assess	ment (cont'd)						4 of 6
Conc.	Lot or Part	Roll No.		Owner	Total Assess.	Less Grant	Less Allow.	Net Assess.
Non Ag	ricultural Land							
12 pt	1.N1/2 L18	20-01702	D. Wells		14.00			14.00
ā	t.S1/2 L20	20-034	K. Hoogstra		17.00			17.00
ā	t.S1/2 L21	20-035	M. Gerow		10.00			10.00
ā	t.S1/2 L21	20-036	T. Barley		10.00			10.00
ā	t.S1/2 L21	20-03601	D. Russell		10.00			10.00
13 pi	t.NW1/4 L20	20-048	D. Baer		10.00			10.00
ā	t.NE1/4 L21	20-04701	F. Russell		10.00			10.00
ā	t.NE1/4 L21	20-04702	F. Russell		10.00			10.00
14 pi	t.NE1/4 L16	20-088	K. Haggis		18.00			18.00
ā	t.S1/2 L16	20-098	K. Reycraft		12.00			12.00
ā	t.N1/2 L18	20-08501	D. Sim		28.00			28.00
ā	t.N1/2 L18	20-08502	G. Davis		22.00			22.00
10 Di	t. L1		Hydro One	A	0.00			00.00
12 pi	t. L20, 21, 22, 1	23			0.00			00.00
13 pt	t. L18, 19, 20	.0			0.00			00.00
ى. ى			Hydro One		526.00			526.00
Public L	ands: Roads.	8						
Sexton	Road (1/2)		Township of A	delaide Metcalfe	87.00			87.00
McDou	gall Drive		Township of A	delaide Metcalfe	22.00	¢		22.00
<b>Calver</b> Walkers	Drive s Drive		County of Mid Township of A	diesex delaide Metcalfe	209.00			401.00 209.00

Estimated	Net Assessme	nt (cont'd)					5 of 6
Conc.	Lot or Part	Roll No.	Owner	Total Assess.	Less Grant	Less Allow.	Net Assess.
Public Lan	ds: Roads (cor	nťd)					
Scotchmer Inadale Dri McArthur F Taits Road	e Drive ive (1/2) toad		Township of Adelaide Metcalfe Township of Adelaide Metcalfe Township of Adelaide Metcalfe Township of Adelaide Metcalfe	183.00 110.00 131.00 222.00			183.00 110.00 131.00 222.00
Municipality	y of Southwest	Middlese	×				
Agricultura	l Land						
4 N1/2	L15	6-186	D. Crawford	499.00	166.33		332.67
N1/2	L16	7-058	E.McNally	235.00	78.33		156.67
5 pt.N1	1/2 L15	6-211	S. Towers	224.00	74.67		149.33
5 pt.N1	1/2 L15	6-210	R. Kouwenberg	183.00	61.00		122.00
S1/2	L15	6-20802	Macksvilla Farms LTD	293.00	97.67		195.33
N1/2	L16	7-082	R. Kouwenberg	576.00	192.00		384.00
S1/2	L16	7-059	W. Carruthers	458.00	152.67		305.33
N1/2	L17	7-081	C. Towers	353.00	117.67		235.33
NE1/	/4 L18	7-080	D. Towers	29.00	9.67		19.33
Non Agricu	iltural Lands						
5 pt.N1 Hvdro ROV	1/2 L15 V	6-211 8-102	S. Towers Hvdm One	29.00 41.00			29.00
·)/-);		12-0		22.14			22.14

Estimated Net Assessm	ient (cont'd	()				6 of 6
Conc. Lot or	Roll	Owner	Total	Less	Less	Net
Part	No.		Assess.	Grant	Allow.	Assess.
Public Lands: Roads						
Inadale Drive (1/2)		Municipality of Southwest Middlesex	116.00			116.00
Olde Drive		Municipality of Southwest Middlesex	138.00			138.00
McArthur Road		Municipality of Southwest Middlesex	301.00			301.00
		Totals	\$42,451.00	\$13,235.00	\$527.00	\$28,689.00

# THE CORPORATION OF THE MUNICIPALITY OF BROOKE-ALVINSTON

# **BY-LAW NUMBER xx of 2022**

# BEING A BY-LAW TO PROVIDE FOR A DRAINAGE WORKS IN THE MUNICIPALITY OF BROOKE-ALVINSTON IN THE COUNTY OF LAMBTON

WHEREAS the requisite number of owners have petitioned the Council of the Municipality of Brooke-Alvinston in the County of Lambton in accordance with the provisions of the *Drainage Act*, requesting that the following lands and roads be drained by a drainage works known as the "Campbell Leitch Drain" in the Municipality of Brooke-Alvinston;

AND WHEREAS, the Council of the Municipality of Brooke-Alvinston in the County of Lambton has procured a report made by R. Dobbin Engineering Inc. and a copy of the report dated March 21, 2022 is attached hereto and forms part of this by-law;

AND WHEREAS the estimated cost of constructing the drainage works is \$42,451.00;

AND WHEREAS \$10,624.00 is the amount to be contributed by the Municipality for construction of the drainage works;

AND WHEREAS \$42,451.00 is being assessed in the Municipality of Brooke-Alvinston in the County of Lambton

AND WHEREAS the Council is of the opinion that the drainage of the area is desirable;

THEREFORE, the Council of the Municipality of Brooke-Alvinston under the *Drainage Act* enacts as follows:

- 1. The report dated March 21, 2022 and attached hereto is hereby adopted and the drainage works as therein indicated and set forth is hereby authorized, and shall be completed in accordance therewith.
- 2. (1) The Corporation of the Municipality of Brooke-Alvinston may borrow on the credit of the Corporation the amount of \$42,451.00, being the amount necessary for construction of the drainage works.

(2) The Corporation may issue debentures for the amount borrowed less the total amount of,

- (a) grants received under section 85 of the Act;
- (b) commuted payments made in respect of lands and roads assessed within the municipality;
- (c) money paid under subsection 61(3) of the Act; and

(d) money assessed in and payable by another municipality, and such debenture shall be made payable within five years from the date of the debenture and shall bear interest at a rate not higher than the rate charged by the Ontario Government for tile loans on the date of sale of such debentures.

- 3. A special equal annual rate sufficient to redeem the principal and interest on the debentures shall be levied upon the lands and roads as set forth in the report to be collected in the same manner and at the same time as other taxes are collected in each year for five years after the passing of this bylaw.
- 4. For paying the amount of \$42,451.00 being the amount assessed upon the lands and roads belonging to or controlled by the Municipality, a special rate sufficient to pay the amount assessed plus interest thereon shall be levied upon the whole rateable property in the Municipality of Brooke-Alvinston in each year for one year after the passing of this by-law to be

collected in the same manner and at the same time as other taxes are collected.

- 5. All assessments of \$1,000.00 or less are payable in the first year in which the assessment is imposed.
- 6. This by-law comes into force on the passing thereof and may be cited as "Campbell Leitch Drain By-law".

FIRST READING		, 2022
SECOND READING		, 2022
Provisionally adopted this d	ay of _	, 2022.
		David Ferguson, Mayor
		Janet Denkers, Clerk-Administrator
THIRD READING		, 2022.
Enacted this day of		, 2022.
		David Ferguson, Mayor

Janet Denkers, Clerk-Administrator



March 4, 2022

The Mayor and Council Township of Brooke-Alvinston P. O. Box 28 3236 River Street Alvinston, Ontario NON 1A0

# **Re: Thompson Drain North and Thompson Drain South**

In accordance with your instructions, I have undertaken an examination of the Thompson Drain with regards to making drainage improvements in Lot 24, Concessions 11 and 12 in the Municipality of Brooke-Alvinston. The work will consist of installing a new farm access culvert in the E1/2 Lot 24, Concession 12 and open channel improvements along Hardy Creek Road. The course of the work has been surveyed with elevations taken as necessary.

# Authorization under the Drainage Act

This Engineers Report that has been prepared under Section 78 of the Drainage Act as per the request of an affected owner.

Under section 78 of the Drainage Act, Council may undertake and complete the maintenance or repair of any drainage works constructed under a bylaw passed under this Act or its predecessor. Section 78 is to be used where it is considered expedient to change the course of the drainage works, or to make a new outlet for the whole or any part of the drainage works, or to construct a tile drain under the bed of the whole or any part of the drainage works as ancillary thereto, or to construct, reconstruct or extend embankments, walls, dykes, dams, reservoirs, bridges, pumping stations, or other protective works as ancillary to the drainage works, or to otherwise improve, extend to an outlet or alter the drainage works or to cover the whole or any part of it, or to consolidate two or more drainage works.

The owner of the E1/2 Lot 24, Concession 12 submitted a request for a new farm access culvert. The Municipality of Brooke-Alvinston Council accepted the request and appointed the engineer to prepare a new engineer's report on the Thompson Drain.

# Existing Drainage

The original Thompson Drain consisted of an open channel that was deepened and improved throughout its length under an engineer's report dated February 12, 1952. The drain at that time extended along the west side of Hardy Creek Road from a point approx. 663 metres north of the Concession 11/12 line and south to a point approx. 478 metres south of the Concession 11/12 line and then east through the west part of Lot 25, Concession 11 to an outlet to a tributary of Hardy Creek.

Under an engineer's report dated January 14, 1966, a 400 mm dia. tile was extended from the east side of Hardy Creek Road west and north to an outlet to a tributary of Browns Creek. It was intended to provide outlet for subsurface waters from Lot 25, Concession 12 and to avoid deepening of the existing channel along Hardy Creek Road as there is substantial bush along this section. The Road Authority was allowed to partially backfill the channel to the extent that only surface drainage to the south would be provided.

Under an engineer's report dated July 2, 1968, the lower portion of the Thompson Drain in the W1/2 Lot 25 (referred to as the Fisher-Ferguson section of the Thompson Drain) from Hardy Creek Road downstream to its outlet at the east limit of the W1/2 Lot 25 was improved. Approx. 137 metres of 350 mm dia. tile with saucer type depression was installed from Hardy Creek Road downstream with the remaining channel downstream deepened and improved.

The Schedule of Maintenance was revised under Section 76 of the Drainage Act on November 14, 2014. This report set out open and closed drain maintenance assessments and referred specifications back to previous reports.

# **Onsite Meeting**

An onsite meeting was held on November 17, 2020. At this meeting, it was explained to those in attendance that a new culvert would be installed on the drain. Discussion at the meeting determined that the drain required channel improvements including brushing, bottom cleanout, and catchbasin repairs. This work was added to the overall scope under this new report as the specification of the drain required updating.

# Discussion

The original access to the property is located north of the Thompson Drain over the roadside ditch and has failed. The owner requires a new crossing to the farm; therefore, the new culvert will be installed just north of the bush lot in the E1/2 Lot 24, Concession 12 on the Thompson Drain in a location best suited for the farm.

The open channel along Hardy Creek Road has changed over time with water draining both north and south and a section of the drain is now just a road swale. Therefore, a

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berm is being recommended to split the drain into a north section and a south section and the swale portion to be abandoned. Surveying will be completed to provide a new profile for the drains.

# Recommendations

It is therefore recommended that the following work be carried out:

- 1. A new farm access culvert be installed in the E1/2 Lot 24, Concession 12;
- 2. The entire open channel along Hardy Creek Road shall be improved including brushing, grade improvements, and catchbasin repairs;
- 3. A berm shall be installed dividing the north section and south section into two municipal drains known as Thompson Drain North and Thompson Drain South;
- 4. The catchbasin located at the outlet of the Thompson Drain North shall be replaced;
- 5. The section of the drain north of DICB #1 as shown on the February 1952 report shall be abandoned, as it only exists as a roadside swale used for road drainage only;
- 6. The Thompson Drain Outlet shall remain a municipal drain as per the January 14, 1966 report; and
- 7. The Fisher Ferguson section of the Thompson Drain shall remain a municipal drain as per the July 2, 1968 report.

# Design

The farm culvert shall be sized to accommodate a 1 in 2-year storm in accordance with engineering principles.

The open channel of the Thompson Drain North shall be deepened north of the proposed new culvert to provide sufficient outlet for the watershed. Therefore, a new DICB will be installed at the outlet to replace the existing one with the low portion of the DICB inlet matching the proposed drain bottom.

# Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying Specification of Work and the Profile that form part of this Report. There has been prepared an estimate of cost in the amount of \$43,902.00 including engineering of the

report, attending the Meeting to Consider, and attending the Court of Revision, and an estimate for tendering, contract administration and inspection.

A Plan has been prepared showing the location of the work and the approximate drainage area. A profile is included showing depths and grades of the proposed work.

# Assessment

As per the Drainage Act, section 21, the Engineer in his report shall assess for benefit and outlet liability.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works may be assessed for benefit. The Engineer may assess for special benefit any lands for which special benefits have been provided by the drainage works. (Section 22)

Lands and roads that use a drainage works as an outlet, or for which, when the drainage works is constructed or improved, an improved outlet is provided either directly or indirectly through any medium of any other drainage works or of a swale, ravine, creek or watercourse, may be assessed for outlet. The assessment for outlet shall be based upon volume and rate of flow of the water artificially caused to flow into the drainage works from the lands and roads liable for such assessments. (Section 23)

The Engineer may assess for special benefit any lands for which special benefits have been provided by the drainage works. (Section 24)

A Schedule of Assessment for the lands and roads affected by the work and therefore liable for the cost thereof will be prepared as per the Drainage Act. Also, assessments may be made against any public utility or road authority, as per Section 26 of the Drainage Act, for any increased cost for the removal or relocation of any of its facilities and plant that may be necessitated by the construction or maintenance of the drainage works. Items to be assessed under Section 26, as specified, shall be tendered separately with the actual cost plus a portion of the engineering (25% of the construction cost).

The estimated cost of the drainage works has been assessed in the following manner:

1. The channel improvements of the Thompson Drain North has generally been assessed as benefit assessments only, with 2/3 assessed against the road authority having jurisdiction over Hardy Creek Road and 1/3 assessed against the owner of E1/2 Lot 24, Concession 12;

2. The channel improvements of the Thompson Drain South has generally been assessed as with 50% assessed against the road authority having jurisdiction over Hardy Creek

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Road and remaining 50% has been assessed over the lands in the watershed with 17% assessed as benefit and 33% assessed as outlet based on equivalent hectares;

3. The new farm access culvert being installed in the E1/2 Lot 24, Concession 12 has been assessed with 60% of the estimated culvert cost applied as a benefit assessment to the owner of the property, 17% assessed as benefit assessment to the roads, and the remainder of the cost has been assessed as outlet assessment to upstream lands and roads based on equivalent hectares; and

4. The replacement of the catchbasin at the outlet of the Thompson Drain North has generally been assessed as benefit assessments only, with 2/3 assessed against the road authority having jurisdiction over Hardy Creek Road and 1/3 assessed against the owner of E1/2 Lot 24, Concession 12.

# Allowances

Under section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled thereto to damage, if any, to ornamental trees, fences, land, and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages.

Allowances have been made, where appropriate, as per section 30 of the Drainage Act for damages to lands and crops. Allowances for crop loss are based on \$2,000.00 per hectare for the first year and \$5,000.00 for the second year (\$2,500.00 per hectare total).

# Access and Working Area

Access both construction and future maintenance access for culvert works and drain improvements shall be from Hardy Creek Road using the existing access laneways. All works shall be restricted to the width of the culvert including 10 meters on each side. For channel improvements and future maintenance, all works shall be restricted to west side of the drain along agricultural lands measuring 20 meters from the top of the drain bank. Along the bush portion all work shall be restricted to the road side and material placed on the adjacent farm lands or cast in the bush.

# Drain Classification and Authorizations

The Thompson Drain is a class "F" drain for the entire length according to the Ontario Ministry of Agriculture, Food and Rural Affairs Mapping.

Class "F" drains are intermittent or ephemeral (dry for more than two consecutive months).

The proposed work shall be carried out during low flows in the channel. The work area is to be maintained in a dry condition during construction by the Contractor.

A permit for these works is required by the St. Clair Conservations Authority.

# Agricultural Grant

It is recommended that application for subsidy be made for eligible agricultural properties. Any assessments against non agricultural properties are shown separately in the Schedule of Assessment.

The cost of completing works through the bush lot is being completed from the road side of the drain as described in previous reports with the excavated material being trucked. The cost of brush clearing along with allowances has been evaluated against trucking and trucking is more cost effective. Therefore, it is being recommended that agricultural grants be given to the trucking cost for this work.

# Restrictions

No trees and shrubs shall be planted nor shall permanent structures be erected within 10 metres of either side of the proposed drain without prior written permission of Council.

All existing subsurface drainage shall be connected to the drain is subject to the provisions of section 83 of the Drainage Act under which pollution of drains is prohibited. Attention is also drawn to sections 80 and 82 of the Drainage Act, which refer to the removal of obstructions in a drain and damage caused to a drain.

# Existing Private Drainage

All existing subsurface drainage encountered during excavation of the open channel shall be maintained in existing condition. Landowners shall be responsible to mark all subsurface drains from his property. Surface drains and swales shall be left open. The Contractor shall be responsible for damage to subsurface drains marked by the landowners.

It is recommended that 300 mm of freeboard be provided for tile drain outlets to the open channel.

# Maintenance

The Fisher Ferguson section of the Thompson Drain shall be maintained and repaired in accordance with the specifications contained within the July 2, 1968 engineer's report and assessed out using Schedule of Maintenance No.1 and Schedule of Maintenance No.2 contained within this report.

The Thompson Drain North shall be maintained and repaired in accordance with the specifications contained within this engineer's report and assessed out using Schedule of Maintenance No.3.

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The Thompson Drain South open channel drain shall be maintained and repaired in accordance with the specifications contained within this engineer's report and assessed out using Schedule of Maintenance No.4.

The Thompson Drain Outlet shall be maintained and repaired in accordance with the specifications contained within the January 14, 1966 engineer's report and assessed out using Schedule of Maintenance No.5 contained within this report.

The access culvert in the E1/2 Lot 24, Concession 12 shall be maintained and repaired with 60% of the costs assessed to the benefitting property owner, 17% assessed as benefit to the road authority and the remainder of the costs shall be assessed as an outlet to upstream lands and roads pro rata with the equivalent hectares contained in the Schedule of Assessment No.1.

The catchbasins and junction boxes on both the Thompson Drain North and Thompson Drain South shall be maintained and repaired in accordance with the applicable engineer's report specifications and assessed out as a split with 2/3 assessed the road authority and 1/3 assessed to the adjacent landowner.

Any road crossing pipes shall be maintained and repaired in accordance with the applicable engineer's report and assessed 100% to the road authority under Section 26 of the Drainage Act.

If an owner requests an additional length of culvert beyond that specified in this report, the extra cost shall be borne by the owner making the request including the future maintenance and repair. Each property is allowed one access culvert for each municipal drain with any second culvert on the property maintained and repaired 100% by the owner.

These above conditions will apply unless otherwise altered under provisions of the Drainage Act:

All of the above is submitted for your consideration.

Yours truly,

R.O. DOBBIN

Ray Dobbin, P.Eng.

Thompson Drain North & Thompson Drain South Municipality of Brooke-Alvinston March 4, 2022

# ALLOWANCES

Allowances have been made as per Sections 30 of the Drainage Act for damages to lands and crops.

	4	D	- J	(4	
Conc.	Lot	Roll	Owner	Section 30	Total
	or part	No.			
12	E1/2 Lot 24	50-07015	K. Saunders	890.00	890.00
11	Lot 24	50-046	Katesville Farms Ltd.	1,320.00	1,320.00
			TOTAL ALLOWANCES	\$2,210.00	\$2,210.00

Thompson Drain North & Thompson Drain South Municipality of Brooke-Alvinston March 4, 2022

### **Estimate of Cost**

To install a new culvert in the E1/2 Lot 24 Concession 12, a new DICB at the outlet of the Thompson Drain North, and improve the open channel along Hardy Creek Road.

### Allowances

Quantity Unit Unit Cost Total **Pre-Construction Meeting** 1 LS 300.00 300.00 Benchmark Loop 1 LS 300.00 300.00 Thompson Drain North 397 Brushing 3.00 1,191.00 m Open Channel Excavation c/w bank sloping 397 6.00 2,382.00 m Levelling 178 2.00 356.00 m Trucking 219 6.00 1,314.00 m S. & Install New 600mmx600mm DICB c/w Rip Rap 1 LS 2,800.00 2,800.00 Construct Berm at Sta 0+397 1 LS 250.00 250.00 Thompson Drain South Brushing 574 2.00 1,148.00 m **Open Channel Excavating** 574 1,148.00 m 2.00 Levelling 264 m 2.00 528.00 Trucking 310 6.00 1,860.00 m Construct berm at Sta 0+574 LS 250.00 250.00 1 Fill in drain and reswale c/w ECM 1 LS 1,000.00 1,000.00 Rip Rap around CB & JB 10 75.00 750.00 sq.m **Environmental Considerations** 1 LS 300.00 300.00 Culvert No. 1 - Thompson Drain North (E1/2 Lot 24) Sta 0+175 Supply and Installation of 600mmø HDPE culvert 10 600.00 6,000.00 m Drainage Stone Bedding 25 25.00 625.00 t Granular "B" Backfill 120 t 20.00 2,400.00 Granular "A" Driveway 25 30.00 750.00 t Concrete Block Endwalls 30 ea. 100.00 3,000.00 Contingency 2,880.00 Sub Total 33,742.00 Engineering 6,940.00 Tendering, Inspection and Contract 2,000.00 Admin SCRCA Fee 510.00 Total Estimate excluding HST 43,192.00 Non-Recoverable HST (1.76%) 710.00

Total Estimate \$43,902.00

3.3.

2,210.00

March 4, 2022			SCHEDI	JLE OF ASSESSMENT NO.1 -	I NOSYMOHT -	DRAIN NOI	RTH			
To install a new o	culvert in the E1/.	2 Lot 24 (	Concession	12, a new DICB at the outlet of t	the Thompson D	rain North,aı	id improve the	e open char	mel alomg Ha	rdy Creek.
					Culver	ts	Channe			
Conc. L	ot or Af. Part H	fected lect.	Roll No.	Owner	Benefit	Outlet	Benefit	Outlet	Total	Equiv. Ha
Municipality of F	3rooke-Alvinston									
Agricultural Land	ds									
12 E1/2 Lot.	24 4	1.31 5	60-070-15	K. Saunders	10,965.00	1,631.00	4,595.00	e,	17,191.00	2.16
					10,965.00	1,631.00	4,595.00	4	17,191.00	
				Total Benefit Total Outlet	15,560.00 1,631.00					
				Total Agricultural Lands	17,191.00					
Public Lands: Ro	ads									
Hardy Creek Roa	1d (	.85		Mun. of Brooke-Alvinston	3,107.00	2,573.00	9,190.00		14,870.00	3.40
					3,107.00	2,573.00	9,190.00	1	14,870.00	
				Total Benefit Total Outlet	12,297.00 2,573.00					
Agr. Lands asses November 14, 20	sment 1/2 rate as )14 Engineers ReJ	per port.		Total Municipal Lands Total Agricultural Lands	14,870.00 17,191.00					

1 of 1

Thompson Drain North & Thompson Drain South

Municipality of Brooke-Alvinston

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3.3.

5.56

Total Equiv. Ha

Total Assessment - Thompson Drain North \$32,061.00

Total-Municipality of Brooke-Alvinston 32,061.00

n Drain North & Thompson Drain South	lity of Brooke-Alvinston	2022
Thompson Drain No	Municipality of Bro	March 4, 2022

# SCHEDULE OF ASSESSMENT NO.2 - THOMPSON DRAIN SOUTH

To improve the open channnel along Hardy Creek Road.

				Culve	srts	Char	mel		
Conc. Lot Pa	or Affected Int Hect.	d Roll No.	Owner	Benefit	Outlet	Benefit	Outlet	Total	Equiv. Ha
								r	
Municipality of Br	ooke-Alvinston								
Agricultural Lands									
11 E1/2 L23 &	č L24 5.67	50-046	Katesville Farms Ltd.		Ū	1,646.00	1,471.00	3,117.00	2.84
12 E1/2 L23	0.21	50-069-15	VDN Farms Ltd.	Ĩ	ï	×	54.00	54.00	0.11
W1/2 L24	3.69	50-070	J and D Brown Ridge Farms Limited	))	ï	i.	958.00	958.00	1.85
E1/2 Lot 2 ⁴	4 5.67	50-070-15	K. Saunders	1	ā	320.00	1,471.00	1,791.00	2.84
				° ¥.	ï	1,966.00	3,954.00	5,920.00	
			Total Benefit Total Outlet	1,966.00 3,954.00					
			Total Agricultural Lands	5,920.00					
Public Lands: Roa	ds								
Hardy Creek Road	1.77		Mun. of Brooke-Alvinston	а	à	5,921.00	:: <b>1</b> 1	5,921.00	7.08
					ï	5,921.00		5,921.00	
			Total Benefit Total Outlet	5,921.00					
Agr. Lands assessn November 14, 201	nent 1/2 rate as per 4 Engineers Report.		Total Municipal Lands Total Agricultural Lands	5,921.00 5,920.00					
			Total-Municipality of Brooke-Alvinston	11,841.00					
		Tota	l Assessment - Thompson Drain South	\$11,841.00			Tota	l Equiv. Ha	14.70

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3.3.

Thompson Drain North & Thompson Drain South Municipality of Brooke-Alvinston March 4, 2022

# COMPOSITE SCHEDULE OF ASSESSMENT - THOMPSON DRAIN NORTH & THOMPSON DRAIN SOUTH

To install a new culvert in the E1/2 Lot 24 Concession 12, a new DICB at the outlet of the Thompson Drain North, and improve the open channel along Hardy Creek Road.

					Culve	rts	Cham	nel		
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Benefit	Outlet	Total	Equiv. Ha
Municinality c	of Brooke-Alvin	ston								ĺ
hundrammur		TIME								
Agricultural L	ands									
11 E1/2 L 12 E1/2 L	,23 & L24 ,23	5.67 0.21	50-046 50-069-15	Katesville Farms Ltd. VDN Farms I td	x 9		1,646.00	1,471.00 54.00	3,117.00	2.84
W1/2 ] E1/2 L	L24 .ot 24	3.69 4.31	50-070 50-070-15	J and D Brown Ridge Farms Limited K. Saunders	10,965.00	- 1,631.00	- 4,915.00	958.00 1,471.00	958.00 18,982.00	1.85 2.84
					10,965.00	1,631.00	6,561.00	3,954.00	23,111.00	
				Total Benefit Total Outlet	17,526.00 5,585.00					
				Total Agricultural Lands	23,111.00					
Public Lands:	Roads									
Hardy Creek F	load	0.85		Mun. of Brooke-Alvinston	3,107.00	2,573.00	15,111.00	803	20,791.00	7.08
нć,					3,107.00	2,573.00	15,111.00	×	20,791.00	
				Total Benefit Total Outlet	18,218.00 2,573.00					
Agr. Lands as: November 14,	sessment 1/2 rat 2014 Engineers	e as per s Report.		Total Municipal Lands Total Agricultural Lands	20,791.00 23,111.00					
				Total-Municipality of Brooke-Alvinston	43,902.00					

3.3.

Total Equiv. Ha 14.70

Total Assessment Thompson Drain North & Thompson Drain South \$43,902.00

Thompson E Municipality March 4, 202	rain South • of Brooke-Alvinston ?2						1 of 1
	SCHEDULE OF N	<b>AAINTENANCE N</b>	lo. 1 - FISH)	ER FERGUSON SECTION OF THE	THOMPSON	DRAIN	
To maintain	the open channel in the	e W1/2 Lot 25, Cone	cession 11		×		
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Agricultural	Lands						
11	E1/2 L23	3.24(3.24)	50-046	Katesville Farms Ltd.	0.00	75.00	75.00
	W1/2 L24	12.96(7.73)	50-046	Katesville Farms Ltd.	0.00	121.00	121.00
	E1/2 L24	19.43(7.39)	50-046	Katesville Farms Ltd.	22.00	209.00	231.00
	W1/2 L25	8.10	50-047	C. Degroot	228.00	108.00	336.00
12	E1/2 L23	9.31(9.31)	50-06915	VDN Farms Ltd.	0.00	62.00	62.00
	W1/2 L24	10.12(10.12)	50-070	J and D Brown Ridge Farms Limited	00.0	67.00	67.00
	E1/2 L24	5.67(5.67)	50-07015	K. Sanders	0.00	38.00	38.00
				Total Benefit	250.00	680.00	930.00
		ĴĴ		Total Outlet	680.00		
				Total Agricultural Lands	930.00		
Public Lands	:: Roads						
Hardy Creek	Road	1.77		Mun. of Brooke-Alvinston	0.00	70.00	70.00
				Total Benefit Total Outlet	0.00 70.00	70.00	70.00
Number in b	rackets indicates hecta	res of bush lands		Total Public Lands: Roads Total Agricultural	70.00 930.00		
	an a mail tary.			Total Assessment	\$1,000.00		

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Municipalit March 4, 20	y of Brooke-Alvinsto 22	ц.					
	SCHEDULE OF	E MAINTENANCE I	No. 2 - FISH	ER FERGUSON SECTION OF THE	THOMPSON	DRAIN	
To maintain	the covered drain in	the W1/2 Lot 25, Coi	ncession 11.				
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Agricultural	Lands						
11	E1/2 L23	3.24(3.24)	50-046	Katesville Farms Ltd.	0.00	58.00	58.00
	W1/2 L24	12.96(7.73)	50-046	Katesville Farms Ltd.	0.00	94.00	94.00
	E1/2 L24	19.43(7.39)	50-046	Katesville Farms Ltd.	50.00	163.00	213.00
	W1/2 L25	8.10	50-047	C. Degroot	450.00	0.00	450.00
12	E1/2 L23	9.31(9.31)	50-06915	VDN Farms Ltd.	0.00	48.00	48.00
	W1/2 L24	10.12(10.12)	50-070	J and D Brown Ridge Farms Limited	0.00	52.00	52.00
	E1/2 L24	5.67(5.67)	50-07015	K. Sanders	0.00	29.00	29.00
				Total Benefit	500.00	444.00	944.00
				Total Outlet	444.00		
				Total Agricultural Lands	944.00		
Public Land	s: Roads						
Hardy Creel	k Road	1.77		Mun. of Brooke-Alvinston	0.00	56.00	56.00
				Total Benefit Total Outlet	0.00 56.00	56.00	56.00
-				Total Public Lands: Roads	56.00		
number in t to be assesse	orackets indicates hec ⇒d at a half rate.	stares of bush lands		I otal Agricultural	944.00		
				Total Assessment	\$1,000.00		

1 of 1

Thompson Drain South

ompson Drain North	nicipality of Brooke-Alvinston	rch 4, 2022
Thomp	Munici	March

# SCHEDULE OF MAINTENANCE No. 3 - THOMPSON DRAIN NORTH

To maintain the channel along the west side of Hardy Creek Road.

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Agricultural	Lands						
12	E1/2 L24	4.31(4.31)	50-07015	K. Sanders	167.00	0.00	167.00
				Total Benefit Total Outlet	167.00 0.00	0.00	167.00
				Total Agricultural Lands	167.00		
Public Lands	: Roads						
Hardy Creek	Road	0.85		Mun. of Brooke-Alvinston	500.00	0.00	500.00
				Total Benefit Total Outlet	500.00 0.00	0.00	500.00
Number in b to be assesse	rackets indicates hectare d at a half rate.	ss of bush lands		Total Public Lands: Roads Total Agricultural	500.00 167.00		
				Total Assessment	\$667.00		

1 of 1

Thompson Drai Municipality of March 4, 2022	n South Brooke-Alvinston						1 of 1
	SCI	HEDULE OF M	AINTENAN	ICE No. 4 - THOMPSON DRAIN SOU	HL		
To maintain the	channel along the wes	st side of Hardy C	reek Road.				
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Agricultural La	spu						
11 12	E1/2 L24 E1/2 L23 W1/2 L24 E1/2 L24	5.67(5.67) .21(.21) 3.69(3.69) 5.67(5.67)	50-046 50-06915 50-070 50-070	Katesville Farms Ltd. VDN Farms Ltd. J and D Brown Ridge Farms Limited K. Sanders	139.00 0.00 0.00 27.00	124.00 5.00 81.00 124.00	263.00 5.00 81.00 151.00
				Total Benefit Total Outlet	166.00 334.00	334.00	500.00
				Total Agricultural Lands	500.00		
Public Lands: R	oads						
Hardy Creek Ro	ad	1.77		Mun. of Brooke-Alvinston	500.00	0.00	500.00
				Total Benefit Total Outlet	500.00 0.00	0.00	500.00
Number in brac to be assessed a	kets indicates hectares t a half rate.	of bush lands		Total Public Lands: Roads Total Agricultural	500.00 500.00		
				Total Assessment	\$1,000.00		

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Thompson Drain ( Municipality of Br March 4, 2022	Jutlet ooke-Alvinston			Э			1 of 1
.5)	SC	HEDULE OF MA	INTENANC	E No. 5 - THOMPSON DRAIN OUTI	ET		
To maintain the co	vered drain in Lot 2	24, Concession 12.					
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Agricultural Lands							
12	W1/2 L24		50-070	J and D Brown Ridge Farms Limited	31.00	0.00	31.00
	E1/2 L24 W1/3 L25	12.59(4.26) 27.00(4.82)	50-07015 50-071	K. Sanders 493120 Ontario Ltd.	150.00 50.00	24.00 229.00	174.00 279.00
	E2/3 L25	54.00(13.12)	50-072	493120 Ontario Ltd.	0.00	442.00	442.00
			a.	Total Benefit Total Outlet	231.00 695.00	695.00	926.00
				Total Agricultural Lands	926.00		
Public Lands: Roa	ds						
Hardy Creek Road		0.85		Mun. of Brooke-Alvinston	50.00	24.00	74.00
				Total Benefit Total Outlet	50.00 24.00	24.00	74.00
Number in bracket to be assessed at a	s indicates hectares half rate.	of bush lands		Total Public Lands: Roads Total Agricultural	74.00 926.00	ŵ:	
				Total Assessment	\$1,000.00		

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3.3.

Thompson Drain North and Thompson Drain South Municipality of Brooke-Alvinston March 4, 2022

# **SPECIFICATION OF WORK**

## 1. Scope of Work

The work to be included in this specification includes the installation of a new farm access culvert in the E1/2 Lot 24, Concession 12; 971 meters of open channel improvements involving brushing, grade improvements, and catchbasin repairs; and a berm constructed to separate the north drain and south drain on the Thompson Drain North and Thompson Drain South located in the Municipality of Brooke-Alvinston.

# 2. General

Each tenderer must inspect the site prior to submitting his tender and satisfy themselves by personal examination as to the local conditions that may be encountered during this project. They shall make allowance in his tender for any difficulties which they may encounter. Quantities or any information supplied by the Engineer is not guaranteed and is for reference only.

All work and materials shall be to the satisfaction of the Drainage Superintendent who may vary these specifications as to minor details but in no way decrease the proposed capacity of the drain.

The Contractor shall be responsible for the notification of all utilities and pipeline companies prior to the start of construction.

## 3. Access and Working Area

Access for culvert works and drain improvements shall be from Hardy Creek Road using the existing access laneways. All works shall be restricted to the width of the culvert including 10 meters on each side. All works shall be restricted to west side of the drain along agricultural lands measuring 20 meters from the top of the drain bank. Along the bush portion, all work shall be restricted to the road side and material placed on the adjacent farm lands or cast in the bush.

# 4. Plans and Specifications

These specifications shall apply and be part of the contract along with the General Specifications for Closed Drains and the General Specifications for Open Drains. This specification of work shall take precedence over all plans and general conditions

pertaining to the contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the plans and described in these specifications. Any work not described in these specifications shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

Any reference to the landowner contained in these contract documents shall refer to the Municipality of Brooke-Alvinston or the engineer authorized by the Municipality to act on its behalf.

# 5. Health and Safety

The Contractor at all times shall be responsible for health and safety on the worksite including ensuring that all employees wear suitable personal protective equipment including safety boots and hard hats.

The Contractor shall be responsible for traffic control as per the Ontario Traffic Manual Book 7 – Temporary Conditions when working on public road allowances. A copy of a traffic control plan shall be kept on site at all times. The Contractor shall maintain suitable barricades, warning lights, and temporary traffic notices, at his expense, in their proper position to protect the public both day and night. Flagmen are the responsibility of the Contractor when working on the road allowance and when entering or exiting a worksite onto a roadway.

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act to ensure that work sites are safe and that accidents are prevented. In the event of a serious or recurring problem, a notice of non-compliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for the issuance of a stop work order or even termination of the contract.

The contractor shall also ensure that only competent workmen are employed onsite and that appropriate training and certification is supplied to all employees.

# 6. Workplace Safety and Insurance Board

The Contractor hereby certifies that all employees and officers working on the project are covered by benefits provided by the Contractor. The WSIB clearance certificate must be furnished prior to signing of the Contract and updated every 60 days.

3.3.

# 7. Notification of Utilities

The Contractor shall be responsible to notify any and all affected utilities and pipeline companies. This shall be done through Ontario One Call Locates. The contractor shall make available proof of locates if requested by the Municipality, Drainage Superintendent, or Engineer. The contractor shall carry out all work in the vicinity of any utility or pipeline at the direction of the Utility/Pipeline Supervisor.

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# 8. Brushing

All vegetation brush, cattails, woody vegetation, and trees shall be mulched using an excavator with mounted grinder. All brush and trees in the sideslopes and bottom of the channel shall be removed in their entirety, piled and burned onsite. Trees too large for grinding shall be cut, piled, and burned on site. Trees shall be cut off at ground level. All mulch should be removed from the channel and added to the burn piles. Any branches laying on the drain banks, top of bank or within the channel shall also be burned. Burning on site shall be subject to guidelines of the MECP. Any permits must be obtained prior to burning.

Along the bush section brushing shall be from the road side of the drain. Therefore, no brushing is required on the top of the drain bank adjacent to the bush.

For future maintenance, it is recommended that appropriate herbicide application be applied to the stumps, brush, and aftergrowth in late spring/early summer for two years following to maintain control by a properly licensed operator.

# 9. Open Channel Excavation

The open channel shall be excavated to the depths and grades as shown on the profile contained within this report. The bottom shall be maintained with side slopes to be left as undisturbed as possible. Bank re-sloping is required on the Thompson Drain North from Station 0+000 to 0+175. This shall be completed from the property side of the drain. A laser level shall be used to guarantee an even grade.

The excavated material shall be placed on a minimum of 1.5 metres clear of the top of the bank along agricultural lands and trucked from the bush section. Material along the bush section shall be trucked and disposed of on the agricultural lands and levelled. All surface runs entering the open channel shall be left clear. Excavated material shall be used to construct the berm between the Thompson Drain North and South, as well to be used to fill in the section of the drain at the outlet of the Thompson Drain South.

Prior to beginning to excavate the channel, all grinded material and obstructions shall be removed and any woody debris shall be added to the burn pile. At no time shall any brush be covered with excavated material.

A labourer shall also check for any existing tile drains entering the drain and make every possible effort to not damage them. If a tile is found to be in poor condition or damaged it shall be reported to the Drainage Superintendent or Engineer Designate.

If an owner wishes to truck the excavated material offsite or elsewhere on his property, they may do so under this report with the cost of trucking less levelling being assessed to that property.

# 10. Channel Improvements (Thompson Drain South)

On the Thompson Drain South at Station 0+000, the open channel in that area shall be backfilled with excavated material to bring the drain bottom up to match the design grade shown on the profile. The existing catchbasin shall be cut and lowered approximately 0.15m. This area shall then be regraded to match the surround areas with the catchbasins and road crossing pipe. The area shall be covered with grass seed and double straw matting and secured in place with sod staples. Rip rap shall be placed around the junction box and catchbasin at the direction of the Drainage Superintendent or engineer designate.

# 11. Culvert Installation (Thompson Drain North)

The culvert to be installed under this report is as follows:

Culvert #1 (E1/2 Lot 24, Concession 12) – The new culvert shall be installed at Station 0+175, just north of the bush section. The culvert shall be 10 meters long x 600 mm diameter HDPE pipe with concrete block endwalls, drainage stone bedding, full granular B backfill and a granular A drive.

The contractor shall supply, install and backfill CSA approved HDPE smooth wall pipe (320 KPa) c/w manufactured couplers.

Any existing tile outlets shall be extended downstream of the proposed culvert and shall be done with non-perforated HDPE agricultural tubing with a manufactured coupling, elbow and rodent grate.

The culvert shall set with the invert 10% below the design channel bottom (minimum 150mm) and to grade shown on the culvert detail.

The bottom of the excavation shall be excavated to the required depth with any over excavation backfilled with drainage stone. It is expected that 100mm of bedding is placed under the pipe. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with drainage stone from the bottom of the excavation to the springline of the pipe. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300mm so that the pipe is not displaced. The culvert shall be backfilled from the springline to finished grade with approved granular "B" backfill to within 150 mm of finished grade. The top 150 mm shall be backfilled with compacted approved granular "A" material to finished grade.

All backfill shall be free from deleterious material. All backfill material above the springline shall be mechanically compacted using appropriate compaction equipment.

Endwalls using concrete blocks shall be with dimensions of approx. 600 mm x 600 mm x 1200 mm, 600 mm x 600 mm x 2400 mm or 300 mm x 600 mm x 1200 mm as required. The top of the culvert shall govern block elevation. The correct block shall be set with the top of the block equal to the top of the culvert. The blocks shall be set at each end of the culvert so that each row of blocks will be offset approx. 100 mm from the row below. The bottom row shall consist of one block placed parallel to the culvert. The blocks shall be set with be imbedded a minimum of 300 mm into each bank.

The blocks shall be placed over a layer of filter fabric (Terrafix 270R or approved equal). The culvert shall be backfilled in conjunction with the placement of the blocks. The gaps between the culvert and the blocks shall be filled with concrete cinder blocks/bricks and mortar to give the endwall a finished appearance.

The top row of blocks should be set to match existing grade and to the direction of the Drainage Superintendent.

# 12. Subsurface Drainage

The landowner shall be responsible to mark all existing subsurface drain tile and all tile mains. The Contractor shall be responsible to repair all marked tile that are damaged during excavation of the open channel.

The landowner is responsible for the outlet of surface water from the adjacent field to the open channel. Where a washout has occurred erosion protection consisting of rip rap and filter fabric shall be placed at the expense of the landowner.

# 13. Berm Construction

An earthen berm shall be constructed at Station 0+397 of the Thompson Drain North and Station 0+574 of the Thompson Drain South. The berm shall be constructed of excavated material and shall be placed level with the top of drain banks approximately 5 meters long and both the north and south shall be sloped 2:1. The berm shall be grass seeded and covered with a double straw matting and stapled down using sod staples.

# 14. Stone Erosion Protection (P)

Any washouts encountered along the length of the channel shall be reviewed with the Drainage Superintendent or Engineer Designated. If erosion protection is required then it shall be constructed of rip rap consisting of 150mm x 250mm quarry stone. The area to receive the rip rap shall be graded to a depth of 400mm below finish grade. The rip rap shall be placed from the drain bottom to the top of bank. Filter fabric (Terrafix 270R or approved equal) shall be placed under the rock with any joints overlapped 600mm. Rip rap shall be placed with smaller pieces placed in gaps and voids to give a uniform appearance.

# 15. Supply & Install Ditch Inlet Catchbasin (Thompson Drain North)

The ditch inlet catch basin shall be installed to the elevations and in the locations shown on the drawings as follows:

Structure	Station	Type/Grate (mm)	Top (Low Side) Elevation (m)	Outlet Pipe Elev. (m)
DICB#1	0+002	600X600 Birdcage	225.30 (E)	225.08 (N) 300mm

The ditch inlet shall be square precast concrete structures as noted above. The ditch inlet shall have a 2:1 sloped top with birdcage type grate. The ditch inlet shall be located in with the high point of the basin pointed north. The inlet side or low point shall face south and be set at the drain bottom. The outlet opening shall be facing north.

The ditch inlet shall be made with the concrete lid and any top sections separate from the base sections in order to allow for the 300mm pipe to be connected to both the top and main sections of the catchbasin. The wall thickness of all structures shall be 115mm and each shall have a 600mm sump. Birdcage grates shall be manufactured with a bar spacing no larger than 50mm. Unused knockouts shall be grouted with low strength concrete for a future connection by a landowner.
This shall include the connection of the 300mm diameter HDPE to the catchbasin. Stone erosion protection shall be installed around the DICB in a bowl shape from top of bank to drain bottom.

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# 16. Environmental Considerations

The following environmental considerations have been specified or are recommended to be included as part of this project to help mitigate any potential adverse impacts of the proposed drainage works on water quality.

- All excavated and stockpiled material shall be placed a minimum of 1.5 metres from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All granular and erosion control materials shall be stockpiled a minimum of 3.0 metres from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank and all surface water runs and open inlets that enter the drain.
- All construction in the channel shall be carried out during periods of low flow.
- A heavy-duty silt fence shall be installed at the outlet of the drains at the discretion of the Drainage Superintendent or Engineer Designate.
- The Culvert BMP shall be followed for culvert replacements as outlined in the Guidance Document for Maintaining and Repairing Municipal Drains in Ontario.

# 17. Miscellaneous

The Contractor shall remove any cross fences necessary to carry out construction operations. Upon completion of the work, the fences shall be reconstructed using existing materials. If existing materials cannot be reused, new material shall be used at the expense of the landowner.

The landowner of each property shall be responsible to mark all of his tile outlets. The landowner shall repair any tile outlets that are not marked and are damaged during construction. The Contractor shall repair any tile outlets that are marked and damaged during construction.

# 18. Benchmarks

The benchmarks are based on geodetic elevations. Elevations are available at the locations shown on the Plan and Profile drawings. Where these elevations are on existing structures to be replaced, they shall be transferred by the Contractor prior to the removal of the culvert. The contractor shall complete a benchmark loop to confirm elevations and provide any discrepancies to the Drainage Superintendent or Engineer Designate.

# **19. Pre-Construction Meeting**

There is a requirement for a pre-construction meeting to be held prior to any construction taking place. The meeting shall be scheduled by the Contractor. The Landowners, Engineer, and the Municipality of Brooke-Alvinston shall be notified of the pre-construction meeting at least 72 hours prior so that notices can be sent out.





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# 4 OF 4

# **ENCLOSURE**

Thompson Drain North & Th Municipality of Brooke-Alvir March 4, 2022	iompson Dra nston	in South				1 of 1
ESTIMA	TED NET /	<b>ASSESSMENT - THOMPSON DRAIN NORT</b>	H & THOMP	SON DRAI	N SOUTH	
To install a new culvert in E1	1/2 Lot 24 an	id to inprove the open channel along Hardy Creek	Road.			
Conc. Lot or Part	Affected Hect.	Roll Owner No.	Total	Estimated A Grant	Allowances	Estimated Net Assesment
Municipality of Brooke-Alvir	nston					
Agricultural Lands						
11 E1/2 L23 & L24 12 E1/2 L23	5.67 0.21	50-046 Katesville Farms Ltd. 50-069-15 VDN Farms Ltd.	3,117.00 54.00	1,039.00 18.00	1,320.00 -	758.00 36.00
W1/2 L24 E1/2 Lot 24	3.69 4.31	50-070 J and D Brown Ridge Farms Limited 50-070-15 K. Saunders	958.00 18,982.00	319.33 6,327.33	-	638.67 11,764.67
			23,111.00	7,703.67	2,210.00	13,197.33
Public Lands: Roads						
Hardy Creek Road	0.85	Mun. of Brooke-Alvinston	20,791.00	(1)	30 <b>8</b> -1	20,791.00
			20,791.00	ĩ	1.	20,791.00
Agr. Lands assessment 1/2 rai November 14, 2014 Engineer	tte as per rs Report.	TOTAL ASSESSMENT	43,902.00	7,703.67	2,210.00	33,988.33

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3.3.

# THE CORPORATION OF THE MUNICIPALITY OF BROOKE-ALVINSTON

# **BY-LAW NUMBER xx of 2022**

# BEING A BY-LAW TO PROVIDE FOR A DRAINAGE WORKS IN THE MUNICIPALITY OF BROOKE-ALVINSTON IN THE COUNTY OF LAMBTON

WHEREAS the requisite number of owners have petitioned the Council of the Municipality of Brooke-Alvinston in the County of Lambton in accordance with the provisions of the *Drainage Act*, requesting that the following lands and roads be drained by a drainage works known as the "Thompson Drain" in the Municipality of Brooke-Alvinston;

AND WHEREAS, the Council of the Municipality of Brooke-Alvinston in the County of Lambton has procured a report made by R. Dobbin Engineering Inc. and a copy of the report dated March 4, 2022 is attached hereto and forms part of this by-law;

AND WHEREAS the estimated cost of constructing the drainage works is \$43,902.00;

AND WHEREAS \$20,791.00 is the amount to be contributed by the Municipality for construction of the drainage works;

AND WHEREAS \$43,902.00 is being assessed in the Municipality of Brooke-Alvinston in the County of Lambton

AND WHEREAS the Council is of the opinion that the drainage of the area is desirable;

THEREFORE, the Council of the Municipality of Brooke-Alvinston under the *Drainage Act* enacts as follows:

- 1. The report dated March 4, 2022 and attached hereto is hereby adopted and the drainage works as therein indicated and set forth is hereby authorized, and shall be completed in accordance therewith.
- 2. (1) The Corporation of the Municipality of Brooke-Alvinston may borrow on the credit of the Corporation the amount of \$43,902.00, being the amount necessary for construction of the drainage works.

(2) The Corporation may issue debentures for the amount borrowed less the total amount of,

- (a) grants received under section 85 of the Act;
- (b) commuted payments made in respect of lands and roads assessed within the municipality;
- (c) money paid under subsection 61(3) of the Act; and

(d) money assessed in and payable by another municipality, and such debenture shall be made payable within five years from the date of the debenture and shall bear interest at a rate not higher than the rate charged by the Ontario Government for tile loans on the date of sale of such debentures.

- 3. A special equal annual rate sufficient to redeem the principal and interest on the debentures shall be levied upon the lands and roads as set forth in the report to be collected in the same manner and at the same time as other taxes are collected in each year for five years after the passing of this bylaw.
- 4. For paying the amount of \$43,902.00 being the amount assessed upon the lands and roads belonging to or controlled by the Municipality, a special rate sufficient to pay the amount assessed plus interest thereon shall be levied upon the whole rateable property in the Municipality of Brooke-Alvinston in each year for one year after the passing of this by-law to be

collected in the same manner and at the same time as other taxes are collected.

- 5. All assessments of \$1,000.00 or less are payable in the first year in which the assessment is imposed.
- 6. This by-law comes into force on the passing thereof and may be cited as "Thompson Drain By-law".

FIRST READING		, 2022
SECOND READING		, 2022
Provisionally adopted this o	lay of	, 2022.
		David Ferguson, Mayor
		Janet Denkers, Clerk-Administrator
THIRD READING		, 2022.
Enacted this day of		, 2022.
		David Ferguson, Mayor

Janet Denkers, Clerk-Administrator



4218 Oil Heritage Road Petrolia, Ontario, NON 1R0 Phone: (519) 882-0032 Fax: (519) 882-2233 www.dobbineng.com

April 20, 2022

The Mayor and Council Municipality of Brooke Alvinston 3236 River Street Alvinston, Ontario N0N 1A0

Gentlemen & Mesdames:

# **Re: McEachren Drain**

In accordance with your instructions, we have undertaken an examination of the McEachren Drain with regards to the replacement of the access culvert in the west part NW1/4 Lot 11, Concession 10 and investigating the condition of the other access culverts and replacing those as required based on their current condition. The drainage works is generally located in Lots 10 to 14, Concessions 10 and 11in the Municipality of Brooke Alvinston.

## Authorization under the Drainage Act

This Engineers Report has been prepared under section 78 of the Drainage Act as per the request of an affected Owner.

Section 78 of the Drainage Act states that, where, for the better use, maintenance or repair of any drainage works constructed under a bylaw passed under this Act, or of lands or roads, it is considered expedient to change the course of the drainage works, or to make a new outlet for the whole or any part of the drainage works, or to construct a tile drain under the bed of the whole or any part of the drainage works as ancillary thereto, or to construct, reconstruct or extend embankments, walls, dykes, dams, reservoirs, bridges, pumping stations, or other protective works as ancillary to the drainage works, or to otherwise improve, extend to an outlet or alter the drainage works or to cover the whole or any part of it, or to consolidate two or more drainage works, the Council whose duty it is to maintain and repair the drainage works or any part thereof may, without a petition required under section 4 but on the report of an Engineer appointed by it, undertake and complete the drainage works as set forth in such report.

# Existing Drainage

The McEachren Drain consists of a channel that outlets to the 10th Concession Drain in the W1/4 Lot 1, Concession 11 just north of Petrolia Line and just east of Forest Road. It extends in a northeast direction to the east side of lot 1, thence east to the east side of Little Ireland Road, a total distance of approx. 5,662 metres.

-2-

The drainage works provides outlet for the Watson Drain at the centre of Lot 2, Concession 11 and the Edgar Drain No. 2 on the east side of Little Ireland Road.

The drainage works was last improved under an engineer's report dated October 12, 1971 at which time the channel was deepened and improved upstream from the line between Lots 1 and 2. Several bridges were replaced with culverts.

# **Onsite Meeting**

An onsite meeting was held on November 17, 2020. It was requested that the access culvert in the E1/2 Lot 2, Concession 11 be replaced as it is in poor shape. Because of its poor condition, permission was granted t o replace it under emergency conditions. The other access culverts along the drainage works are be investigated and any found in poor shape are to be replaced. Specifications for future replacement would be included for those culverts still in reasonable shape.

# Investigation

Culvert No. 4 has been relaced under Emergency Designation. Several of the crossings were found to be constructed of concrete footings, abutment and deck and to be in poor shape. Access culvert no. 7 shall be removed from the drainage works. Access Culvert no. 8 is to remain at the request of the owner in order to cross with small vehicles. It is not suitable for large farm equipment. It shall not form part of the drainage works (i.e. it shall become a private crossing) and shall be the responsibility of the owner. Access culverts no. 11, 12 and 13 are to be replaced due to their poor condition and after discussions with the Owner.

# **Emergency Designation**

Due to the poor condition of Culvert No. 4 located in the E1/2 Lot 2, Concession 11, it was replaced under an emergency designation within Section 124 of the Drainage Act.

# Recommendations

It is therefore recommended that the following work be carried out:

- 1. Access culvert no. 4 (E1/2 Lot 2) is to be incorporated as part of the drainage works and the costs assessed accordingly.
- 2. Access culvert no. 7 (E1/2 Lot 4) is to be removed from the channel as it is no longer required.
- 3. Access culvert no. 8 (W1/2 Lot 5) shall remain but shall be abandoned as part of the drainage works and maintenance and repair or removal shall become the responsibility of the Owner.
- 4. Access culverts no. 11 (E1/2 Lot 7), 12 (W1/2 Lot 8) and 13 (E1/2 Lot 8) shall be removed and replaced as they are in poor shape.
- 5. A Schedule of Maintenance and specifications shall be developed for maintenance and repair of the access culverts located along the drainage works.
- 6. The Schedule of Maintenance for the channel is to be revised to reflect current conditions.

# Design

Major agricultural and residential culverts are usually designed to provide outlet for a 1 in 2 year storm. Municipal road culverts are usually designed to provide outlet for a 1 in 10 year storm.

# Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying Specification of Work and the Profile, which form part of this Report. There has been prepared an Estimate of Cost in the amount of \$129,245.00, including the cost of engineering. A Plan has been prepared showing the location of the work and the approximate drainage area.

## Assessment

As per section 21 of the Drainage Act, the Engineer in his report shall assess for benefit and outlet for each parcel of land and road liable for assessment.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works may be assessed for benefit. (Section 22) Lands and roads that use a drainage works as an outlet, or for which, when the drainage works is constructed or improved, an improved outlet is provided either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse may be assessed for outlet. The assessment for outlet shall be based on the volume and rate of flow of the water artificially caused to flow into the drainage works from the lands and roads liable for such assessments. (Section 23) The Engineer may assess for special benefit any lands for which special benefits have been provided by the drainage works. (Section 24)

A Schedule of Assessment for lands and roads affected by the work and therefore liable for the cost thereof has been prepared as per the Drainage Act. Any affected public utility or road authority shall be assessed, as per section 26 of the Drainage Act, any increased costs for the removal or relocation of any of its facilities and plant that may be necessitated by construction or future maintenance and repair work. The cost of any fees for permits or approvals or any extra work required by any affected utility, road authority, conservation authority, ministry, government agency, etc., federal or provincial, shall be assessed to that organization requiring the permit, approval, or extra work.

The cost of the access culvert replacements and removals consisting of round pipe has been assessed with approximately 50% of the cost applied as benefit assessment to the owner of the property and the remaining cost has been assessed applied as outlet assessment to upstream lands and roads based on equivalent hectares. The cost of the access culvert replacements and removals consisting of pipe aches has been assessed with approximately 40% of the cost applied as benefit assessment to the owner of the property and the remaining cost has been assessed applied as outlet assessment to upstream lands and roads based on equivalent hectares.

If a landowner requests an additional length of culvert beyond 10 metres for an access culvert or the piped sections specified, the extra cost shall be assessed 100% to the landowner.

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# Allowances

Under section 29 of the Drainage Act, the Engineer in his report shall estimate and allow in money to the Owner of any land that it is necessary to use for the construction or improvement of a drainage works or for the disposal of material removed from a drainage works. This shall be considered an allowance for right of way. Under section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled thereto to damage, if any, to ornamental trees, fences, land, and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages.

Allowances have been made, where appropriate, as per section 29 of the Drainage Act for right of way (buffer strips) and as per section 30 of the Drainage Act for damages to lands and crops. Allowances for right of way are based on a land value of \$20,000.00 per hectare (\$8,000.00 per acre). Allowances for crop loss are based on \$1,500.00 per hectare for the first year and \$750.00 for the second year (\$2,250.00 per hectare total).

Allowances have been made under section 30 for damages to lands and crops occasioned by the operation of excavation equipment to replace the culverts.

## Access and Working Area

The working area at each culvert shall extend 10 metres from the bank on the south side of the channel and for 10 metres along the channel on either side of the culvert.

Access for installation of the access culverts and also for any future maintenance and repair shall be from Petrolia Line through each property. The access shall follow existing lanes, follow the property limits or as approved by the Owner. The width of the access shall be restricted to 6 metres.

Access for future maintenance and repair of the channel shall generally be from Petrolia Line. The working area shall extend from the top of the south bank of the channel south for a distance of 15 metres for the length of the drainage works.

## **Drain Classification**

The McEachren Drain is not classified according to the Ontario Ministry of Agriculture, Food and Rural Affair's Agricultural Information Atlas.

Class "F" drains are intermittent or ephemeral (dry for more than two consecutive months). Authorization is not required if work is done in the dry.

Type "C" drains have permanent water flow, possess warm water flow, and have a fish community composed of baitfish. Authorized activities in a type C drain include brushing of side slopes, bottom cleanout, debris cleanout, and full cleanout. Specific terms and conditions of a class authorization include vegetation removal allowed on either bank but must be replanted, bends in the channel must be stabilized, specific timing restrictions, sediment control, and work in water only when flows are not elevated.

The proposed culvert construction will have very little effect on the drainage works if carried out during low flows in the channel. The work area is to be maintained in a dry condition during construction by the Contractor.

# **Restrictions**

No trees and shrubs shall be planted nor shall permanent structures be erected within 10 metres of either side of the proposed drain without prior written permission of Council. If trees are planted that interfere with access for future maintenance of the drainage works, they shall be removed at the expense of the Owner.

Attention is also drawn to sections 80 and 82 of the Drainage Act that refer to the obstruction of a drainage works.

# Agricultural Grant

It is recommended that application for subsidy be made for eligible agricultural properties. Any assessments against non agricultural properties are shown separately in the Schedule of Assessment.

# Maintenance

The channel portion of the McEachren Drain shall be maintained and repaired in accordance with the enclosed Schedule of Maintenance.

The access culverts consisting of round pipes located along the length of the drainage works shall be maintained and repaired with 50% of the costs assessed to the benefitting property and the remainder of the costs shall be assessed to upstream properties pro rata with the equivalent hectares contained in the Schedule of Maintenance. The access culverts consisting of pipe arch pipes located along the length of the drainage works shall be maintained and repaired with 40% of the costs assessed to the benefitting property and

the remainder of the costs shall be assessed to upstream properties pro rata with the equivalent hectares contained in the Schedule of Maintenance.

If an owner requests an additional length of culvert beyond that specified in this report, the extra cost shall be borne by the owner making the request including the future maintenance and repair. Each property is allowed one access culvert for each municipal drain with any second culvert on the property maintained and repaired 100% by the owner.

These above conditions will apply unless otherwise altered under the provisions of the Drainage Act.

All of the above is submitted for your consideration.

Yours truly,

Ray Jobbas

Ray Dobbin, P. Eng.



3.4.

McEachren Drain Municipality of Brooke Alvinston April 20, 2022

# ALLOWANCES

Allowances have been made as per section 30 of the Drainage Act for damages to lands and crops.

Conc.	Lot	Roll No.	Owner	Section 30	Total
ù	or pt. Lot				
11	E1/2 L2	40-040	G. & H. Straatman	864.00	864.00
	E1/2 L4	40-045	Griffith Seeds Inc.	823.00	823.00
	E1/2 L7	40-052	W. Milliken	933.00	933.00
	W1/2 L8	40-053	E. Lucas & W. Milliken	731.00	731.00
	E1/2 L8	40-055	D. & P. Milliken	868.00	868.00
			Total Allowances		\$4,219.00

# **Estimate of Cost**

Incorporate the access culvert 1n the E1/2 Lot 2, remove the access in Lot 4 and replace the access culverts in the E1/2 L7, W1/2 18 and the E1/2 L8 on the McEachren Drain.

Allowances:					4,219.00
	Quantity	Unit	Material	Labour	
Culvert No. 4 (E1/2 L2)					
		t C		0.005.00	
R. & D. of Existing Structure	10	LS	10 100 00	2,235.00	
S. & I. 3650 x 2280 mm. CSP Arch	10	m	13,120.00	1,600.00	
S. & I. bedding material	24	tonne	600.00	0.00	
S. & I. Granular "B"/Backfill	169	tonne	3,068.00	800.00	
S. & I. Granular "A"	22	tonne		0.00	
S. & I. block endwalls	40	tonne	3,000.00	1,600.00	
			19,788.00	6,235.00	26,023.00
Cukvert No. 7 (W1/2 L4)					
R. & D. of Existing Structure		LS		2,235.00	
			0.00	2,235.00	2,235.00
Culvert No. 11 (E1/2 L7)					
R. & D. of Existing Structure		LS		1,200.00	
S. & I. 1800 mm. dia. CSP	10	m	9,680.00	1,600.00	
S. & I. bedding material	22	tonne	682.00	0.00	
S. & I. Granular "B"/Backfill	88	tonne	1,672.00	800.00	
S. & I. Granular "A"	20	tonne	500.00	0.00	
S. & I. block endwalls	32	tonne	3,200.00	1,600.00	
			15,734.00	5,200.00	20,934.00

1 of 2

Estimate of Cost (cont'd)

×.	Quantity	Unit	Material	Labour	
Culvert No. 12 (W1/2 L8)					
R. & D. of Existing Structure		LS		2.235.00	
S. & I. 1800 mm. dia. CSP	10	m	9.680.00	1.600.00	
S. & I. bedding material	22	tonne	682.00	0.00	
S. & I. Granular "B"/Backfill	88	tonne	1,672.00	800.00	
S. & I. Granular "A"	20	tonne	500.00	0.00	
S. & I. block endwalls	32	tonne	3,200.00	1,600.00	
			15,734.00	6,235.00	21,969.00
Culvert No. 12 (E1/2 L8)					
R. & D. of Existing Structure		LS		1,200.00	
S. & I. 1600 mm. dia. CSP	10	m	8,690.00	1,600.00	
S. & I. bedding material	20	tonne	620.00	200.00	
S. & I. Granular "B"/Backfill	88	tonne	1,672.00	800.00	
S. & I. Granular "A"	20	tonne	500.00	200.00	
S. & I. block endwalls	32	tonne	3,200.00	1,600.00	
			14,682.00	5,600.00	20,282.00
Silt Fence	3	each	270.00		810.00
Miscellaneous					4,592.00
			Sub Total		101.064.00
			Engineering		22,861.00
			Revise Schedu	le	1,500.00
			Inspection		3,420.00
			SCRCA Fee	-	400.00
			Total Estimate		\$129,245.00

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# McEachren Drain Municipality of Brooke Alvinston April 20, 2022

# SCHEDULE OF ASSESSMENT

Incorporate the access culvert 1n the E1/2 Lot 2, remove the access in Lot 4 and replace the access culverts in the E1/2 L7, W1/2 L8 and the E1/2 L8 on the McEachren Drain.

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Agricu	lltural Land						
11	E1/2W1/2L1	14.84	40-036	J. Sawyer		18.00	18.00
	E1/2 L1	18.22	40-037	Sleepy Hollow Farms Ltd.		23.00	23.00
	W1/2 L2	31.22	40-038	Sleepy Hollow Farms Ltd.		39.00	39.00
	E1/2 L2	28.34	40-040	G. & H. Straatman	14,587.00	1,185.00	15,772.00
	W1/4 L3	14.17	40-041	Griffith Seeds Inc.		593.00	593.00
	E3/4 L3	40.48	40-042	J. & C. Griffith		1,693.00	1,693.00
	SW1/4 L4	7.31	40-04201	Art Griffith Farms Inc.		306.00	306.00
	NW1/4 L4	20.24(7.73)	40-044	K. & A. Campbell		685.00	685.00
	E1/2 L4	26.32(1.74)	40-045	Griffith Seeds Inc.	2,188.00	1,213.00	3,401.00
	W1/2 L5	26.32(4.26)	40-046	K. & A. Campbell		1,153.00	1,153.00
	E1/2 L5 & SW1/4 L6	32.39(2.95)	40-047	R. & S. Peaslee		1,474.00	1,474.00
	N1/2 L6	40.48(5.54)	40-049	T. Campbell		1,798.00	1,798.00
	SE1/4 L6	10.12	40-050	D. & P. Milliken		482.00	482.00
	W1/2 L7	26.32	40-051	W. Milliken		1,255.00	1,255.00
	E1/2 L7	26.32	40-052	W. Milliken	14,587.00	3,098.00	17,685.00
	W1/2 L8	26.32(1.61)	40-053	E. Lucas & W. Milliken	14,587.00	5,286.00	19,873.00

#### Schedule of Assessment (cont'd) 2 of 4Conc. Lot or Affected Roll Owner Benefit Total Outlet Part Hect. No. Agricultural Land (cont'd) E1/2 L8 11 26.32 40-055 D. & P. Milliken 14,587.00 7,666.00 22,253.00 S1/2 L9 6.07 40-057 J. & V. Lucas 1,768.00 1,768.00 S1/2N1/2 L9 20.24(1.54)40-056 Art Griffith Farms Inc. 5,671.00 5,671.00 N1/4 L9 20.24 40-058 C. Holbrook 1,200.00 1,200.00 W1/2 L10 20.24 40-059 L. Podolinsky 5,895.00 5,895.00 E1/2 L10 20.24(4.45) 40-060 1432234 Ontario Ltd. 5,249.00 5,249.00 R. & S. Edgar pt.W1/2 L11 S.of Railway 15.73(2.57) 40-061 4,209.00 4,209.00 pt.W1/2 L11 N.of Railway 17.23 40-062 H. & E. Boere 5,018.00 5,018.00 & E1/2 L11 N1/2 L12 16.19 40-065 L. Minten 677.00 677.00 W3/4 L2 3.77 12 40-075 B. McKav 10.00 10.00 E1/4 L2 3.24(3.24) 40-076 M. & I. Shamblaw 10.00 10.00 S1/2 L3 27.53 40-077 **TJ Straatman Enterprises** 34.00 34.00 W1/2 L4 20.24 40-08001 L. & M. Shamblaw 25.00 25.00 W1/2E1/2 L4 10.12(4.94) 40-080 T. Straatman 10.00 10.00 E1/4 L4 & W1/2 L5 30.36(3.79) 40-081 W. & L. McPhail 35.00 35.00 E1/2 L5 20.24(7.15) 40-082 H. & G. Straatman 21.00 21.00 S1/4 L6 40-085 20.24(2.16) **B.** Bygrove 23.00 23.00 N1/2S1/2 L6 14.17 40-084 G. Edwards 18.00 18.00 E. & M. Thorne W1/2 L7 40.48 40-086 50.00 50.00 E1/2 L7 & E1/4 L8 60.72 40-087 E. & M. Thorne 75.00 75.00 E3/4 L8 60.70(3.34) 40-088 A. & L. Copley 73.00 73.00 W1/2 L9 40.48(1.05) 40-08901 A. & L. Copley 50.00 50.00

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# Schedule of Assessment (cont'd)

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Agricu	lltural Land (cont'd)						
12	W1/2E1/2 L9	20.24	40-089	J. & L. McPhail		25.00	25.00
	E1/4 L9	20.24	40-08801	J. & L. McPhail		25.00	25.00
	W1/2 L10	40.48(5.47)	40-090	R. Holbrook		47.00	47.00
	E1/2 L10	40.48	40-091	Buurma Farms Inc.		50.00	50.00
	W1/2 L11	40.48	40-092	A. & J. Straatman		50.00	50.00
	E1/2 L11	40.48	40-093	K. & J. Van Den Ouweland		50.00	50.00
	L12	80.96	40-094	Ron Van Damme Ltd.		3,036.00	3,036.00
	W1/2 L13	28.34	40-095	Minten Family Farms Ltd.		3,559.00	3,559.00
				Total Benefit	60,536.00	64,930.00	125,466.00
				Total Outlet	64,930.00		
				Total - Agricultural	125,466.00		
Non A	gricultural Land						
11	SWpt.E1/2 L1	2.09	40-03701	K. & P. Weese		87.00	87.00
	pt.W1/2 L7	0.86	40-05101	R. & M. Tamminga		53.00	53.00
				Total Banafit		140.00	140.00
				Total Outlet	140.00	140.00	140.00
				Total - Non Agricultural	140.00		

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Schedule of A	ssessment (cont'd	)					4 of 4
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total
Public Lands:	Roads						
Inwood Road Sutorville Ro	ad	2.91 4.07		Municipality of Brooke Alvinston Municipality of Brooke Alvinston		354.00 567.00	354.00 567.00
Little Ireland Ebenezer Roa	Road d	4.05 3.10		Municipality of Brooke Alvinston Municipality of Brooke Alvinston		1,331.00	1,331.00
LaSalle Line	-	2.10		Municipality of Brooke Alvinston_		10.00	10.00
			Total Benefit Total Outlet	-	3,639.00	3,639.00	3,639.00
				Total - Public Lands: Roads Total - Non Agricultural Total - Agricultural	3,639.00 140.00 125,466.00		
				Total Assessment	\$129,245.00		

# McEachren Drain Municipality of Brooke Alvinston April 20, 2022

# SCHEDULE OF MAINTENANCE

To maintain and repair the McEachren Drain .

Conc	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total	equiv. ha.
Agricu	Itural Land							
11	E1/2W1/2L1	14.84	40-036	J. Sawyer	150.00	4.00	154.00	3.65
	E1/2 L1	18.22	40-037	Sleepy Hollow Farms Ltd.	238.00	14.00	252.00	13.67
	W1/2 L2	31.22	40-038	Sleepy Hollow Farms Ltd.	300.00	29.00	329.00	28.79
	E1/2 L2	28.34	40-040	G. & H. Straatman	300.00	34.00	334.00	34.33
	W1/4 L3	14.17	40-041	Griffith Seeds Inc.	150.00	21.00	171.00	20.72
	E3/4 L3	40.48	40-042	J. & C. Griffith	450.00	67.00	517.00	66.91
	SW1/4 L4	7.31	40-04201	Art Griffith Farms Inc.	150.00	16.00	166.00	15.87
	NW1/4 L4	20.24(7.73)	40-044	K. & A. Campbell	150.00	34.00	184.00	33.56
	E1/2 L4	26.32(1.74)	40-045	Griffith Seeds Inc.	300.00	54.00	354.00	53.86
	W1/2 L5	26.32(4.26)	40-046	K. & A. Campbell	300.00	59.00	359.00	59.08
	E1/2 L5 & SW1/4 L6	32.39(2.95)	40-047	R. & S. Peaslee	450.00	86.00	536.00	86.01
	N1/2 L6	40.48(5.54)	40-049	T. Campbell	300.00	118.00	418.00	118.41
	SE1/4 L6	10.12	40-050	D. & P. Milliken	150.00	36.00	186.00	35.67
	W1/2 L7	26.32	40-051	W. Milliken	300.00	110.00	410.00	109.80
	E1/2 L7	26.32	40-052	W. Milliken	300.00	121.00	421.00	120.98
	W1/2 L8	26.32(1.61)	40-053	E. Lucas & W. Milliken	300.00	133.00	433.00	132.92

Schedu	le of Assessment (cont'd)							2 of 4
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total	equiv. ha.
Agricu	ltural Land (cont'd)							
11	E1/2 L <b>8</b>	26.32	40-055	D. & P. Milliken	300.00	145.00	445.00	145.43
	S1/2 L9	6.07	40-057	J. & V. Lucas	150.00	37.00	187.00	36.64
	S1/2N1/2 L9	20.24(1.54)	40-056	Art Griffith Farms Inc.	300.00	118.00	418.00	117.53
	N1/4 L9	20.24	40-058	C. Holbrook		35.00	35.00	35.04
	W1/2 L10	20.24	40-059	L. Podolinsky		133.00	133.00	132.77
	E1/2 L10	20.24(4.45)	40-060	1432234 Ontario Ltd.		118.00	118.00	118.21
	pt.W1/2 L11 S.of Railway	15.73(2.57)	40-061	R. & S. Edgar		95.00	95.00	94.79
	pt.W1/2 L11 N.of Railway & E1/2 L11	17.23	40-062	H. & E. Boere		113.00	113.00	113.02
	N1/2 L12	16.19	40-065	L. Minten		106.00	106.00	106.20
12	W3/4 L2	3.77	40-075	B. McKay		3.00	3.00	3.48
	E1/4 L2	3.24(3.24)	40-076	M. & I. Shamblaw		2.00	2.00	1.49
	S1/2 L3	27.53	40-077	TJ Straatman Enterprises		25.00	25.00	25.39
	W1/2 L4	20.24	40-08001	L. & M. Shamblaw		19.00	19.00	18.66
	W1/2E1/2 L4	10.12(4.94)	40-080	T. Straatman		7.00	7.00	7.05
	E1/4 L4 & W1/2 L5	30.36(3.79)	40-081	W. & L. McPhail		26.00	26.00	26.25
	E1/2 L5	20.24(7.15)	40-082	H. & G. Straatman		15.00	15.00	15.37
	S1/4 L6	20.24(2.16)	40-085	B. Bygrove		18.00	18.00	17.67
	N1/2S1/2 L6	14.17	40-084	G. Edwards		13.00	13.00	13.07
	W1/2 L7	40.48	40-086	E. & M. Thorne		37.00	37.00	37.33
	E1/2 L7 & E1/4 L8	60.72	40-087	E. & M. Thorne		56.00	56.00	55.99
	E3/4 L8	60.70(3.34)	40-088	A. & L. Copley		54.00	54.00	54.43
	W1/2 L9	40.48(1.05)	40-08901	A. & L. Copley		37.00	37.00	36.85

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# Schedule of Assessment (cont'd)

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total	equiv. ha.
Agricu	ltural Land (cont'd)							
12	W1/2E1/2 L9	20.24	40-089	J. & L. McPhail		19.00	19.00	18.66
	E1/4 L9	20.24	40-08801	J. & L. McPhail		19.00	19.00	18.66
	W1/2 L10	40.48(5.47)	40-090	R. Holbrook		248.00	248.00	247.63
	E1/2 L10	40.48	40-091	Buurma Farms Inc.		266.00	266.00	265.54
	W1/2 L11	40.48	40-092	A. & J. Straatman		266.00	266.00	265.54
	E1/2 L11	40.48	40-093	K. & J. Van Den Ouweland		266.00	266.00	265.54
	L12	80.96	40-094	Ron Van Damme Ltd.		531.00	531.00	531.08
	W1/2 L13	28.34	40-095	Minten Family Farms Ltd.	3	186.00	186.00	185.90
				Total Donafit	5 028 00	2 040 00	0 0 0 7 0 0	
				Total Outlet	3,038.00	3,949.00	8,987.00	
				Total Outlet	3,949.00			
				Total - Agricultural	8,987.00			
Non A	gricultural Land							
11	SWpt E1/2 L1	2.09	40-03701	K & P Weese	62.00	2.00	64 00	1.87
	of $W1/2 L7$	0.86	40-05101	R & M Tamminga	02.00	5.00	5.00	5.26
	Pt. 11 11 2 127	0.00	10 00101	itt to iti. Tuillingu		5.00		0.20
				Total Benefit	62.00	7.00	69.00	
				Total Outlet	7.00			
				Total - Non Agricultural	69.00			

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Schedule of	Assessment (cont'c	l)						4 of 4
Conc.	Lot or Part	Affected Hect.	Roll No.	Owner	Benefit	Outlet	Total	equiv. ha.
Public Lands	s: Roads							
Inwood Roa	d	2.91		Municipality of Brooke Alvinston	40.00	15.00	55.00	15.26
Sutorville Re	oad	4.07		Municipality of Brooke Alvinston	40.00	46.00	86.00	46.03
Little Ireland	l Road	4.05		Municipality of Brooke Alvinston	40.00	24.00	64.00	23.82
Ebenezer Ro	ad	3.10		Municipality of Brooke Alvinston		27.00	27.00	27.29
LaSalle Line	•	1.05		Municipality of Brooke Alvinston		28.00	28.00	27.55
			Total Benefit			140.00	260.00	4,092.52
			Total Outlet	-	140.00			
				Total - Public Lands: Roads	140.00			
				Total - Non Agricultural	69.00			
				Total - Agricultural	8,987.00			
				Total Assessment	\$9,196.00			

# Schedule of Assessment (cont'd)

McEachern Drain Municipality of Brooke Alvinston April 20, 2022

# **SPECIFICATION OF WORK**

# 1. Scope of Work

The work includes the incorporation of 1 access culvert in the E1/2 Lot 2, the removal of 1 concrete access bridge in Lot 4 and the replacement of 3 access culverts in the E1/2 L7, W1/2 L8 and the E1/2 L8 in Concession 11 in the Municipality of Brooke Alvinston.

# 2. General

Each tenderer must inspect the site prior to submitting their tender and satisfy themselves by personal examination as to the local conditions that may be encountered during this project. The Contractor shall make allowance in the tender for any difficulties which they may encounter. Quantities or any information supplied by the Engineer is not guaranteed and is for reference only.

All work and materials shall be to the satisfaction of the Drainage Superintendent who may vary these specifications as to minor details but in no way decrease the proposed capacity of the drain.

The Contractor shall be responsible for the notification of all utilities prior to the start of construction.

# 3. Plans and Specifications

These specifications shall apply and be part of the contract along with the General Specifications for Open Drains. This specification of work shall take precedence over all plans and general conditions pertaining to the contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the plans and described in these specifications. Any work not described in these specifications shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

Any reference to the owner contained in these contract documents shall refer to the Municipality of Brooke Alvinston or the Engineer authorized by the Township to act on its behalf.

# 4. Health and Safety

The Contractor at all times shall be responsible for health and safety on the worksite including ensuring that all employees wear suitable personal protective equipment including safety boots and hard hats.

The Contractor shall be responsible for traffic control as per the Ontario Traffic Manual Book 7 – Temporary Conditions (latest revision) when working on public road allowances. A copy of a traffic control plan shall be kept on site at all times. The Contractor shall maintain suitable barricades, warning lights, and temporary traffic notices, at his expense, in their proper position to protect the public both day and night. Flagmen are the responsibility of the Contractor when working on the road allowance and when entering or exiting a worksite onto a roadway.

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act to ensure that work sites are safe and that accidents are prevented. In the event of a serious or recurring problem, a notice of noncompliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for the issuance of a stop work order or even termination of the contract.

He shall also ensure that only competent workmen are employed onsite and that appropriate training and certification is supplied to all employees.

# 5. Workplace Safety and Insurance Board

The Contractor hereby certifies that all employees and officers working on the project are covered by benefits provided by the Contractor. The WSIB clearance certificate must be furnished prior to the execution of the Contract and updated every 60 days.

# 6. Removal of Existing Access Culverts

The existing access culverts shall be removed in its entirety from the open channel. The steel culverts or concrete bridges, excess material and the concrete rubble shall be disposed offsite at the expense of the Contractor. Suitable backfill may be stockpiled adjacent to the site for reuse during installation of the proposed culvert if directed by the Drainage Superintendent.

# 7. Installation of Access Culverts

This item shall apply to the proposed access culvert replacements along the length of the drainage works:

3

# CULVERTS REPLACED UNDER EMERGENCY DESIGNATION

Pipe No. 4 - E1/2 Lot 2 (roll no. 40-040) consists of 10 metres of 3650 mm x 2280 mm corrugated steel pipe arch with concrete block endwalls. It shall be incorporated as part of the drainage works under this report.

# CULVERTS TO BE REMOVED:

Pipe No. 7 - E1/2 Lot 4 (roll no. 40-045) consists of a concrete structure with a 4.88 metre width and a 4.45 metre span. The pipe is in poor condition as the north footing and abutment wall are sliding in. The pipe is to be removed from the drainage works as it is no longer required.

# CULVERTS TO BE REPLACED UNDER THIS REPORT

Pipe No. 11 - E1/2 Lot 7 (roll no. 40-052) consists of 10 metres of 1800 mm diameter corrugated steel pipe. The endwalls are in poor shape (falling off) with the endwalls falling off. The pipe is to be replaced under this report with 10 metres of 1800 mm diameter corrugated steel pipe with concrete block endwalls.

Pipe No. 12 - W1/2 Lot 8 (roll no. 40-053) consists of a concrete structure with a 4.89 metre width and a 1.8 metre span. The pipe is in poor condition.. The pipe is to be replaced under this report with 10 metres of 1800 mm diameter corrugated steel pipe with concrete block endwalls.

Pipe No. 13 - NE1/4 Lot 10 (roll no. 40-055) consists of 6 metres of 1800 mm diameter corrugated steel pipe and boiler shell with cast in place endwalls. The pipe is in fair condition. The pipe is to be replaced under this report with 10 metres of 1600 mm diameter corrugated steel pipe with concrete block endwalls.

# CULVERTS TO BE REPLACED IN THE FUTURE:

Pipe No. 1 - E1/2W1/2 Lot 1 (roll no. 40-036) consists of a concrete structure with a 4.88 metre width and a 4.45 metre span. It is in fair condition. The pipe is to be replaced in the future with 10 metres of 3890 mm x 2690 mm corrugated steel pipe arch.

Pipe No. 2 - E1/2 Lot 1 (roll no. 40-037) consists of a concrete structure with a 4.85 metre width and a 4.27 metre span. It is in fair condition. The pipe is to be replaced in the future with 10 metres of 3890 mm x 2690 mm corrugated steel pipe arch.

Pipe No. 3 - W1/2 Lot 2 (roll no. 40-038) consists of 6 metres of 3910 mm x 2616 mm corrugated steel pipe arch with cast in place concrete endwalls. The pipe is in fair condition. The pipe is to be replaced in the future with 10 metres of 3890 mm x 2690 mm corrugated steel pipe arch.

Pipe No. 5 - NE1/4 Lot 10 (roll no. 40-041) consists of 6 metres of 2743 mm x 2007 mm corrugated steel pipe arch with cast in place concrete endwalls. The pipe is in fair condition. The pipe is to be replaced in the future with 10 metres of 2800 mm x 1950 mm corrugated steel pipe arch.

Pipe No. 8 - W1/2 Lot 5 (roll no. 40-046) consists of a concrete structure with a 4.91 metre width and a 4.45 metre span. The pipe is in poor condition. It is abandoned as part of the drainage works and the maintenance and repair or removal shall be the responsibility of the Owner. If the pipe is to be replaced in the future, it shall be replaced with 10 metres of 2300 mm x 1700 mm diameter corrugated steel pipe arch with concrete block endwalls and shall become part of the drainage works and the cost shall be assessed as per the Maintenance Provisions.

Pipe No. 9 - E1/2 Lot 5 (roll no. 40-047) consists of 6 metres of 2644 mm x 1727 mm corrugated steel pipe arch with cast in place endwalls with cast in lace endwalls. The pipe is in fair condition. The pipe is to be replaced in the future with 10 metres of 2230 mm x 1700 mm corrugated steel pipe arch.

For access culverts less than or equal to 900 mm dia., the pipe shall be HDPE smooth wall pipe with manufactured couplings. All other pipe shall be aluminized corrugated steel pipe with a minimum wall thickness of 2.8mm in all cases. All corrugation profiles shall be of helical lockseam manufacture using 68 x 13mm corrugations for 1600mm dia. pipe and smaller and 125 x 25mm corrugations for 1800mm dia. pipe and larger. Pipe with 125 x 25mm corrugations shall be used if 68 x 13mm corrugations are not available. Future culvert replacements shall be to the same specifications.

The proposed access culverts shall be installed in the same general location as the existing access culverts. The culvert shall be installed with the invert 10% (minimum 150mm) below the proposed channel bottom elevation and to grade shown on the Profile.

If an owner requests a longer culvert than that specified above, please refer to the report. The culvert lengths are based on using concrete block walls. If rip rap ends are to be

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utilized in the future, the culverts may be lengthened to accommodate the sloped ends (1.5:1.0).

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The culvert may be moved upstream or downstream as necessary to avoid existing tile outlets. If they cannot be avoided the pipes shall be extended upstream or downstream of the proposed culvert and shall be done with non-perforated PE agricultural tubing with a manufactured coupling, elbow and rodent grate. Any tile outlets extended as a result of extra length requested by an owner shall be extended at the owner's expense. The culvert shall be installed with the invert set 10% below the design channel bottom (minimum 150mm) and to grade shown on the Profile.

The bottom of the excavation shall be excavated to the required depth with any over excavation backfilled with granular material or drainage stone. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with granular or drainage stone from the bottom of the excavation to the springline of the pipe. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300 mm so that the pipe is not displaced. The access culverts shall be backfilled from the springline to finished grade with granular material to within 100mm of finished grade. The top 100mm for access culverts and 200mm for road culverts shall be backfilled with compacted granular "A" material to finished grade which shall extend from endwall to endwall.

All backfill shall be free from deleterious material. All granular bedding material shall be mechanically compacted to 95% modified standard proctor density. All backfill material above the springline shall be mechanically compacted using appropriate compaction equipment. The Contractor shall supply any extra backfill material required above the springline.

End protection shall consist of concrete blocks with dimensions of approx. 600mm x 600mm x 1200mm, 600mm x 600mm x 2400mm or 300mm x 600mm x 1200mm as required. The top of the culvert shall govern block elevation. The correct block shall be set with the top of the block equal to the top of the culvert. The blocks shall be set at each end of the culvert so that each row of blocks will be offset approx. 100mm from the row below. The bottom row shall consist of one block placed parallel to the culvert. The blocks shall be imbedded a minimum of 300mm into each bank and shall extend into the drain bottom to match the pipe invert or below.

The blocks shall be placed over a layer of filter fabric (Terrafix 270R or approved equal). The culvert shall be backfilled in conjunction with the placement of the blocks. The gaps between the culvert and the blocks shall be filled with concrete cinder blocks/bricks and mortar to give the endwall a finished appearance.

If rip rap ends are to be used, the pipes shall be lengthened to accommodate the travel width plus minimum 1.5:1 sideslopes. The rip rap shall consist of 100 mm x 250 mm quarry stone or approved equal. The area to receive the rip rap shall be graded to a depth of 400mm below finished grade. Filter fabric (Terrafix 250R or approved equal) shall then be placed with any joints overlapped a minimum 600mm. The quarry stone shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

# 8. Road Culverts

This item shall apply to the proposed road culvert replacements along the length of the drainage works:

# CULVERTS TO BE REPLACED IN THE FUTURE:

Pipe No. 6 – Inwood Road consists of 18.28 metres of 3650 mm x 2280 mm corrugated steel pipe arch. It is in good condition. The pipe is to be replaced in the future with 18.28 metres of 3650 mm x 2280 mm corrugated steel pipe arch.

Pipe No. 10 - Sutorville Road consists of a concrete structure with a 15.24 metre width and a 3.05 metre span. It is in good condition. The pipe is to be replaced in the future with 15.24 metres of 3650 mm x 2280 mm corrugated steel pipe arch.

Pipe No. 14 – Little Ireland Road consists of 15.24 metres of 2200 mm dia. corrugated steel pipe. It is in good condition. The pipe is to be replaced in the future with 15.24 metres of 2200 mm dia. corrugated steel pipe.

Installation shall generally follow the specifications contained in item no. 9 above. Backfill shall be granular "B" to within 300 mm of finished grade compacted to 95% modified proctor density. The top 300 mm shall be backfilled with granular "A" compacted to 98% modified proctor density.

# 9. Silt Fence

The Contractor shall maintain a dry working area during construction. The Contractor shall install a silt fence downstream of the work area. The silt fence shall consist of filter fabric or manufactured silt fence supported with posts (OPSD 219.110). The silt fence shall remain in place until construction is complete. Any sediment that has collected upstream of the silt fence shall be removed prior to the removal of the silt fence.

# 10. Excavation of Open Channel (future maintenance)

The open channel shall be excavated and maintained to the depths and grades as per the profile and drawings as contained in this engineer's report. The channel shall be excavated to the proper depth using a laser or similar approved device with a labourer onsite to ensure correctness of grade and to confirm location of tile ends.

For future maintenance and repair, the excavated material shall be cast on private lands adjacent to the channel at least 1.5 metres clear of the bank. Generally, it is placed on the same side as per previous cleanouts. The individual owner may designate which side of the channel that he wants the excavated material levelled.

Excavated material shall not be placed in low runs or swales outletting surface water to the channel. The excavated material shall be levelled to a maximum depth of 100mm and left in a condition suitable for cultivation. All high spots above grade shall be removed. The sediment shall be removed leaving a rounded bottom with the intent not to undercut the existing sideslopes.

# **11. Brushing (future maintenance)**

All brush, trees, woody vegetation, etc. shall be removed from the sideslopes of the existing channel within 1.5 metres of the top of the bank. Other brush and trees may be removed from the side the equipment is operating to allow access for the equipment. Trees and brush in the channel bottom shall be removed in their entirety including stumps and disposed offsite. Trees and brush on the sideslopes shall be close cut. A stump killer pesticide manufactured for the purpose shall be applied to stumps according to manufacturer's specifications.

It is recommended that a mechanical grinder attached to an excavator be used for the removal of brush and trees. Any brush and trees too large to grind shall be close cut with the logs and brush disposed offsite by the Contractor. The Contractor shall be responsible for obtaining all necessary permits for any disposal sites.

Certain trees may be left in place at the direction of the Drainage Superintendent. Any trees to be salvaged by the individual Owners shall be removed by the Owners with all resulting brush and branches cleaned up prior to the start of construction. If the Contractor agrees to remove any trees and set them aside for an Owner, the Owner will be responsible for any cleanup as above.

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# **12. Environmental Considerations**

The Contractor shall take care to adhere to the following considerations.

- Operate machinery in a manner that minimizes disturbance to the banks of the watercourse.
- Erosion and sediment control measures must be installed prior to construction to prevent sediment from entering the water body.
- Material shall not be in areas regulated by the Conservation Authority or Ministry of Natural Resources.
- All granular and erosion control materials shall be stockpiled a minimum of 1.5 metres from the top of the bank or excavation. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank and all surface water runs and open inlets that enter the drain.
- When possible, all construction within the open channel shall be carried out during periods of low flow or in dry conditions.
- The Contractor shall conduct regular inspections and maintain erosion and sediment control measures and structures during the course of construction.
- The Contractor shall repair erosion and sediment control measures and structures if damage occurs.
- The Contractor shall remove non-biodegradable erosion and sediment control materials once site is stabilized.
- Remove all construction materials from site upon project completion.
#### 13. Benchmarks

The benchmarks are based on geodetic elevations. Elevations are available at the culvert locations shown on the profile drawings. Where these elevations are on existing structures to be replaced, they shall be moved prior to the removal of the culverts.

#### 14. Miscellaneous

Any subsurface drains encountered upstream of the culvert that conflict with the proposed culvert shall be extended to an outlet to the open channel to the approval of the Drainage Superintendent.

Any fences that must be removed to allow construction or maintenance shall be reinstalled by the Contractor using the existing materials.

It will be the owner's responsibility to mark all tile and tile mains prior to maintenance being carried out.

CONC 13 LOT 4 LOT 5 LOT 6 LOT 7 LOT 8 LOT 9 LOT 10 LOT 1 LOT 2 LOT 3 12TH CONCESSION ROAD DRAIN LASALLE LINE ROAD ROAD 00 ROAD IRELAND 40-091 URMA FARMS 1 40.48 Hg 40-090 R. HOLBROOK 40.48 Ho (5.47 Ho) NWOOD 12 COUNTY CONC LITTLE SHIRLEY DRAIN LUCAS DRAIN 40-086 & M. THOR 40.48 Ho 40-085 G. EDWARDS 14.17 Ha PARKER HOLBROOK ROAD DRAIN 40-082 40-082 20.24 Hg (7.15 Hg) 40-081 & L. MCPH/ 30.36 Hq (3.79 Ha) 40-080 STRAATMAN 10.12 Hg (4.94 Hg) 40-08001 L & M. SHAMI 20.24 Ha 40-087 & M. THOR 60.72 Ho 40-088 & L COPLEY 60.70 Hg (3.34 Ha) 40-08901 & L. COPU 40.48 Ha (1.05 Ha) FORFST 40-085 B. BYCROVE 20.24 Ho (2.16 Ho) 40–077 TJ STRAATMAN ENTER 27.53 Ho | ⊬ ₹ 80-075 B. MCKAY WATSON DRAIN 40-058 C. HOLBROOK 20.24 Hg 40–049 T. CAMPBELL 40.48 Ha (5.54 Ha) 40-055 D. & P. MILLIKEN 26.32 На 40-045 GRIFFITH SEEDS Inc. 26.32 Ha (1.74 Ha) 40-048 K. & A. CAMPBELL 26.32 Ha (4.28 Ha) 40-047 R. & S. PEASLEE 32.39 Ha (2.95 Ha) 40-053 E. LUCAS & W. MILLIKEN 26.32 Ha (1.61 Ha) 40–052 W. MILLIKEN 28.32 Ha 40–051 W. MILLIKEN 26.32 Ha 40-040 6. & H. 517,047040 28,34 Ho 40-041 14,17 Ho 40-042 J. & C. GRIFFITH 40.48 Ho 40-044 K. & A. CAMPBELL 20.24 Ha (7.73 Ha) 40-060 234 ONTARI 20.24 Ho (4.45 Ho) 40–059 PODOLINSKY 20.24 Ha SLEEPY HOLLO FARMS Ltd. 11 40–056 ART GRIFFITH FARMS Inc. 20.24 Ha (1.54 Ha) RMS Ltd. 8.22 Ha CONC 1 (12) 8 10 1 (13) 5 9 (14) (4) (6) M ART GRIFFITH FARMS Inc. 7.31 Ho 341 DRAIN MCEACHREN 504 85 92 705 59 690 2 \$ 40-057 J. & V. LUCAS 6.07 Ho DURHAM CREEK 40-050 D. & P. MILLIKEN 26.32 Ha 40-05101 R. & M. TAMMINGA DRAIN 0.86 Ha 10-11 CONCESSION DRAIN PETROLIA LINE COUNTY ROAD 4 ROAD ъ 40-03701-K. & P. WEESE 2.09 Ha ROAD 10 CONC SUTORVILLE COUNTY <u>LEGEND</u> ROAD DRAINAGE AREA McEACHREN DRAIN DOOWNI MUNICIPAL DRAIN EXISTING CULVERT X  $\odot$ CULVERT TO BE REPLACED CULVERT TO BE REMOVED 2 CULVERT NUMBER DATE REVISIONS BY APPROVED NO. **MUNICIPALITY of BROOKE-ALVINSTON** R. DOBBIN Dobbin 4218 Oil Heritage Road Petrolia Ontario, NON 1R0 Phone: (519) 882-0032 Fax: (519) 882-2233 CHECKED APRIL 20, 2022 CS SITE MEETING Engineering Inc. MCEACHREN DRAIN R. DOBBIN SCALE: 1:25,000 250 500 750m 0 DRAWN PLAN DRAWING NAME: PROJECT No. 2020-1220 C. SAUNDERS McEachren Drain Plan



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# ENCLOSURE

# McEachren Drain Municipality of Brooke Alvinston April 20, 2022

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# ESTIMATED NET ASSESSMENT

Conc.	Lot or	Roll	Owner	Total	Less	Less	Est. Net
	Part	No.			Grant	Allow.	Assess.
Agricu	ltural Land						
11	E1/2W1/2L1	40-036	J. Sawyer	18.00	6.00		12.00
	E1/2 L1	40-037	Sleepy Hollow Farms Ltd.	23.00	7.67		15.33
	W1/2 L2	40-038	Sleepy Hollow Farms Ltd.	39.00	13.00		26.00
	E1/2 L2	40-040	G. & H. Straatman	15,772.00	5,257.33	868.00	9,646.67
	W1/4 L3	40-041	Griffith Seeds Inc.	593.00	197.67		395.33
	E3/4 L3	40-042	J. & C. Griffith	1,693.00	564.33		1,128.67
	SW1/4 L4	40-04201	Art Griffith Farms Inc.	306.00	102.00		204.00
	NW1/4 L4	40-044	K. & A. Campbell	685.00	228.33		456.67
	E1/2 L4	40-045	Griffith Seeds Inc.	3,401.00	1,133.67		2,267.33
	W1/2 L5	40-046	K. & A. Campbell	1,153.00	384.33		768.67
	E1/2 L5 & SW1/4 L6	40-047	R. & S. Peaslee	1,474.00	491.33		982.67
	N1/2 L6	40-049	T. Campbell	1,798.00	599.33		1,198.67
	SE1/4 L6	40-050	D. & P. Milliken	482.00	160.67		321.33
	W1/2 L7	40-051	W. Milliken	1,255.00	418.33		836.67
	E1/2 L7	40-052	W. Milliken	17,685.00	5,895.00		11,790.00
	W1/2 L8	40-053	E. Lucas & W. Milliken	19,873.00	6,624.33		13,248.67
	E1/2 L8	40-055	D. & P. Milliken	22,253.00	7,417.67		14,835.33
	S1/2 L9	40-057	J. & V. Lucas	1,768.00	589.33		1,178.67

Estima	ted Net Assessment						2 of 3
Conc.	Lot or Part	Roll No.	Owner	Total	Less Grant	Less Allow.	Est. Net Assess.
Agricu	tural Land (cont'd)						
11	S1/2N1/2 L9	40-056	Art Griffith Farms Inc.	5,671.00	1,890.33		3,780.67
	N1/4 L9	40-058	C. Holbrook	1,200.00	400.00		800.00
	W1/2 L10	40-059	L. Podolinsky	5,895.00	1,965.00		3,930.00
	E1/2 L10	40-060	1432234 Ontario Ltd.	5,249.00	1,749.67		3,499.33
	pt.W1/2 L11 S.of Railway	40-061	R. & S. Edgar	4,209.00	1,403.00		2,806.00
	pt.W1/2 L11 N.of Railway	40-062	H. & E. Boere	5,018.00	1,672.67		3,345.33
	& E1/2 L11			0.00	0.00		0.00
	N1/2 L12	40-065	L. Minten	677.00	225.67		451.33
12	W3/4 L2	40-075	B. McKay	10.00	3.33		6.67
	E1/4 L2	40-076	M. & I. Shamblaw	10.00	3.33		6.67
	S1/2 L3	40-077	TJ Straatman Enterprises	34.00	11.33		22.67
	W1/2 L4	40-08001	L. & M. Shamblaw	25.00	8.33		16.67
	W1/2E1/2 L4	40-080	T. Straatman	10.00	3.33		6.67
	E1/4 L4 & W1/2 L5	40-081	W. & L. McPhail	35.00	11.67		23.33
	E1/2 L5	40-082	H. & G. Straatman	21.00	7.00		14.00
	S1/4 L6	40-085	B. Bygrove	23.00	7.67		15.33
	N1/2S1/2 L6	40-084	G. Edwards	18.00	6.00		12.00
	W1/2 L7	40-086	E. & M. Thorne	50.00	16.67		33.33
	E1/2 L7 & E1/4 L8	40-087	E. & M. Thorne	75.00	25.00		50.00
	E3/4 L8	40-088	A. & L. Copley	73.00	24.33		48.67
	W1/2 L9	40-08901	A. & L. Copley	50.00	16.67		33.33
	W1/2E1/2 L9	40-089	J. & L. McPhail	25.00	8.33		16.67
	E1/4 L9	40-08801	J. & L. McPhail	25.00	8.33		16.67

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# Estimated Net Assessment

Conc.	Lot or Part	Roll No.	Owner	Total Less Grant		Less Allow.	Est. Net Assess.
Agricu	ltural Land (cont'd)						
12	W1/2 L10	40-090	R. Holbrook	47.00	15.67		31.33
	E1/2 L10	40-091	Buurma Farms Inc.	50.00	16.67		33.33
	W1/2 L11	40-092	A. & J. Straatman	50.00	16.67		33.33
	E1/2 L11	40-093	K. & J. Van Den Ouweland	50.00	16.67		33.33
	L12	40-094	Ron Van Damme Ltd.	3,036.00	1,012.00		2,024.00
	W1/2 L13	40-095	Minten Family Farms Ltd.	3,559.00	1,186.33		2,372.67
Non Ag	gricultural Land						
11	SWpt.E1/2 L1	40-03701	K. & P. Weese	87.00			87.00
	pt.W1/2 L7	40-05101	R. & M. Tamminga	53.00			53.00
Public	Lands: Roads						
Inwood	l Road		Municipality of Brooke Alvinston	354.00			354.00
Sutorvi	ille Road		Municipality of Brooke Alvinston	567.00			567.00
Little I	reland Road		Municipality of Brooke Alvinston	1,331.00			1,331.00
Ebenez	zer Road		Municipality of Brooke Alvinston	1,377.00			1,377.00
LaSalle	e Line		Municipality of Brooke Alvinston	10.00			10.00
			Total	\$129,245.00	\$41,822.00	\$868.00	\$86,555.00

# THE CORPORATION OF THE MUNICIPALITY OF BROOKE-ALVINSTON

# **BY-LAW NUMBER xx of 2022**

# BEING A BY-LAW TO PROVIDE FOR A DRAINAGE WORKS IN THE MUNICIPALITY OF BROOKE-ALVINSTON IN THE COUNTY OF LAMBTON

WHEREAS the requisite number of owners have petitioned the Council of the Municipality of Brooke-Alvinston in the County of Lambton in accordance with the provisions of the *Drainage Act*, requesting that the following lands and roads be drained by a drainage works known as the "McEachren Drain" in the Municipality of Brooke-Alvinston;

AND WHEREAS, the Council of the Municipality of Brooke-Alvinston in the County of Lambton has procured a report made by R. Dobbin Engineering Inc. and a copy of the report dated April 20, 2022 is attached hereto and forms part of this by-law;

AND WHEREAS the estimated cost of constructing the drainage works is \$129,245.00;

AND WHEREAS \$3,639.00 is the amount to be contributed by the Municipality for construction of the drainage works;

AND WHEREAS \$129,245.00 is being assessed in the Municipality of Brooke-Alvinston in the County of Lambton

AND WHEREAS the Council is of the opinion that the drainage of the area is desirable;

THEREFORE, the Council of the Municipality of Brooke-Alvinston under the *Drainage Act* enacts as follows:

- 1. The report dated April 20, 2022 and attached hereto is hereby adopted and the drainage works as therein indicated and set forth is hereby authorized, and shall be completed in accordance therewith.
- 2. (1) The Corporation of the Municipality of Brooke-Alvinston may borrow on the credit of the Corporation the amount of \$129,245.00, being the amount necessary for construction of the drainage works.

(2) The Corporation may issue debentures for the amount borrowed less the total amount of,

- (a) grants received under section 85 of the Act;
- (b) commuted payments made in respect of lands and roads assessed within the municipality;
- (c) money paid under subsection 61(3) of the Act; and

(d) money assessed in and payable by another municipality, and such debenture shall be made payable within five years from the date of the debenture and shall bear interest at a rate not higher than the rate charged by the Ontario Government for tile loans on the date of sale of such debentures.

- 3. A special equal annual rate sufficient to redeem the principal and interest on the debentures shall be levied upon the lands and roads as set forth in the report to be collected in the same manner and at the same time as other taxes are collected in each year for five years after the passing of this bylaw.
- 4. For paying the amount of \$129,245.00 being the amount assessed upon the lands and roads belonging to or controlled by the Municipality, a special rate sufficient to pay the amount assessed plus interest thereon shall be levied upon the whole rateable property in the Municipality of Brooke-Alvinston in each year for one year after the passing of this by-law to be

collected in the same manner and at the same time as other taxes are collected.

- 5. All assessments of \$1,000.00 or less are payable in the first year in which the assessment is imposed.
- 6. This by-law comes into force on the passing thereof and may be cited as "McEachren Drain By-law".

FIRST READING		, 2022
SECOND READING		, 2022
Provisionally adopted this	day of	, 2022.
		David Ferguson, Mayor
		Janet Denkers, Clerk-Administrator
THIRD READING		, 2022.
Enacted this day of		, 2022.
		David Ferguson, Mayor

Janet Denkers, Clerk-Administrator



4218 Oil Heritage Road Petrolia, Ontario, NON 1R0 Phone: (519) 882-0032 Fax: (519) 882-2233 www.dobbineng.com

April 29, 2022

The Mayor and Council Township of Brooke-Alvinston P. O. Box 28 3236 River Street Alvinston, Ontario N0N 1A0

#### **Re: Smith Drain**

In accordance with your instructions, I have undertaken an examination of the Smith Drain with regards to making drainage improvements in Lots 13, 14, & 15, Concession 6 in the Municipality of Brooke-Alvinston. The work will include the incorporation of a farm culvert in the E1/2 Lot 14, Concession 6 that was replaced under an emergency designation. The course of the work has been surveyed with elevations taken as necessary.

#### Authorization under the Drainage Act

This Engineers Report that has been prepared under Section 78 of the Drainage Act as per the request of an affected owner.

Under section 78 of the Drainage Act, Council may undertake and complete the maintenance or repair of any drainage works constructed under a bylaw passed under this Act or its predecessor. Section 78 is to be used where it is considered expedient to change the course of the drainage works, or to make a new outlet for the whole or any part of the drainage works, or to construct a tile drain under the bed of the whole or any part of the drainage works as ancillary thereto, or to construct, reconstruct or extend embankments, walls, dykes, dams, reservoirs, bridges, pumping stations, or other protective works as ancillary to the drainage works, or to otherwise improve, extend to an outlet or alter the drainage works or to cover the whole or any part of it, or to consolidate two or more drainage works.

The access culvert located in E1/2 Lot 14 Concession 6 was replaced under Section 124 of the Drainage Act. Under Section 124, the Minister declares that an emergency exists and the Council of the local municipality authorizes the work to be completed before obtaining and adopting an engineer's report.

# Existing Drainage

The Smith Drain consists of 2 branches. The south branch of the Smith Drain consists of both open channel and closed drain. The open channel portion of the South Branch outlets to the 12/13 Sideroad Drain on the east side of Ebenezer Road approx. 350 meters north of the concession 5/6 line and extends east to the lot 14/15 line, a distance of approx. 1,213 metres providing outlet for the closed portion at this location. The closed portion of the South Branch continues east for a distance of approx. 279 meters into lot 15. The closed portion consists of approx. 92 meters of 350 mm dia. concrete tile and 187 meters of 300 mm dia. concrete tile.

The North Branch of the Smith Drain outlets to the South Branch at the lot 13/14 line and extends north for approximately 541 meters and then east for approximately 378 meters to the lot 14/15 line, a total distance of approx. 919 meters.

The Schedule of Maintenance was last revised under Section 76 of the Drainage Act on September 19, 2013. This report set out open and closed drain maintenance assessments and referred specifications back to previous reports.

The drain was lasted maintained in 2021 with both brushing and bottom cleanout of the North and South Branches.

#### **Onsite Meeting**

An onsite meeting was held on March 29, 2022. At this meeting, it was explained to those in attendance that the culvert in the E1/2 Lot 14, Concession 6 was replaced under an emergency designation and that a new report is being prepared to incorporate the completed works. Discussion was had that the top section of the Smith Drain North Branch will be abandoned as it had been filled in by the owner. It was explained to those in attendance that all culverts on the drain will be sized for future replacement and that the maintenance schedules would be updated as required. No other work was requested at the meeting.

#### Discussion

On January 24, 2022 the owner of the E1/2 Lot 14, Concession 6 submitted a request for a culvert replacement. The Municipality of Brooke-Alvinston Council accepted the request and instructed the engineer to prepare an engineers report related to the culvert. As this culvert was the only access to the property and it was deemed unsafe for passage, a letter was sent to the Minister of Agricultural for approval to replace the culvert under Section 124 – Emergency Designation prior to the Drainage Act process. Minister approval was received on January 27, 2022 and the culvert was subsequently replaced

The culvert was relocated east to the Lot 14/15 line at the request of the owner of the E1/2 Lot 14 to provide better farming practice for moving equipment along the property line instead of down the center of the field. Consideration was given to the size of the culvert required if it was to remain in its current location and it would cost the landowner less money to relocate it east as the culvert would be smaller in size.

The driveway restoration on the crossing was left as the responsibility of the landowner.

The top end of North Branch (approximately 150 meters) has been filled in by the landowner and therefore no longer exists and shall be abandoned.

#### Recommendations

It is therefore recommended that the following work be carried out:

- 1. Culvert No. 3 that was replaced under an emergency designation in the E1/2 Lot 14, Concession 6 shall be incorporated as part of the drainage works. It was relocated east to the Lot 14/15 line as requested by the owner;
- 2. Culvert No. 4 shall be removed and abandoned as part of the Smith Drain North Branch; and
- 3. The top end of the North Branch (approximately 150 meters) shall be abandoned as a municipal drain.

#### Design

The farm culverts are sized to accommodate a 1 in 2-year storm in accordance with engineering principles.

The covered drain is designed with a capacity of 37 mm per 24 hours. This includes surface and subsurface waters.

#### Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying Specification of Work and the Profile that form part of this Report. There has been prepared an estimate of cost in the amount of \$31,390.00 including engineering of the report, attending the Meeting to Consider, and attending the Court of Revision. An estimate for tendering, contract administration and inspection has been included.

A Plan has been prepared showing the location of the work and the approximate drainage area.

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#### Assessment

As per the Drainage Act, section 21, the Engineer in his report shall assess for benefit and outlet liability.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works may be assessed for benefit. The Engineer may assess for special benefit any lands for which special benefits have been provided by the drainage works. (Section 22)

Lands and roads that use a drainage works as an outlet, or for which, when the drainage works is constructed or improved, an improved outlet is provided either directly or indirectly through any medium of any other drainage works or of a swale, ravine, creek or watercourse, may be assessed for outlet. The assessment for outlet shall be based upon volume and rate of flow of the water artificially caused to flow into the drainage works from the lands and roads liable for such assessments. (Section 23)

The Engineer may assess for special benefit any lands for which special benefits have been provided by the drainage works. (Section 24)

A Schedule of Assessment for the lands and roads affected by the work and therefore liable for the cost thereof will be prepared as per the Drainage Act. Also, assessments may be made against any public utility or road authority, as per Section 26 of the Drainage Act, for any increased cost for the removal or relocation of any of its facilities and plant that may be necessitated by the construction or maintenance of the drainage works. Items to be assessed under Section 26, as specified, shall be tendered separately with the actual cost plus a portion of the engineering (25% of the construction cost).

The estimated cost of the drainage works has been assessed in the following manner:

1. Culvert No. 3 in the E1/2 Lot 14, Concession 6 has been assessed with 60% of the estimated cost applied as a benefit assessment to the owner of the property for 15 meters of culvert and the remainder of the cost has been assessed as outlet assessment to upstream lands and roads based on equivalent hectares;

2. The remaining 9 meters of Culvert No. 3 including extending tile drains downstream, and restoring the drain banks in the previous location of Culvert No. 3 has been assessed as a special assessment to the E1/2 Lot 14, roll number 30-047; and

3. The catchbasin installed has generally been assessed with the cost of an enwall to the culvert works and the remainder has been applied as a special assessment to roll number 30-047.

#### Allowances

Under section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled thereto to damage, if any, to ornamental trees, fences, land, and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages.

Allowances have been made, where appropriate, as per section 30 of the Drainage Act for damages to lands and crops. Allowances for crop loss are based on \$2,000.00 per hectare for the first year and \$500.00 for the second year (\$2,500.00 per hectare total).

#### Access and Working Area

Access for construction of the culvert replacement shall be from Shiloh Line along existing lanes and property lines. The working area shall be restricted to 10 meters on each side of the culvert.

Access for future maintenance shall be along existing lanes, fence lines, or property lines on each individual property on which the work is to be completed. The working area for access to the site shall be restricted to a width of 6 metres along lanes, fence lines, property lines or other access corridors provided by the property owner. The working area along the drainage works shall extend 15 metres from the top of bank on the side that the equipment is operating on. The working area for culverts shall be 10 meters on either side of the culvert. The Drainage Superintendent shall designate the side that the contractor shall carry out the excavation operation.

#### Drain Classification and Authorizations

The Smith Drain is currently not-rated for the entire length according to the Ontario Ministry of Agriculture, Food and Rural Affairs Mapping. It outlets to the 12/13 Sideroad Drain, which is a Class C Drain.

A permit for these works is required by the St. Clair Conservations Authority.

#### Agricultural Grant

It is recommended that application for subsidy be made for eligible agricultural properties. Any assessments against non agricultural properties are shown separately in the Schedule of Assessment.

#### Restrictions

No trees and shrubs shall be planted nor shall permanent structures be erected within 10 metres of either side of the proposed drain without prior written permission of Council.

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All existing subsurface drainage shall be connected to the drain is subject to the provisions of section 83 of the Drainage Act under which pollution of drains is prohibited. Attention is also drawn to sections 80 and 82 of the Drainage Act, which refer to the removal of obstructions in a drain and damage caused to a drain.

#### Existing Private Drainage

All existing subsurface drainage encountered during excavation of the open channel shall be maintained in existing condition. Landowners shall be responsible to mark all subsurface drains from his property. Surface drains and swales shall be left open. The Contractor shall be responsible for damage to subsurface drains marked by the landowners.

It is recommended that 300 mm of freeboard be provided for tile drain outlets to the open channel.

#### Maintenance

The open channel for both the Smith Drain North Branch and Smith Drain South Branch shall be maintained as per the enclosed Schedule of Maintenance No.1 and No.2 and as per specifications contained in the last applicable report.

The closed portion of the Smith Drain South Branch shall be maintained as per the enclosed Schedule of Maintenance No.3 and as per specifications contained in the last applicable report.

The access culverts located along the length of the drain shall be maintained with 50% of the costs assessed to the benefiting landowners with the remainder of the costs assessed to upstream properties pro rata with the upstream equivalent hectares contained in the enclosed Schedule of Maintenance No. 1 and No. 2, unless otherwise altered under the provisions of the Drainage Act.

The catchbasins located on the lot 14/15 line shall be maintained and repaired in accordance with the specifications contained within this engineer's report and assessed out with 1/3 assessed to roll number 30-047 and 2/3 assessed to roll number 30-050.

If an owner requests an additional length of culvert beyond that specified in this report (10 meters for vertical endwalls and 15 meters for sloping endwalls), the extra cost shall be borne by the owner making the request including the future maintenance and repair. Each property is allowed one access culvert for each municipal drain with any second culvert on the property maintained and repaired 100% by the owner.

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These above conditions will apply unless otherwise altered under provisions of the Drainage Act:

All of the above is submitted for your consideration.

Yours truly,

Ray Dobbin, P.Eng.



#### ALLOWANCES

Allowances have been made as per Sections 30 of the Drainage Act for damages to lands and crops.

Conc.	Lot or part	Roll No.	Owner	Section 30	Total
6	E1/2 Lot 14	30-047	1432234 Ontario Limited	960.00	960.00
			TOTAL ALLOWANCES	\$960.00	\$960.00

#### **Estimate of Cost**

To replace an exisitng culvert in the E1/2 Lot 14 Concession 6.

Allowances

	Quantity	Unit	Unit Cost	Total
Culvert No.3				
Remove Exisitng Culvert	1	LS	1,000.00	1,000.00
S. & I. 600mm dia. HDPE Culvert	24	m	275.00	6,600.00
Bedding	70	Т	30.00	2,100.00
Place Native Backfill	1	LS	1,500.00	1,500.00
B Gravel Backfill (springline to 300mm above pipe)	120	Т	23.00	2,760.00
Rip Rap Endwall (Downstream End)	30	sq.m	70.00	2,100.00
Extend Tile connections	1	LS	1,450.00	1,450.00
S. & I. 900mm x 1200mm CB c/w connections & riprap	1	LS	5,500.00	5,500.00
Drain Bank Repairs at Old Culvert Location	Ĩ	LS	600.00	600.00
Environmental Considerations	1	LS	300.00	300.00

Sub Total	24,870.00
Engineering	4,290.00
Tendering, Inspection and Contract	1,200.00
SCRCA Fee	510.00
Total Estimate excluding HST	30,870.00
Non-Recoverable HST (1.76%)	520.00

#### Total Estimate \$31,390.00

960.00

# SCHEDULE OF ASSESSMENT - SMITH DRAIN

To replace an exisitng culvert in the E1/2 Lot 14 Concession 6.

Conc.	Lot or	Affected	Roll	Owner	Special Benefit	Benefit	Outlet	Total
	Part	Hect.	No.					
Agricu	ltural Lands				ů.			
6	E1/2 Lot 14	17.41	30-047	1432234 Ontario Ltd.	13,249.00	10,885.00		24,134.00
6	S1/2 Lot 15	36.84	30-050	B. & L. Van Damme Farms Ltd.	-	1.50	6,879.00	6,879.00
5	pt. W1/2 Lot 15	2.02	30-006	B. & L. Van Damme Farms Ltd.		1.51	377.00	377.00
					13,249.00	10,885.00	7,256.00	31,390.00
				Total Benefit	24,134.00			
				Total Outlet	7,256.00			
				Total Assessment	31,390.00			

# SCHEDULE OF MAINTENANCE No. 1 - SMITH DRAIN NORTH BRANCH

To maintain and repair the North Branch of the Smith Drain (open channel).

Conc.	Lot or Part	Affect. Hect.	Roll No.	Owner	Benefit	Outlet	Total	Equiv. Ha
Agricu	ltural Land							
6	E1/2 L13	4.05	30-045	B. & M. Opthoff	181.00	0.00	181.00	4.05
	W1/2 L14	16.19	30-046	1432234 Ontario Limited	985.00	0.00	985.00	16.19
	E1/2 L14 & W1/2NW1/4 L1	16.19 .5	30-047	1432234 Ontario Limited	1,067.00	616.00	1,683.00	16.19
	Ept.NW1/4 L15	8.10	30-048	1432234 Ontario Limited	77.00	387.00	464.00	8.10
	NE1/4 L15	16.19	30-049	R. Patterson	153.00	773.00	926.00	16.19
				Total Benefit Total Oulet	2,463.00 1,776.00	1,776.00	4,239.00	60.72
				Total Assessment	\$4,239.00			

# SCHEDULE OF MAINTENANCE No. 2 - SMITH DRAIN SOUTH BRANCH

To maintain and repair the open channel portion of the South Branch of the Smith Drain.

Conc.	Lot or Part	Affect. Hect.	Roll No.	Owner	Benefit	Outlet	Total	Eq. Ha.
Agricu	ltural Land							
6	W1/2 L13		30-044	D. & J. VanDamme	330.00	0.00	330.00	
	E1/2 L13	15.38	30-045	B. & M. Opthoff	660.00	74.00	734.00	15.38
	W1/2 L14	27.53	30-046	1432234 Ontario Limited	660.00	207.00	867.00	27.53
	E1/2 L14 & Npt.	33.60	30-047	1432234 Ontario Limited	660.00	372.00	1,032.00	33.60
	W1/2NW1/4 L1	5						
	E1/2NW1/4 L15	8.10	30-048	1432234 Ontario Limited	0.00	133.00	133.00	8.10
	NE1/4 L15	16.19	30-049	R. Patterson	0.00	266.00	266.00	16.19
	S1/2 L15	36.84	30-050	B. & L. VanDamme	0.00	605.00	605.00	36.84
5	Npt.W1/2 L15	2.02	30-006	B. & L. VanDamme	0.00	33.00	33.00	2.02
				Total Benfit	2,310.00	1,690.00	4,000.00	139.66
				Total Oulet	1,690.00			
				Total Assessment	\$4,000.00			

# SCHEDULE OF MAINTENANCE No. 3 - SMITH DRAIN SOUTH BRANCH

To maintain and repair the closed portion of the South Branch of the Smith Drain.

Conc.	Lot or	Affect.	Roll	Owner	Benefit	Outlet	Total
	Part	Hect.	No.				
	1. 1						
Agricu	Itural Land						
6	S1/2 L15	36.84	30-050	1432234 Ontario Limited	4,552.00	4,915.00	9,467.00
5	pt.W1/2 L15	2.02	30-006	B. & L. VanDamme	198.00	878.00	1,076.00
	pt.NE1/4 L15	cutoff	30-008	1432234 Ontario Limited	198.00	0.00	198.00
				Total Benfit	4,948.00	5,793.00	10,741.00
				Total Oulet	5,793.00		
				Total Asessment	\$10,741.00		

# **SPECIFICATION OF WORK**

#### 1. Scope of Work

The work to be included in this specification includes the incorporation of a farm culvert in the E1/2 Lot 14, Concession 6 that was replaced under an emergency designation on the Smith Drain located in the Municipality of Brooke-Alvinston.

#### 2. General

Each tenderer must inspect the site prior to submitting his tender and satisfy themselves by personal examination as to the local conditions that may be encountered during this project. They shall make allowance in his tender for any difficulties which they may encounter. Quantities or any information supplied by the Engineer is not guaranteed and is for reference only.

All work and materials shall be to the satisfaction of the Drainage Superintendent who may vary these specifications as to minor details but in no way decrease the proposed capacity of the drain.

The Contractor shall be responsible for the notification of all utilities and pipeline companies prior to the start of construction.

#### 3. Access and Working Area

Access for construction of the culvert replacement shall be from Shiloh Line along existing lanes and property lines. The working area shall be restricted to 10 meters on each side of the culvert.

Access for future maintenance shall be along existing lanes, fence lines, or property lines on each individual property on which the work is to be completed. The working area for access to the site shall be restricted to a width of 6 metres along lanes, fence lines, property lines or other access corridor provided by the property owner. The working area along the drainage works shall extend 15 metres from the top of bank on the side that the equipment is operating on. The working area for culverts shall be 10 meters on either side of the culvert. The Drainage Superintendent shall designate the side that the contractor shall carry out the excavation operation.

# 4. Plans and Specifications

These specifications shall apply and be part of the contract along with the General Specifications for Closed Drains and the General Specifications for Open Drains. This specification of work shall take precedence over all plans and general conditions pertaining to the contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the plans and described in these specifications. Any work not described in these specifications shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

Any reference to the landowner contained in these contract documents shall refer to the Municipality of Brooke-Alvinston or the engineer authorized by the Municipality to act on its behalf.

# 5. Health and Safety

The Contractor at all times shall be responsible for health and safety on the worksite including ensuring that all employees wear suitable personal protective equipment including safety boots and hard hats.

The Contractor shall be responsible for traffic control as per the Ontario Traffic Manual Book 7 – Temporary Conditions when working on public road allowances. A copy of a traffic control plan shall be kept on site at all times. The Contractor shall maintain suitable barricades, warning lights, and temporary traffic notices, at his expense, in their proper position to protect the public both day and night. Flagmen are the responsibility of the Contractor when working on the road allowance and when entering or exiting a worksite onto a roadway.

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act to ensure that work sites are safe and that accidents are prevented. In the event of a serious or recurring problem, a notice of non-compliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for the issuance of a stop work order or even termination of the contract.

The contractor shall also ensure that only competent workmen are employed onsite and that appropriate training and certification is supplied to all employees.

#### 6. Workplace Safety and Insurance Board

The Contractor hereby certifies that all employees and officers working on the project are covered by benefits provided by the Contractor. The WSIB clearance certificate must be furnished prior to signing of the Contract and updated every 60 days.

# 7. Notification of Utilities

The Contractor shall be responsible to notify any and all affected utilities and pipeline companies. This shall be done through Ontario One Call Locates. The contractor shall make available proof of locates if requested by the Municipality, Drainage Superintendent, or Engineer. The contractor shall carry out all work in the vicinity of any utility or pipeline at the direction of the Utility/Pipeline Supervisor.

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# 8. Culvert Removals

Existing Culvert No. 3 shall be removed from the channel. The drain banks shall be reshaped to match existing, seeded, and covered with a double straw erosion control matting.

Existing Culvert No. 4 shall be removed by the owner of the E1/2 Lot 14, Concession 6 and backfilled with clay material. The drain banks shall be restored with rip rap.

# 9. Installation of Access Culverts

This item shall apply to the culverts along the length of the drainage works:

# CULVERTS TO BE INCORPORATED UNDER THIS REPORT

Culvert No. 3 (E1/2 Lot 14, Concession 6 – roll no. 30-047) consists of 10 metres of 1000mm dia. CSP with no endwalls. The pipe was collapsed and required immediate replacement. The owner requested that the culvert be relocated east to the Lot 14/15 line. The culvert consists of 24 meters of 600mm diameter CSA approved HDPE pipe with sloping stone endwalls, drainage stone bedding, granular B backfill to 300mm above the pipe, and native backfill to the surface. This culvert was replaced under an emergency designation.

# CULVERTS TO BE REPLACED IN THE FUTURE

Culvert No. 1 (W1/2 Lot 13 Concession 6 - roll no. 30-044) consists of 10 metres of 1500mm dia. CSP with no endwalls. The pipe still has some life remaining. The pipe is to be replaced under in the future with 10 metres of 1600mm diameter aluminized CSP with concrete block endwalls and a rip rap chute to the 12/13 Sideroad Drain.

Culvert No. 2 (E1/2 Lot 13 Concession 6- roll no. 30-045) consists of 10 metres of 1600mm diameter CSP with concrete block endwalls. The pipe was replaced under maintenance in 2020. The pipe is to be replaced in the future with 10 metres of 1600mm diameter CSP with concrete block endwalls.

The contractor shall supply, install and backfill aluminized CSP 2.8mm thickness with 125mm x 25mm corrugations for Culvert No. 1 and No. 2. CSA approved HDPE pipe with manufactured couplers shall be used for Culvert No. 3.

Any existing tile outlets shall be extended downstream of the proposed culvert and shall be done with non-perforated HDPE agricultural tubing with a manufactured coupling, elbow and rodent grate.

The culvert shall set with the invert 10% below the design channel bottom (minimum 150mm) and to grade shown on the culvert detail.

The bottom of the excavation shall be excavated to the required depth with any over excavation backfilled with drainage stone. It is expected that 100mm of bedding is placed under the pipe. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with drainage stone from the bottom of the excavation to the springline of the pipe. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300mm so that the pipe is not displaced. The culvert shall be covered with filter fabric for the entire length of the pipe before the granular B is placed. The culvert shall be backfill to within 150 mm of finished grade. The top 150 mm shall be backfilled with compacted approved granular "A" material to finished grade. All backfill shall be free from deleterious material. All backfill material above the springline shall be mechanically compacted using appropriate compaction equipment.

Endwalls using concrete blocks shall be with dimensions of approx. 600 mm x 600 mm x 1200 mm, 600 mm x 600 mm x 2400 mm or 300 mm x 600 mm x 1200 mm as required. The top of the culvert shall govern block elevation. The correct block shall be set with the top of the block equal to the top of the culvert. The blocks shall be set at each end of the culvert so that each row of blocks will be offset approx. 100 mm from the row below. The bottom row shall consist of one block placed parallel to the culvert. The blocks shall be imbedded a minimum of 300 mm into each bank.

The blocks shall be placed over a layer of filter fabric (Terrafix 270R or approved equal). The culvert shall be backfilled in conjunction with the placement of the blocks. The gaps between the culvert and the blocks shall be filled with concrete cinder blocks/bricks and mortar to give the endwall a finished appearance. The top row of blocks should be set to match existing grade and to the direction of the Drainage Superintendent.

If rip rap ends are to be used, the pipes shall be lengthened to accommodate the travel width plus minimum 1.5:1 sideslopes. The rip rap shall consist of 150 mm x 300 mm quarry stone or approved equal. The area to receive the rip rap shall be graded to a depth of 400mm below finished grade. Filter fabric (Terrafix 250R or approved equal) shall then be placed with any joints overlapped a minimum 600mm. The quarry stone shall

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then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

#### 10. Catchbasin

The catch basin installed at Sta. 1+213 consists of the elevations and location as shown on the drawings as follows:

Structure	Station	Type/Grate	Top Elev. (m)	Outlet Pipe Elev. (m)	Inlet Pipe Elev. (m)
CB #1	1+213	900 x 1200 Birdcage	211.61	209.72 (W) (600mm)	209.72 (E) (400mm)

The catch basin shall be square precast concrete structures as noted above. The catch basin shall have a flat top birdcage type grate.

The catch basin shall be made with the concrete lid and any top sections separate from the base sections in order to allow for additional connections of surrounding tiles. The wall thickness of all structures shall be 115mm and each shall have a 600mm sump. Birdcage grates shall be manufactured with a bar spacing no larger than 50mm.

This item shall include the connections of upstream tiles and stone erosion protection installed around the basin in a bowl shape manner.

#### 11. Brushing (Future Maintenance)

All vegetation, brush, cattails, woody vegetation, and trees shall be mulched using an excavator with mounted grinder. All brush and trees in the sideslopes and bottom of the channel shall be removed in their entirety, piled and burned onsite. Trees too large for grinding shall be cut, piled, and burned on site. Trees shall be cut off at ground level. All mulch should be removed from the channel and added to the burn piles. Any branches laying on the drain banks, top of bank or within the channel shall also be burned. Burning on site shall be subject to guidelines of the MECP. Any permits must be obtained prior to burning.

For future maintenance, it is recommended that appropriate herbicide application be applied to the stumps, brush, and aftergrowth in late spring/early summer for two years following to maintain control by a properly licensed operator.
### 12. Open Channel Excavation (Future Maintenance)

The open channel shall be excavated to the depths and grades as shown on the profile contained within the last applicable report. The bottom shall be maintained with side slopes to be left as undisturbed as possible. A laser level shall be used to guarantee an even grade.

The excavated material shall be placed on a minimum of 1.5 metres clear of the top of the bank along agricultural lands and trucked from the bush section. Material along the bush section shall be trucked and disposed of on the agricultural lands and levelled. All surface runs entering the open channel shall be left clear.

Prior to beginning to excavate the channel, all grinded material and obstructions shall be removed and any woody debris shall be added to the burn pile. At no time shall any brush be covered with excavated material.

A labourer shall also check for any existing tile drains entering the drain and make every possible effort to not damage them. If a tile is found to be in poor condition or damaged it shall be reported to the Drainage Superintendent or Engineer Designate. If an owner wishes to truck the excavated material offsite or elsewhere on his property, they may do so under this report with the cost of trucking less levelling being assessed to that property.

#### 13. Erosion Protection (Future Maintenance)

Any washouts encountered along the length of the channel shall be reviewed with the Drainage Superintendent or Engineer Designated. If erosion protection is required then it shall be constructed of rip rap consisting of 150mm x 250mm quarry stone. The area to receive the rip rap shall be graded to a depth of 400mm below finish grade. The rip rap shall be placed from the drain bottom to the top of bank. Filter fabric (Terrafix 270R or approved equal) shall be placed under the rock with any joints overlapped 600mm. Rip rap shall be placed with smaller pieces placed in gaps and voids to give a uniform appearance.

#### 14. Subsurface Drainage

The landowner shall be responsible to mark all existing subsurface drain tile and all tile mains. The Contractor shall be responsible to repair all marked tile that are damaged during excavation of the open channel.

The landowner is responsible for the outlet of surface water from the adjacent field to the open channel. Where a washout has occurred erosion protection consisting of rip rap and filter fabric shall be placed at the expense of the landowner.

### 15. Environmental Considerations

The following environmental considerations have been specified or are recommended to be included as part of this project to help mitigate any potential adverse impacts of the proposed drainage works on water quality.

- All excavated and stockpiled material shall be placed a minimum of 1.5 metres from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All granular and erosion control materials shall be stockpiled a minimum of 3.0 metres from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank and all surface water runs and open inlets that enter the drain.
- All construction in the channel shall be carried out during periods of low flow.
- A heavy-duty silt fence shall be installed at the outlet of the drains at the discretion of the Drainage Superintendent or Engineer Designate.
- The Culvert BMP shall be followed for culvert replacements as outlined in the Guidance Document for Maintaining and Repairing Municipal Drains in Ontario.

#### 16. Miscellaneous

The Contractor shall remove any cross fences necessary to carry out construction operations. Upon completion of the work, the fences shall be reconstructed using existing materials. If existing materials cannot be reused, new material shall be used at the expense of the landowner.

The landowner of each property shall be responsible to mark all of their tile outlets. The landowner shall repair any tile outlets that are not marked and are damaged during construction. The Contractor shall repair any tile outlets that are marked and damaged during construction.

### 17. Benchmarks

The benchmarks are based on geodetic elevations. Elevations are available at the locations shown on the Plan and Profile drawings. Where these elevations are on existing structures to be replaced, they shall be transferred by the Contractor prior to the removal of the culvert. The contractor shall complete a benchmark loop to confirm elevations and provide any discrepancies to the Drainage Superintendent or Engineer Designate.





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Engineering Inc.	Petrolia Ontario, NON 1R0 Phone: (519) 882-0032 Fax: (519) 882-2233	CHECKED R. DOBBIN	1	FINAL REPORT SCALE	APR. 29, 202 1:75	2 рмо	SMITH DRA
DRAWING NAME: Smith Drain North Branch Typical Culver	PROJECT No. rt Detail 2022-1383	DRAWN D. MOORES			2m		TYPICAL ACCESS CUL

SHALL BE ALUMINIZED 2.8mm H 125mm X 25mm CORRUGATION 3mm CORRUGATIONS. CIFICATIONS FOR CULVERT NGTHS.	NS.
ERIAL TO BE GRANULAR MATERIA WISE SPECIFIED. OCK ENDWALLS TO MATCH IND. E IMBEDDED MIN. 10% BELOW BC	TTOM.
CKS BTM VARIES 00 LOCKS 00mm	
INISKILLEN IN VERT DETAIL	3 OF 3

-ast Updated: April 7, 2022

### **ENCLOSURE**

Smith Drain Municipality of Brooke-Alvinston April 29, 2022

### **ESTIMATED NET ASSESSMENT - SMITH DRAIN**

To replace an exisitng culvert in the E1/2 Lot 14 Concession 6.

Conc.	Lot or	Affected	Roll	Owner	Total	Estimated	Allowances	Estimated
	Part	Hect.	No.			Grant		Net Assesment
Agricul	tural Lands							
6	E1/2 Lot 14	17.41	30-047	1432234 Ontario Ltd.	24,134.00	8,044.67	960.00	15,129.33
6	S1/2 Lot 15	36.84	30-050	B. & L. Van Damme Farms Ltd.	6,879.00	2,293.00		4,586.00
5	pt. W1/2 Lot 15	2.02	30-006	B. & L. Van Damme Farms Ltd.	377.00	125.67	<table-cell></table-cell>	251.33
				TOTAL ASSESSMENT	31,390.00	10,463.33	960.00	19,966.67

### THE CORPORATION OF THE MUNICIPALITY OF BROOKE-ALVINSTON

### **BY-LAW NUMBER xx of 2022**

### BEING A BY-LAW TO PROVIDE FOR A DRAINAGE WORKS IN THE MUNICIPALITY OF BROOKE-ALVINSTON IN THE COUNTY OF LAMBTON

WHEREAS the requisite number of owners have petitioned the Council of the Municipality of Brooke-Alvinston in the County of Lambton in accordance with the provisions of the *Drainage Act*, requesting that the following lands and roads be drained by a drainage works known as the "Smith Drain" in the Municipality of Brooke-Alvinston;

AND WHEREAS, the Council of the Municipality of Brooke-Alvinston in the County of Lambton has procured a report made by R. Dobbin Engineering Inc. and a copy of the report dated April 29, 2022 is attached hereto and forms part of this by-law;

AND WHEREAS the estimated cost of constructing the drainage works is \$31,390.00;

AND WHEREAS \$0.00 is the amount to be contributed by the Municipality for construction of the drainage works;

AND WHEREAS \$31,390.00 is being assessed in the Municipality of Brooke-Alvinston in the County of Lambton

AND WHEREAS the Council is of the opinion that the drainage of the area is desirable;

THEREFORE, the Council of the Municipality of Brooke-Alvinston under the *Drainage Act* enacts as follows:

- 1. The report dated April 29, 2022 and attached hereto is hereby adopted and the drainage works as therein indicated and set forth is hereby authorized, and shall be completed in accordance therewith.
- 2. (1) The Corporation of the Municipality of Brooke-Alvinston may borrow on the credit of the Corporation the amount of \$31,390.00, being the amount necessary for construction of the drainage works.

(2) The Corporation may issue debentures for the amount borrowed less the total amount of,

- (a) grants received under section 85 of the Act;
- (b) commuted payments made in respect of lands and roads assessed within the municipality;
- (c) money paid under subsection 61(3) of the Act; and

(d) money assessed in and payable by another municipality, and such debenture shall be made payable within five years from the date of the debenture and shall bear interest at a rate not higher than the rate charged by the Ontario Government for tile loans on the date of sale of such debentures.

- 3. A special equal annual rate sufficient to redeem the principal and interest on the debentures shall be levied upon the lands and roads as set forth in the report to be collected in the same manner and at the same time as other taxes are collected in each year for five years after the passing of this bylaw.
- 4. For paying the amount of \$31,290.00 being the amount assessed upon the lands and roads belonging to or controlled by the Municipality, a special rate sufficient to pay the amount assessed plus interest thereon shall be levied upon the whole rateable property in the Municipality of Brooke-Alvinston in each year for one year after the passing of this by-law to be

collected in the same manner and at the same time as other taxes are collected.

- 5. All assessments of \$1,000.00 or less are payable in the first year in which the assessment is imposed.
- 6. This by-law comes into force on the passing thereof and may be cited as "Smith Drain By-law".

FIRST READING	, 2022
SECOND READING	, 2022
Provisionally adopted this day	of, 2022.
	David Ferguson, Mayor
	Janet Denkers, Clerk-Administrator
THIRD READING	, 2022.
Enacted this day of	, 2022.
	David Ferguson, Mayor

Janet Denkers, Clerk-Administrator



4218 Oil Heritage Road Petrolia, Ontario, NON 1R0 Phone: (519) 882-0032 Fax: (519) 882-2233 www.dobbineng.com

April 29, 2022

The Mayor and Council Township of Brooke-Alvinston P. O. Box 28 3236 River Street Alvinston, Ontario N0N 1A0

#### **Re: MacDougall Drain**

In accordance with your instructions, I have undertaken an examination of the Smith Drain with regards to making drainage improvements in Lots 7, 8, and 9, Concession 5 in the Municipality of Brooke-Alvinston. The work will consist of incorporating a farm culvert in the N. pt. Lot 7, Concession 5 that was replaced under an emergency designation and the replacement of an additional farm access culvert in W1/2 Lot 8, Concession 5. The course of the work has been surveyed with elevations taken as necessary.

#### Authorization under the Drainage Act

This Engineers Report that has been prepared under Section 78 of the Drainage Act as per the request of an affected owner.

Under section 78 of the Drainage Act, Council may undertake and complete the maintenance or repair of any drainage works constructed under a bylaw passed under this Act or its predecessor. Section 78 is to be used where it is considered expedient to change the course of the drainage works, or to make a new outlet for the whole or any part of the drainage works, or to construct a tile drain under the bed of the whole or any part of the drainage works as ancillary thereto, or to construct, reconstruct or extend embankments, walls, dykes, dams, reservoirs, bridges, pumping stations, or other protective works as ancillary to the drainage works, or to otherwise improve, extend to an outlet or alter the drainage works or to cover the whole or any part of it, or to consolidate two or more drainage works.

The access culvert located in N. pt. Lot 7, Concession 5 was replaced under Section 124 of the Drainage Act. Under Section 124, the Minister declares that an emergency exists and the Council of the local municipality authorizes the work to be completed before obtaining and adopting an engineer's report.

### Existing Drainage

The MacDougall Drain consists of an open channel that outlets to the 6/7 Sideroad Drain located along the east side of Sutorville Road. The MacDougall Drain extends east through Lots 7, 8, and 9 for an approximate distance of 1425 meters.

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The drainage works was last improved under an engineer's report dated July 15, 1964 at which time the open channel was maintained and extensions were added to the access culverts.

The drainage work was last maintained in 2021 with both brushing and bottom cleanout.

#### **Onsite Meeting**

An onsite meeting was held on February 15, 2022. At this meeting, it was explained to those in attendance that the culvert in the N. pt. Lot 7, Concession 5 was replaced under emergency designation and that a new report is being prepared to incorporate the completed works. At the meeting it was discussed that all culverts would be inspected and replaced if required and an updated maintenance schedule would be prepared.

#### Discussion

On September 29, 2021 the owner of the N. pt. Lot 7, Concession 5 submitted a request for a culvert replacement. Brooke-Alvinston Council accepted the request and instructed the engineer to prepare an engineers report related to the culvert. As this culvert was the only access to the property and it was deemed unsafe for passage, a letter was sent to the Minister of Agricultural for approval to replace the culvert under Section 124 – Emergency Designation prior to the Drainage Act process. Minister approval was received on October 12, 2021 and the culvert was subsequently replaced.

#### Recommendations

It is therefore recommended that the following work be carried out:

- 1. Culvert No.1 that was replaced under an emergency designation in the N. pt. Lot 7, Concession 5 shall be incorporated as part of the drainage works;
- 2. Culvert No. 2 shall be replaced in the W1/2 Lot 8, Concession 5; and
- 3. The Maintenance Schedule shall be updated.

### Design

The farm culverts shall be sized to accommodate a 1 in 2-year storm in accordance with engineering principles.

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### Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying Specification of Work and the Profile that form part of this Report. There has been prepared an estimate of cost in the amount of \$47,095.00 including engineering, attending the Meeting to Consider, attending the Court of Revision, and tendering the project. An estimate for inspection and contract administration has been included.

A Plan and Profile has been prepared showing the location of the work, the approximate drainage area, and the design grades with culvert sizes.

#### Assessment

As per the Drainage Act, section 21, the Engineer in his report shall assess for benefit and outlet liability.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works may be assessed for benefit. The Engineer may assess for special benefit any lands for which special benefits have been provided by the drainage works. (Section 22)

Lands and roads that use a drainage works as an outlet, or for which, when the drainage works is constructed or improved, an improved outlet is provided either directly or indirectly through any medium of any other drainage works or of a swale, ravine, creek or watercourse, may be assessed for outlet. The assessment for outlet shall be based upon volume and rate of flow of the water artificially caused to flow into the drainage works from the lands and roads liable for such assessments. (Section 23)

The Engineer may assess for special benefit any lands for which special benefits have been provided by the drainage works. (Section 24)

A Schedule of Assessment for the lands and roads affected by the work and therefore liable for the cost thereof will be prepared as per the Drainage Act. Also, assessments may be made against any public utility or road authority, as per Section 26 of the Drainage Act, for any increased cost for the removal or relocation of any of its facilities and plant that may be necessitated by the construction or maintenance of the drainage works. Items to be assessed under Section 26, as specified, shall be tendered separately with the actual cost plus a portion of the engineering (25% of the construction cost).

3.6.

The estimated cost of the drainage works has been assessed in the following manner:

1. All culverts have been assessed with 50% of the estimated culvert cost applied as a benefit assessment to the owner of the property and the remainder of the cost has been assessed as outlet assessment to upstream lands based on equivalent hectares;

4

### Allowances

Under section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled thereto to damage, if any, to ornamental trees, fences, land, and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages.

Allowances have been made, where appropriate, as per section 30 of the Drainage Act for damages to lands and crops. Allowances for crop loss are based on \$2,000.00 per hectare for the first year and \$500.00 for the second year (\$2,500.00 per hectare total).

### Access and Working Area

Access for construction of the culvert replacement shall be from Courtright Road along existing lane to the culvert. The working area shall be restricted to 10 meters on each side of the culvert.

Access for future maintenance shall be along existing lanes, fence lines, or property lines on each individual property on which the work is to be completed. The working area for access to the site shall be restricted to a width of 6 metres along lanes, fence lines, property lines or other access corridor provided by the property owner. The working area along the drainage works shall extend 15 metres from the top of bank on the side that the equipment is operating on. The working area for culverts shall be 10 meters on either side of the culvert. The Drainage Superintendent shall designate the side that the contractor shall carry out the excavation operation.

### Drain Classification and Authorizations

The MacDougall Drain is currently not-rated for the entire length according to the Ontario Ministry of Agriculture, Food and Rural Affairs Mapping. When the drain was maintained in 2021, the drain was given a temporary Class F designation. It outlets to the 6/7 Sideroad Drain, which is a Class C Drain.

A permit for these works is required by the St. Clair Conservation Authority.

### Agricultural Grant

It is recommended that application for subsidy be made for eligible agricultural properties. Any assessments against non agricultural properties are shown separately in the Schedule of Assessment.

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#### **Restrictions**

No trees and shrubs shall be planted nor shall permanent structures be erected within 10 metres of either side of the proposed drain without prior written permission of Council.

### Existing Private Drainage

All existing subsurface drainage encountered during excavation of the open channel shall be maintained in existing condition. Landowners shall be responsible to mark all subsurface drains from his property. Surface drains and swales shall be left open. The Contractor shall be responsible for damage to subsurface drains marked by the landowners.

It is recommended that 300 mm of freeboard be provided for tile drain outlets to the open channel.

#### Maintenance

The open channel shall be maintained prorated as per the enclosed Schedule of Maintenance and as per specifications contained within this report.

The access culverts located along the length of the drain shall be maintained with 50% of the costs assessed to the benefiting landowners with the remainder of the costs assessed to upstream properties pro rata with the upstream equivalent hectares contained in the enclosed Schedule of Maintenance, unless otherwise altered under the provisions of the Drainage Act.

If an owner requests an additional length of culvert beyond that specified in this report, the extra cost shall be borne by the owner making the request including the future maintenance and repair. Each property is allowed one access culvert for each municipal drain with any second culvert on the property maintained and repaired 100% by the owner.

3.6.

These above conditions will apply unless otherwise altered under provisions of the Drainage Act.

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All of the above is submitted for your consideration.

Yours truly,

andobla

Ray Dobbin, P.Eng.



# ALLOWANCES

Allowances have been made as per Sections 30 of the Drainage Act for damages to lands and crops.

Conc.	Lot or part	Roll No.	Owner	Section 30	Total
5	N. Pt. Lot 7 W1/2 Lot 8	20-025 20-027	C. Martin A. MacDougall	140.00 1,920.00	140.00 1,920.00
			TOTAL ALLOWANCES	\$2,060.00	\$2,060.00

#### **Estimate of Cost**

Allowances				2,060.00
	Quantity	Unit	Unit Cost	Total
	5			
Culvert No. 1 - Station 0+071 (Emergency Culv.)				
Culvert Removal	1	LS	1,200.00	1,200.00
Supply and Installation of 900mmø HDPE c/w				
Bedding	12	m	760.00	9,120.00
Supply Granular "B" Backfill	110	t	21.00	2,310.00
Supply Granular "A" Driveway	23	t	30.00	690.00
Concrete Block Endwalls	32	ea.	100.00	3,200.00
Environmental Considerations	1	LS	250.00	250.00
Culvert No. 2 - Station 0+913				
Culvert Removal	1	LS	1,200.00	1,200.00
Supply and Installation of 750mmø HDPE c/w				
Bedding	12	m	700.00	8,400.00
Supply Granular "B" Backfill	110	t	26.00	2,860.00
Supply Granular "A" Driveway	23	t	35.00	805.00
Concrete Block Endwalls	32	ea.	125.00	4,000.00
Environmental Considerations	1	LS	250.00	250.00
Contingency			_	900.00
	Sub Total			37,245.00
	Engineering			6,570.00
	Inspection a	nd Contra	act Admin.	2,000.00
	SCRCA Fee	;		510.00
	Total Estima	ate exclud	ling HST	46,325.00
	Non-Recove	erable HS	T (1.76%)	770.00
	Total Estim	ate		\$47,095.00

### SCHEDULE OF ASSESSMENT

Conc.	Lot or		Affected	Roll	Owner	Benefit	Outlet	Total
	Part		Hect.	No				
Agricu	lltural Lands							
5	N. Pt. Lot 7	*	16.18	20-025	C. Martin	11,774.00	1,909.00	13,683.00
	W 1/2 Lot 8		8.40	20-027	A. MacDougall	11,774.00	1,982.00	13,756.00
	E 1/2 Lot 8		8.40	20-027-01	D. MacDougall	÷	4,943.00	4,943.00
	N. Pt. Lot 9		25.00	20-027-02	D. MacDougall		14,713.00	14,713.00
						23,548.00	23,547.00	47,095.00
* deno	tes surface water on	ly			Total Benefit	23,548.00		
					Total Outlet	23,547.00		
					Total Assessment	47,095.00		

### SCHEDULE OF MAINTENANCE

Conc.	Lot or	Affected	Roll	Owner	Benefit Outlet		Total	Equivalent
	Part	Hecatares	No.		(\$)	(\$)	(\$)	Ha
Agric	ultural Lands							
5	N. Pt. Lot 7	* 16.18	20-025	C. Martin	209.00	34.00	243.00	8.09
	W 1/2 Lot 8	8.40	20-027	A. MacDougall	106.00	47.00	153.00	8.40
	E 1/2 Lot 8	8.40	20-027-01	D. MacDougall	106.00	74.00	180.00	8.40
	N. Pt. Lot 9	25.00	20-027-02	D. MacDougall	79.00	345.00	424.00	25.00
					500.00	500.00	1,000.00	49.89
				Total Benefit	500.00			
				Total Outlet	500.00			
	* denotes surface water	only		Total Maintenance Assessment	1 000 00			
	uchoics surface water	omy		i otai maintenance Assessment	1,000.00			

#### **SPECIFICATION OF WORK**

#### 1. Scope of Work

The work to be included in this specification includes the incorporation of a farm culvert located in the N. pt. Lot 7, Concession 5 that was replaced under an emergency designation and the replacement of an additional farm culvert in the W1/2 Lot 8, Concession 5 on the MacDougall Drain located in the Municipality of Brooke-Alvinston.

#### 2. General

Each tenderer must inspect the site prior to submitting his tender and satisfy themselves by personal examination as to the local conditions that may be encountered during this project. They shall make allowance in his tender for any difficulties which they may encounter. Quantities or any information supplied by the Engineer is not guaranteed and is for reference only.

All work and materials shall be to the satisfaction of the Drainage Superintendent who may vary these specifications as to minor details but in no way decrease the proposed capacity of the drain.

The Contractor shall be responsible for the notification of all utilities and pipeline companies prior to the start of construction.

#### 3. Access and Working Area

Access for construction of the culvert replacement shall be from Courtright Road along existing lane to the culvert. The working area shall be restricted to 10 meters on each side of the culvert.

Access for future maintenance shall be along existing lanes, fence lines, or property lines on each individual property on which the work is to be completed. The working area for access to the site shall be restricted to a width of 6 metres along lanes, fence lines, property lines or other access corridor provided by the property owner. The working area along the drainage works shall extend 15 metres from the top of bank on the side that the equipment is operating on. The working area for culverts shall be 10 meters on either side of the culvert. The Drainage Superintendent shall designate the side that the contractor shall carry out the excavation operation.

#### 4. Plans and Specifications

These specifications shall apply and be part of the contract along with the General Specifications for Closed Drains and the General Specifications for Open Drains. This specification of work shall take precedence over all plans and general conditions pertaining to the contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the plans and described in these specifications. Any work not described in these specifications shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

Any reference to the landowner contained in these contract documents shall refer to the Municipality of Brooke-Alvinston or the engineer authorized by the Municipality to act on its behalf.

#### 5. Health and Safety

The Contractor at all times shall be responsible for health and safety on the worksite including ensuring that all employees wear suitable personal protective equipment including safety boots and hard hats.

The Contractor shall be responsible for traffic control as per the Ontario Traffic Manual Book 7 – Temporary Conditions when working on public road allowances. A copy of a traffic control plan shall be kept on site at all times. The Contractor shall maintain suitable barricades, warning lights, and temporary traffic notices, at his expense, in their proper position to protect the public both day and night. Flagmen are the responsibility of the Contractor when working on the road allowance and when entering or exiting a worksite onto a roadway.

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act to ensure that work sites are safe and that accidents are prevented. In the event of a serious or recurring problem, a notice of non-compliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for the issuance of a stop work order or even termination of the contract.

The contractor shall also ensure that only competent workmen are employed onsite and that appropriate training and certification is supplied to all employees.

#### 6. Workplace Safety and Insurance Board

The Contractor hereby certifies that all employees and officers working on the project are covered by benefits provided by the Contractor. The WSIB clearance certificate must be furnished prior to signing of the Contract and updated every 60 days.

### 7. Notification of Utilities

The Contractor shall be responsible to notify any and all affected utilities and pipeline companies. This shall be done through Ontario One Call Locates. The contractor shall make available proof of locates if requested by the Municipality, Drainage Superintendent, or Engineer. The contractor shall carry out all work in the vicinity of any utility or pipeline at the direction of the Utility/Pipeline Supervisor.

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### 8. Brushing (Future Maintenance)

All vegetation brush, cattails, woody vegetation, and trees shall be mulched using an excavator with mounted grinder. All brush and trees in the sideslopes and bottom of the channel shall be removed in their entirety, piled and burned onsite. Trees too large for grinding shall be cut, piled, and burned on site. Trees shall be cut off at ground level. All mulch should be removed from the channel and added to the burn piles. Any branches laying on the drain banks, top of bank or within the channel shall also be burned. Burning on site shall be subject to guidelines of the MECP. Any permits must be obtained prior to burning.

Along the bush section brushing shall be from the road side of the drain. Therefore, no brushing is required on the top of the drain bank adjacent to the bush.

It is recommended that appropriate herbicide application be applied to the stumps, brush, and aftergrowth in late spring/early summer for two years following to maintain control by a properly licensed operator.

## 9. Open Channel Excavation (Future Maintenance)

The open channel shall be excavated to the depths and grades as shown on the profile contained within this report. The bottom shall be maintained with side slopes to be left as undisturbed as possible. A laser level shall be used to guarantee an even grade.

Prior to beginning to excavate the channel, all grinded material and obstructions shall be removed and any woody debris shall be added to the burn pile. At no time shall any brush be covered with excavated material.

The excavated material shall be placed on a minimum of 1.5 metres clear of the top of the bank. All surface runs entering the open channel shall be left clear.

A labourer shall also check for any existing tile drains entering the drain and make every possible effort to not damage them. If a tile is found to be in poor condition or damaged it shall be reported to the Drainage Superintendent or Engineer Designate.

If an owner wishes to truck the excavated material offsite or elsewhere on his property, they may do so under this report with the cost of trucking less levelling being assessed to that property.

### 10. Installation of Access Culverts

This item shall apply to the proposed access culvert replacements along the length of the drainage works:

### CULVERTS REPLACED UNDER EMERGENCY DESIGNATION:

Culvert #1 (N. pt. Lot 7, Concession 5 – roll no. 20-025) – The culvert shall be 12 meters long x 900 mm diameter HDPE pipe with concrete block endwalls, drainage stone bedding up top springline, granular B backfill from the springline to within 150mm of finished grade. The drive surface shall be 150mm of granular A.

#### CULVERTS TO BE REPLACED UNDER THIS REPORT:

Culvert #2 (W1/2 Lot 8, Concession 5 – roll no. 20-027) – The culvert shall be 12 meters long x 750 mm diameter HDPE pipe with concrete block endwalls, drainage stone bedding up top springline, granular B backfill from the springline to within 150mm of finished grade. The drive surface shall be 150mm of granular A.

The contractor shall supply, install and backfill CSA approved HDPE smooth wall pipe (320 KPa) c/w manufactured couplers or bell and spigot.

Any existing tile outlets shall be extended downstream of the proposed culvert and shall be done with non-perforated HDPE agricultural tubing with a manufactured coupling, elbow and rodent grate.

The culvert shall set with the invert 10% below the design channel bottom (minimum 150mm) and to grade shown on the culvert detail.

The bottom of the excavation shall be excavated to the required depth with any over excavation backfilled with drainage stone. It is expected that 100mm of bedding is placed under the pipe. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with drainage stone from the bottom of the excavation to the springline of the pipe. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300mm so that the pipe is not displaced. Filter fabric shall be placed over the entire length of the pipe to separate the drainage stone from the granular "B". The culvert shall be backfilled from the springline to within 150mm of finished grade with approved granular "B" backfill material. The top 150 mm shall be backfilled with compacted approved granular "A" material to finished grade.

All backfill shall be free from deleterious material. All backfill material above the springline shall be mechanically compacted using appropriate compaction equipment.

Endwalls using concrete blocks shall be with dimensions of approx. 600 mm x 600 mm x 1200 mm, 600 mm x 600 mm x 2400 mm or 300 mm x 600 mm x 1200 mm as required. The top of the culvert shall govern block elevation. The correct block shall be set with the top of the block equal to the top of the culvert. The blocks shall be set at each end of the culvert so that each row of blocks will be offset approx. 100 mm from the row below. The bottom row shall consist of one block placed parallel to the culvert. The blocks shall be set with be imbedded a minimum of 300 mm into each bank.

The blocks shall be placed over a layer of filter fabric (Terrafix 270R or approved equal). The culvert shall be backfilled in conjunction with the placement of the blocks. The gaps between the culvert and the blocks shall be filled with concrete cinder blocks/bricks and mortar to give the endwall a finished appearance. The top row of blocks should be set to match existing grade and to the direction of the Drainage Superintendent.

If rip rap ends are to be used, the pipes shall be lengthened to accommodate the travel width plus minimum 1.5:1 sideslopes. The rip rap shall consist of 150 mm x 300 mm quarry stone or approved equal. The area to receive the rip rap shall be graded to a depth of 400mm below finished grade. Filter fabric (Terrafix 250R or approved equal) shall then be placed with any joints overlapped a minimum 600mm. The quarry stone shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

#### 11. Subsurface Drainage

The landowner shall be responsible to mark all existing subsurface drain tile and all tile mains. The Contractor shall be responsible to repair all marked tile that are damaged during excavation of the open channel.

The landowner is responsible for the outlet of surface water from the adjacent field to the open channel. Where a washout has occurred erosion protection consisting of rip rap and filter fabric shall be placed at the expense of the landowner.

### 12. Stone Erosion Protection (Future Maintenance)

Any washouts encountered along the length of the channel shall be reviewed with the Drainage Superintendent or Engineer Designated. If erosion protection is required then it shall be constructed of rip rap consisting of 150mm x 250mm quarry stone. The area to receive the rip rap shall be graded to a depth of 400mm below finish grade. The rip rap shall be placed from the drain bottom to the top of bank. Filter fabric (Terrafix 270R or approved equal) shall be placed under the rock with any joints overlapped 600mm. Rip

rap shall be placed with smaller pieces placed in gaps and voids to give a uniform appearance.

#### **13. Environmental Considerations**

The following environmental considerations have been specified or are recommended to be included as part of this project to help mitigate any potential adverse impacts of the proposed drainage works on water quality.

- All excavated and stockpiled material shall be placed a minimum of 1.5 metres from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All granular and erosion control materials shall be stockpiled a minimum of 3.0 metres from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank and all surface water runs and open inlets that enter the drain.
- All construction in the channel shall be carried out during periods of low flow.
- A heavy-duty silt fence shall be installed at the outlet of the drains at the discretion of the Drainage Superintendent or Engineer Designate.
- The Culvert BMP shall be followed for culvert replacements as outlined in the Guidance Document for Maintaining and Repairing Municipal Drains in Ontario.

#### 14. Miscellaneous

The Contractor shall remove any cross fences necessary to carry out construction operations. Upon completion of the work, the fences shall be reconstructed using existing materials. If existing materials cannot be reused, new material shall be used at the expense of the landowner.

The landowner of each property shall be responsible to mark all of his tile outlets. The landowner shall repair any tile outlets that are not marked and are damaged during construction. The Contractor shall repair any tile outlets that are marked and damaged during construction.

#### 15. Benchmarks

The benchmarks are based on geodetic elevations. Elevations are available at the locations shown on the profile drawings. Where these elevations are on existing structures to be replaced, they shall be transferred by the Contractor prior to the removal of the culvert. The contractor shall complete a benchmark loop to confirm elevations and provide any discrepancies to the Drainage Superintendent or Engineer Designate.



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З.6

# GENERAL NOTES



<b>R</b> Dobbin	4218 Oil Heritage Boad	APPROVED R. DOBBIN	NO.	REVISIONS	DATE	BY	<b>MUNICIPALITY of BRO</b>
Engineering Inc.	Petrolia Ontario, NON 1R0 Phone: (519) 882-0032 Fax: (519) 882-2233	CHECKED D. MOORES	1	FINAL REPORT	APR. 29, 2022 1:2,000	DMO	MacDOUGALL I
DRAWING NAME: MacDougall Drain Profile	PROJECT No. 2021–1344	DRAWN C. SAUNDERS			40 60m		PROFILE

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<b>R</b> Dobbin	4218 Oil Heritage Road	APPROVED R. DOBBIN	NO.	REVISIONS	DATE	BY	<b>MUNICIPALITY of BRO</b>
Engineering Inc.	Petrolia Ontario, NON 1R0 Phone: (519) 882-0032 Fax: (519) 882-2233	CHECKED D. MOORES	1	FINAL REPORT	APR. 29, 2022 1: 2,000	DMO	MacDOUGALL
DRAWING NAME: MacDougall Drain Profile	PROJECT No. 2021–1344	DRAWN C. SAUNDERS			40 60m		PROFILE

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# GENERAL NOTES

- 1. <u>BENCHMARK No.2 ELEV. 209.49</u> TOP EAST END OF EXISTING 900Ø HDPE AT STATION. 0+913 BENCHMARK TO BE TRANSFERRED PRIOR TO CULVERT REPLACEMENT.
- 3. CULVERT NOTES:
  - A. ALL PIPES SHALL BE HDPE CSA APPROVED WITH MANUFACTURED COUPLERS OR BELL & SPIGOT, 320KPA.
  - B. REFER TO SPECIFICATIONS FOR CULVERT SIZES AND LENGTHS.
  - C. BACKFILL MATERIAL TO BE GRANULAR MATERIAL UNLESS OTHERWISE SPECIFIED.
  - D. CONCRETE BLOCK ENDWALLS TO MATCH EXISTING GROUND, SET AT PIPE BOTTOM OR EMBEDDED TO ALLOW BLOCKS TO SIT LEVEL AT PIPE TOP.





<b>R</b> Doldin	4218 Oil Horitage Boad	APPROVED R. DOBBIN	NO.	REVISIONS	DATE	BY	<b>MUNICIPALITY of BRO</b>
Engineering Inc.	Petrolia Ontario, NON 1R0 Phone: (519) 882-0032 Fax: (519) 882-2233	CHECKED D. MOORES	1	FINAL REPORT	APR. 29, 2022 1:2,000	DMO	MacDOUGALL
DRAWING NAME: MacDougall Drain Profile & Culvert	PROJECT No. Details 2021-1344	DRAWN C. SAUNDERS		0 20	40 60m		PROFILE & CULVER

2. UPPER NUMBERS ARE DEPTH FROM EXISTING

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ENCLOSURE

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## ESTIMATED NET ASSESSMENT

Conc.	Lot or	Roll	Owner	Total	Estimated	Allowances	Estimated
-	Part	No.		Assessment	Grant		Net Assess.
Agricu	ıltural Lands						
5	N. Pt. Lot 7	20-025	C. Martin	13,683.00	4,561.00	140.00	8,982.00
	W 1/2 Lot 8	20-027	A. MacDougall	13,756.00	4,585.00	1,920.00	7,251.00
	E 1/2 Lot 8	20-027-01	D. MacDougall	4,943.00	1,648.00	=	3,295.00
	N. Pt. Lot 9	20-027-02	D. MacDougall	14,713.00	4,904.00	-	9,809.00
			<b>Total Assessment</b>	\$47,095.00	\$15,698.00	\$2,060.00	\$29,337.00

### THE CORPORATION OF THE MUNICIPALITY OF BROOKE-ALVINSTON

### **BY-LAW NUMBER xx of 2022**

### BEING A BY-LAW TO PROVIDE FOR A DRAINAGE WORKS IN THE MUNICIPALITY OF BROOKE-ALVINSTON IN THE COUNTY OF LAMBTON

WHEREAS the requisite number of owners have petitioned the Council of the Municipality of Brooke-Alvinston in the County of Lambton in accordance with the provisions of the *Drainage Act*, requesting that the following lands and roads be drained by a drainage works known as the "MacDougall Drain" in the Municipality of Brooke-Alvinston;

AND WHEREAS, the Council of the Municipality of Brooke-Alvinston in the County of Lambton has procured a report made by R. Dobbin Engineering Inc. and a copy of the report dated April 29, 2022 is attached hereto and forms part of this by-law;

AND WHEREAS the estimated cost of constructing the drainage works is \$47,095.00;

AND WHEREAS \$0.00 is the amount to be contributed by the Municipality for construction of the drainage works;

AND WHEREAS \$47,095.00 is being assessed in the Municipality of Brooke-Alvinston in the County of Lambton

AND WHEREAS the Council is of the opinion that the drainage of the area is desirable;

THEREFORE, the Council of the Municipality of Brooke-Alvinston under the *Drainage Act* enacts as follows:

- 1. The report dated April 29, 2022 and attached hereto is hereby adopted and the drainage works as therein indicated and set forth is hereby authorized, and shall be completed in accordance therewith.
- 2. (1) The Corporation of the Municipality of Brooke-Alvinston may borrow on the credit of the Corporation the amount of \$47,095.00, being the amount necessary for construction of the drainage works.

(2) The Corporation may issue debentures for the amount borrowed less the total amount of,

- (a) grants received under section 85 of the Act;
- (b) commuted payments made in respect of lands and roads assessed within the municipality;
- (c) money paid under subsection 61(3) of the Act; and

(d) money assessed in and payable by another municipality, and such debenture shall be made payable within five years from the date of the debenture and shall bear interest at a rate not higher than the rate charged by the Ontario Government for tile loans on the date of sale of such debentures.

- 3. A special equal annual rate sufficient to redeem the principal and interest on the debentures shall be levied upon the lands and roads as set forth in the report to be collected in the same manner and at the same time as other taxes are collected in each year for five years after the passing of this bylaw.
- 4. For paying the amount of \$47,095.00 being the amount assessed upon the lands and roads belonging to or controlled by the Municipality, a special rate sufficient to pay the amount assessed plus interest thereon shall be levied upon the whole rateable property in the Municipality of Brooke-Alvinston in each year for one year after the passing of this by-law to be

collected in the same manner and at the same time as other taxes are collected.

- 5. All assessments of \$1,000.00 or less are payable in the first year in which the assessment is imposed.
- 6. This by-law comes into force on the passing thereof and may be cited as "MacDougall Drain By-law".

FIRST READING		, 2022
SECOND READING		, 2022
Provisionally adopted this	day of	, 2022.
		David Ferguson, Mayor
		Janet Denkers, Clerk-Administrator
THIRD READING		, 2022.
Enacted this day of		, 2022.
		David Ferguson, Mayor

Janet Denkers, Clerk-Administrator