APPENDIX A: NOTICES AND CONSULTATION



MASTER PLAN: BROOKE AREA BASIN A3 OUTLET CITY OF OWEN SOUND



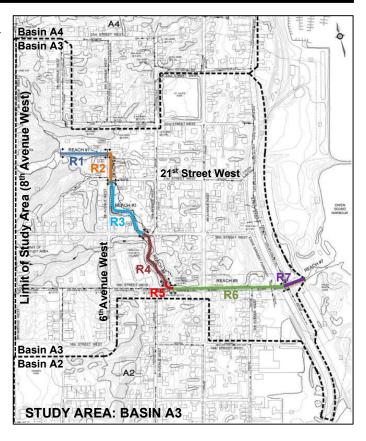
NOTICE OF PROJECT INITIATION AND PUBLIC INFORMATION CENTRE (PIC No.1)

In July 2008, the City of Owen Sound (City) and the Township of Georgian Bluffs completed the *'Brooke Area Stormwater Management Study'* which investigated drainage issues within seven drainage areas that cross the common municipal border and outlet through the City to Georgian Bay. Brooke Area Basin A3 was identified as one of the drainage areas having multiple issues.

The City has initiated a Master Plan study to address the drainage deficiencies identified within the Study Area specific to Brooke Basin A3 (refer to Study Area Map) and to assist in the planning of seven individual projects (or Reaches) toward an appropriate overall drainage strategy. This system wide approach provides for a strategic level of assessment of various options to address better the needs of the overall system and to plan appropriately various drainage undertakings within the Study Area in a comprehensive manner.

The Master Plan is being completed in accordance with Phases 1 and 2 of the Municipal Class Environmental Assessment (Class EA) process. Upon completion, the intention is to include a sufficient level of investigation, consultation and documentation to fulfill the requirements for the Schedule A/A+ and Schedule B EA projects for the proposed individual drainage projects.

The Master Plan includes the development and assessment of alternative solutions to address the deficiencies identified within each of the seven Reaches along the outlet route, in a 'top \rightarrow down' approach, providing a *Recommended Solution* for each Reach. The Master Plan, which identifies several Class EA Schedule 'B' projects within the Study Area, is available on the City's website and at City Hall (808 – 2^{nd} Avenue East) for viewing purposes.



PUBLIC INVOLVEMENT

With the circulation of this *Notice of Project Initiation and Public Information Centre (PIC No.1)* and the Master Plan (Version 1), public, stakeholder, agency and indigenous community comments are invited for incorporation into the planning of this project. Written comments will be received by the Study Team until November 25th, 2022. Contact information is provided below. With the exception of personal information, all comments will become part of the public record. Upon receipt of comments, new information received will be incorporated into the Master Plan, and the assessment of alternatives for each Reach will be updated for approval (or otherwise) by City Council.

City of Owen Sound Mr. Chris Webb, P.Eng. 808 – 2nd Avenue East Owen Sound, ON N4K 2H4 <u>cwebb@owensound.ca</u> Tel: 519-376-4530 (ext. 3300)

GM BluePlan Engineering Limited Mr. John Slocombe, P.Eng. 1260-2nd Avenue East, Unit 1 Owen Sound, ON N4K 2J3 john.slocombe@gmblueplan.ca
Tel: 519-376-1805

PHASE 2 - PUBLIC INFORMATION CENTRE (PIC)

Public involvement is an important component of this project planning. A Phase 2 PIC has been arranged to review the Master Plan and receive input from the public and is planned to be held:

Date: Tuesday November 8th, 2022

Time: Information session from 4:30 to 5:30 pm, followed by a brief presentation at 5:30 pm (to the Operations Committee)

Location: Owen Sound City Hall (Atrium and Council Chambers – 2nd Floor)

808 - 2nd Avenue East, Owen Sound

This Notice of Project Initiation and Public Information Centre (PIC No.1) is advertised in the Owen Sound Sun Times and is also posted on the City's website, where additional information is provided.

This Notice first issued on October 25th, 2022.

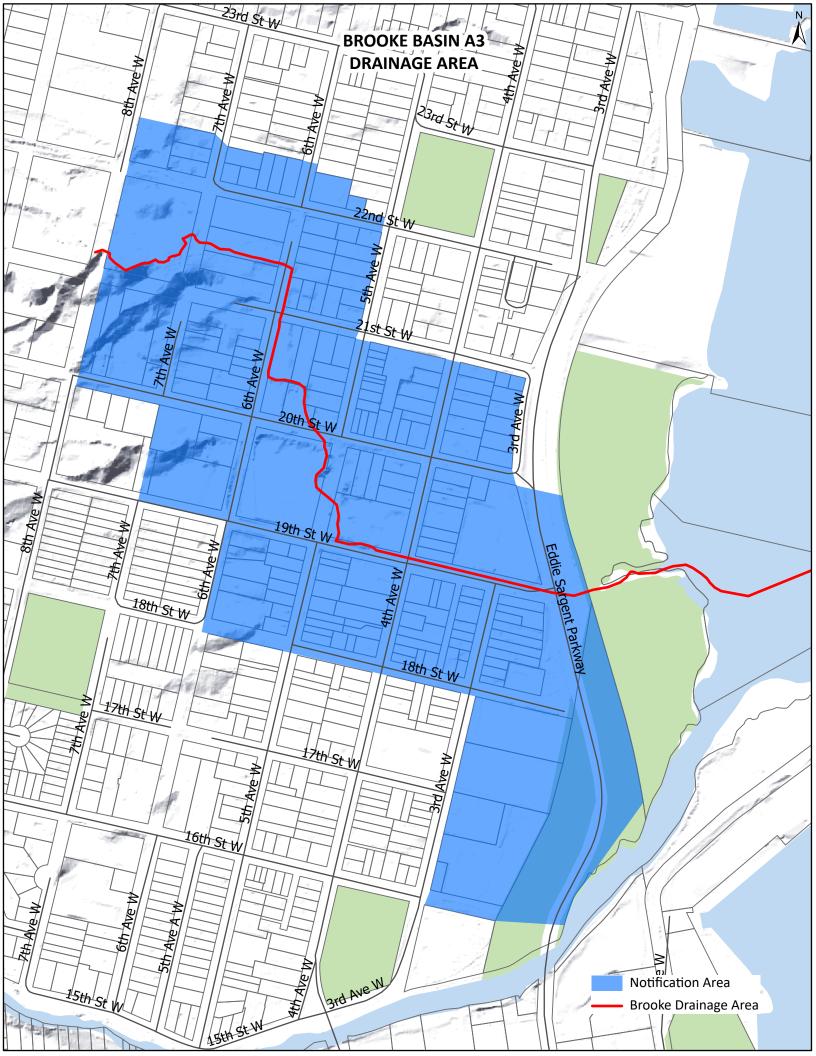
All personal information included in a comment or request (i.e., name, address, phone and property location) is collected, under the authority of Section 30 of the Environmental Assessment Act and is maintained for the purpose of creating a record that is available to the general public. As this information is collected for the purpose of a public record, the protection of personal information provided in the Freedom of Information and Protection of Privacy Act (FIPPA) does not apply (s.37). Personal information submitted may become part of a public record that is available to the general public unless it is requested that personal information remain confidential. It is noted that while all comments will become part of the public record, it is GM BluePlan's standard practice to keep personal information confidential, as possible.

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AGENCY	CONTACT INFORMATION		ADDRESS	DATE SENT or RECEIVED	E-mail	Mail	Phone	Notice of Project Initiation & PIC No.1	Master Plan (V1: March 2020)	Notice of Project Completion	Master Plan (Version 2)	Other	DESCRIPTION	COMMENTS/RESPONSE RECEIVED (DESCRIPTION)
			MUNICIPAL AG	ENCIES										
County of Grey		Randy Scherzer	County of Grey	25-Oct-22	2 S			Х	Х					
		Planning and Development Department	595 9th Avenue East											
	Telephone	(519) 372-0219 (Ext. 1237)	Owen Sound, ON N4K 3E3											
	E-mail	randy.scherzer@grey.ca												
	Contact													
		Director of Transportation												
		(519) 372-0219 (Ext. 1391)												
	E-mail	pat.hoy@grey.ca												
Town of Georgian Bluffs	Contact	Brian Anderson, Operations Coordinator	Town of Georgian Bluffs	25-Oct-22	2 S			Х	Х					
	Telephone	(519) 376-2729 (Ext. 304)	177964 Grey Road 18											
		(519) 372-1620	R.R.3 Owen Sound N4K 5N5											
	E-mail	b.anderson@georgianbluffs.on.ca												
Grey Sauble Conservation Authority		Tim Lanthier	Grey Sauble Conservation Authority	25-Oct-22	2 S	\sqcup		Х	Х					
(GSCA)		Chief Administrative Officer	237897 Inglis Falls Road, R.R.#4			\sqcup								
		(519) 376-3076 (Ext. 234)	Owen Sound, ON N4K 5N6			\sqcup	\Box							
		(519) 371-0437				\sqcup								
		t.lanthier@greysauble.on.ca_				Ш	\Box							
		Mac Plewes												
1		Watershed Planner				\sqcup								
	Telephone	(519) 376-3076 (Ext. 230)	_			$\sqcup \sqcup$						igsquare		
		m.plewes@greysauble.on.ca			<u> </u>	<u> </u>								
Source Water Protection		Carl Seider, Project Manager	Drinking Water source Protection	25-Oct-22	2 S	$\sqcup \sqcup$	$\sqcup \bot$	Х	Х					Including consultation correspondence
		(519) 470-3000 (ext.201)	c/o Grey Sauble Conservation Authority			$\sqcup \sqcup$	$\sqcup \bot$							
		(519) 470-3005	R.R.#4; 237897 Inglis Falls Road		_	\sqcup	\square							
1		c.seider@waterprotection.ca	Owen Sound, ON N4K 5N6											
	E-mail	mail@waterprotection.ca				ΙI					l			

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			PROVINCIAL A	GENCIES										
Ministry of the Environment,	Contact	Scott Gass	MECP	25-Oct-22	2 S			Х	Х					
Conservation and Parks		Supervisor (Acting)	Owen Sound Area Office											
Owen Sound Area Office	Telephone	(519) 373-9853	101 17th Street East, 3rd Floor											
	Fax	(519) 371-2905	Owen Sound, ON N4K 0A5											
	E-mail	scott.gass@ontario.ca												
Ministry of the Environment,	Contact		MECP - Southwest Region	25-Oct-22	2 S			Х	X					Project Information Form included.
Conservation and Parks		Southwest Region	Technical Support Section											
Southwestern Region	Telephone	(519) 280-3077	733 Exeter Road											
		(519) 873-5020	London, ON N6E 1L3											
	Email	eanotification.swregion@ontario.ca												
Ministry of the Environment,		Director	MECP	NOC Only	/									Project Information Form included.
Conservation and Parks	Telephone	(416) 314-7288	Environmental Approvals Branch											NOC = Notice of Competion Only
Environmental Assessment and	Fax	(416) 314-8452	135 St.Clair Ave W, 1st Floor											
Approvals Branch	E-mail	EAASIBgen@ontario.ca	Toronto, ON M4V 1P5											
		mea.notices.eaab@ontario.ca												
Ministry of Natural Resources and		Jodi Benvenuti	Ministry on Natural Resources and Forestry	25-Oct-22	2 S			Х	Χ					
Forestry		(519) 371-8471	Owen Sound Area Office											
		(519) 372-3305	1450 7th Avenue East											
	E-mail	jodi.benvenuti@ontario.ca	Owen Sound, ON N4K 2Z1											
Ministry of Natural Resources and	Contact	Ken Mott, District Planner	Ministry on Natural Resources and Forestry	25-Oct-22	2 S			Х	Х					Services Grey, Bruce, Simcoe and Dufferin
Forestry		(705) 725-7546	Midhurst District											
	Fax	(705) 725-7584	2284 Nursery Road											
	E-mail	ken.mott@ontario.ca	Midhurst, ON L9X 1N8											
Ministry of Heritage, Sport Tourism		Karla Barboza, Team Lead - Heritage (Acting)	MHSTCI	25-Oct-22	2 S			Х	Х					
& Culture Industries	Telephone	(416) 314-7120	401 Bay Street											
Culture Division	Fax		Toronto, ON M7A 0A7											
Heritage Program Unit	E-mail	karla.barboza@ontario.ca												

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			FEDERAL AG	ENCIES										
Fisheries and Oceans Canada		Amanda Conway	Fisheries and Oceans Canada	25-Oct-22	S			Χ	Х					
		Fisheries Protection Biologist	867Lakeshore Road											
	Telephone	(905) 336-4588	Burlington, ON L7S 1A1											
	Fax													
		Amanda.Conway@dfo-mpo.gc.ca												
Environment and Climate Change		Environmental Assessment Coordinator	Environment and Climate Change Canada	25-Oct-22	S			Χ	Х					
Canada		(416) 739-4734	Ontario Region											
		(416) 739-4776	4905 Dufferin Street											
		ec.ecoactionon.ec@canada.ca	Toronto, Ontario M3H 5T4											
Indigenous and Northern Affairs		Environmental Assessment Coordinator	Indigenous and Northern Affairs	25-Oct-22	S			Х	Х					
Canada		(416) 973-4004	Ontario Region											
		(416) 954-6201	25 St Clair Ave East, 8th Floor			\sqcup						\sqcup		
	E-mail	InfoPubs@aadnc-aandc.gc.ca	Toronto, Ontario M4T 1M2											
			UTILITIE											
Bell Access Network		Nicolas Kellar	Bell Access Network	25-Oct-22	S			Х	Х			Ш		
		(519) 371-5450	870-4th Avenue East											
		(519) 376-3563	Owen Sound, ON		_	\sqcup						\sqcup		
		nicholas.kellar@bell.ca	N4K 2N7											
Hydro One Networks Inc.		Kevin Brackley	Hydro One Networks Inc.	25-Oct-22	S	\vdash		Х	X			\vdash		
		(888) 664-9376	45 Sargeant Drive, Box 6700			\vdash						\vdash		
		(905) 944-3251	Barrie, ON									\vdash		
		Zone5PlanningDept@HydroOne.com	L4N 4V9		_	\vdash						\vdash		
		kevin.brackley@hydroone.com				\vdash						\vdash		
Union Coa Limited		tammy.scott@hydroone.com	Heim One	05.0 1.00	1	\vdash	-	· ·				┝		
Union Gas Limited		Kevin Schimus	Union Gas	25-Oct-22	S	\vdash	-	Х	Х			\vdash		
		(519) 377-0214 (519) 376-2591	603 Krumpf Drive P.O. Box 340		\vdash	$\vdash \vdash$	+					$\vdash \vdash \vdash$		
		kschimus@uniongas.com	Waterloo, ON N2J 4A4	<u> </u>		\vdash						\vdash		
Rogers Cable		Tony Dominguez	Rogers Cable	25-Oct-22	0	\vdash	+	Х	Х			┝		
Logara Canie		(705) 737-4660 ext. 6923	1 Sperling Drive	25-001-22	13	\vdash	-+	^	_^			\vdash		
		(705) 737-4660 ext. 6923	Barrie, ON L4M 6B8	<u> </u>		\vdash	-+					\vdash		
		Tony.Dominguez@rci.rogers.com	Daine, ON LAW 000		1	\vdash	+					\vdash		
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		INDIGENOUS COMM	IUNITIES - Consultations Completed by	the City of O	wen 🤄	Sour	nd (L	etters	and E	-mail	(GMBF	?)		
Historic Saugeen Metis	Contact	Archie Indoe (President)	Historic Saugeen Metis	25-Oct-22	2 S	S		Х	Х					
		George Govier (Consultation Coordinator)	204 High Street											
	Telephone	(519) 483-4000	Box 1492]
	Contact	Chris Hatchey	Southampton, ON N0H 2L0						ĺ					
		hsmasstlrcc@bmts.com												
	E-mail	saugeenmetis@bmts.com												
Saugeen First Nation	Contact	Chief Conrad Ritchie	Saugeen First Nation	25-Oct-22	2 S	S		Χ	Х					
			Chippewas of Saugeen First Nation No.29											
	Telephone	(519) 797-2781	6493 Highway 21											
		(519) 797-2978	RR#1 Southampton, ON N0H 2L0											
	E-mail	conrad.ritchie@saugeen.org												
Metis Nation of Ontario (MNO)		James Wagar	Metis Nation of Ontario	25-Oct-22	2 S	S		Χ	Х					
Great Lakes Metis Council		Consultation Assessment Coordinator	Great Lakes Métis Council											
Owen Sound Office		(519) 370-0435	380 – 9 th Street East											
		jamesw@metisnation.org	Owen Sound, ON N4K 1P1											
		joannem@metisnation.org												
		consultations@metisnation.org												
Saugeen Ojibway Nation		Juanita Meekins	Saugeen Ojibway Nation	25-Oct-22	2 S	S		Χ	Х					
Environmental Office		(519) 534-5507 (ext. 226)	Environment Office											
		(519) 534-5525	25 Maadookii Road											
	E-mail	juanita.meekins@saugeenojibwaynation.ca	Neyaashiinigmiing, ON N0H 2T0											
		execassist.ri@saugeenojibwaynation.ca												
Chippewas of Nawash Unceded		Chief Veronica Smith	Chippewas of Nawash Unceded First Nation	25-Oct-22	2 S	S		Х	Х					
First Nation		Michael Earl, Senior Administrative Officer	Administration Building											
		(519) 534-1689	135 Lakeshore Boulevard											
		Chief.veronica@nawash.ca	Neyaashiinigmiing, ON N0H 2T0											
	E-mail	sao@nawash.ca												



Engineering Services Division
Chris Webb, Manager of Engineering Services
City of Owen Sound

808 2nd Avenue East Owen Sound, Ontario N4K 2H4



Tel: 519 376-4440 ext.3300 Fax: 519-376-6028 cwebb@owensound.ca www.owensound.ca

October 17, 2022

Re: Master Plan: Brooke Area Basin A3 Outlet

Municipal Class Environmental Assessment

Notice of Project Initiation and Public Information Centre

Dear Resident.

In July 2008 the City of Owen Sound (City) and the Township of Georgian Bluffs completed the 'Brooke Area Stormwater Management Study' which investigated drainage issues within seven drainage areas that cross the common municipal border and outlet through the City to Georgian Bay. Brooke Area Basin A3 was identified as one of the drainage areas having multiple issues.

The City has initiated a Master Plan study to address the drainage deficiencies identified within the Study Area specific to Brooke Basin A3 and to assist in the planning of seven individual projects (or Reaches) toward an appropriate overall drainage strategy. This system-wide approach provides for a strategic level of assessment of various options to better address the needs of the overall system and to plan appropriately various drainage undertakings within the Study Area in a comprehensive manner. The Study Area is shown on the enclosed *Notice of Project Initiation and Public Information Centre*. This Notice is being provided to you as your property has been identified to be within 120 metres of the main drainage corridor of Basin A3.

The Master Plan is available on the City of Owen Sound website and at City Hall (808 – 2nd Avenue East). Comments are invited for incorporation into the planning of this project and will be received by the City until November 25th, 2022.

The Master Plan is being completed in accordance with Phases 1 and 2 of the Municipal Class Environmental Assessment (Class EA) process. Upon completion, the intention is to include a sufficient level of investigation, consultation, and documentation to fulfill the requirements for the Schedule A/A+ and Schedule B EA projects for the proposed individual drainage projects.

The Public Information Centre (PIC No.1) will be held on Tuesday, November 8th, 2022, at City Hall (Council Chambers) from 4:30 to 5:30, followed by a formal presentation to the Operations Committee.

Should you have any questions or concerns, please contact the undersigned at cwebb@owensound.ca or 519-376-4440 (ext. 3300).

Yours Truly,

Chris Webb, P.Eng

Manager of Engineering Services

The Office of the Mayor lan Boddy City Hall 808 2nd Avenue East Owen Sound, ON N4K 2H4



Telephone: 519 376-4440 ext. 1212 Facsimile: 519-376-3579 E-mail: iboddy@owensound.ca

www.owensound.ca

October 17, 2022

Chief Veronica Smith and Michael Earl, Senior Administrative Officer Chippewas of Nawash Unceded First Nation Administration Building 135 Lakeshore Boulevard Neyaashiinigmiing, ON N0H 2T0 sao@nawash.ca

Dear Chief Smith:

Re: Master Plan: Brooke Area Basin A3 Outlet Municipal Class Environmental Assessment

Notice of Project Initiation and Public Information Centre

In July 2008, the City of Owen Sound (City) and the Township of Georgian Bluffs completed the 'Brooke Area Stormwater Management Study', which investigated drainage issues within seven drainage areas that cross the common municipal border and outlet through the City to Georgian Bay. Brooke Area Basin A3 was identified as one drainage area with multiple issues.

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The Master Plan is available on the City of Owen Sound website and at City Hall ($808 - 2^{nd}$ Avenue East, Owen Sound). Comments are invited for incorporation into the planning of this project and will be received by the City until November 25^{th} , 2022. We will continue to provide correspondence as the project progresses.

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Committee.

While I am always pleased to speak with you, it may be advantageous to direct any specific questions or concerns to the Manager of Engineering Services, Mr. Chris Webb, at cwebb@owensound.ca or 519-376-4530 (ext.3300).

Miigwetch!

lan C. Boddy

Mayor

c: Members of Council

Tim Simmonds, City Manager

The Office of the Mayor lan Boddy City Hall 808 2nd Avenue East Owen Sound, ON N4K 2H4



Telephone: 519 376-4440 ext. 1212 Facsimile: 519-376-3579 E-mail: iboddy@owensound.ca

www.owensound.ca

October 17, 2022

Chief Conrad Ritchie
Saugeen First Nation
Chippewas of Saugeen First Nation No.29
6493 Highway 21
RR#1 Southampton, ON N0H 2L0
conrad.ritchie@saugeen.ca

Dear Chief Ritchie:

Re: Master Plan: Brooke Area Basin A3 Outlet Municipal Class Environmental Assessment

Notice of Project Initiation and Public Information Centre

In July 2008, the City of Owen Sound (City) and the Township of Georgian Bluffs completed the 'Brooke Area Stormwater Management Study', which investigated drainage issues within seven drainage areas that cross the common municipal border and outlet through the City to Georgian Bay. Brooke Area Basin A3 was identified as one drainage area with multiple issues.

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Miigwetch!

lan C. Boddy

Mayor

c: Members of Council

Tim Simmonds, City Manager

The Office of the Mayor lan Boddy City Hall 808 2nd Avenue East Owen Sound, ON N4K 2H4



Telephone: 519 376-4440 ext. 1212 Facsimile: 519-376-3579 E-mail: iboddy@owensound.ca www.owensound.ca

October 17, 2022

Juanita Meekins
Saugeen Ojibway Nation, Environmental Office
25 Maadookii Subdivision
Neyaashiinigmiing, ON N0H 2T0
juanita.meekins@saugeenojibwaynation.ca; execassist.ri@saugeenojibwaynation.ca

Dear Ms. Meekins:

Re: Master Plan: Brooke Area Basin A3 Outlet Municipal Class Environmental Assessment Notice of Project Initiation and Public Information Centre

In July 2008, the City of Owen Sound (City) and the Township of Georgian Bluffs completed the 'Brooke Area Stormwater Management Study', which investigated drainage issues within seven drainage areas that cross the common municipal border and outlet through the City to Georgian Bay. Brooke Area Basin A3 was identified as one drainage area with multiple issues.

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Miigwetch!

lán C. Boddy

Mayor

c: Members of Council

Tim Simmonds, City Manager

The Office of the Mayor lan Boddy City Hall 808 2nd Avenue East Owen Sound, ON N4K 2H4



Telephone: 519 376-4440 ext. 1212 Facsimile: 519-376-3579 E-mail: iboddy@owensound.ca www.owensound.ca

October 17, 2022

Métis Nation of Ontario consultations@metisnation.org Suite 1100 – 11th Floor 66 Slater Street Ottawa, ON K1P 5H1

To Whom it May Concern:

Re: Master Plan: Brooke Area Basin A3 Outlet Municipal Class Environmental Assessment Notice of Project Initiation and Public Information Centre

In July 2008, the City of Owen Sound (City) and the Township of Georgian Bluffs completed the 'Brooke Area Stormwater Management Study', which investigated drainage issues within seven drainage areas that cross the common municipal border and outlet through the City to Georgian Bay. Brooke Area Basin A3 was identified as one drainage area with multiple issues.

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Miigwetch!

lan C. Boddy

Mayor

c: Members of Council

Tim Simmonds, City Manager

The Office of the Mayor Ian Boddy City Hall 808 2nd Avenue East Owen Sound, ON N4K 2H4



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www.owensound.ca

October 17, 2022

James Wagar, Consultation Assessment Coordinator Métis Nation of Ontario - Great Lakes Métis Council 380 – 9th Street East Owen Sound, ON N4K 1P1 jamesw@metisnation.org; joannem@metisnation.org

Dear Mr. Wagar:

Re: Master Plan: Brooke Area Basin A3 Outlet Municipal Class Environmental Assessment

Notice of Project Initiation and Public Information Centre

In July 2008, the City of Owen Sound (City) and the Township of Georgian Bluffs completed the 'Brooke Area Stormwater Management Study', which investigated drainage issues within seven drainage areas that cross the common municipal border and outlet through the City to Georgian Bay. Brooke Area Basin A3 was identified as one drainage area with multiple issues.

The City has initiated a Master Plan study to address the drainage deficiencies identified within the Study Area-specific to Brooke Basin A3 and to assist in planning seven individual projects (or Reaches) toward an appropriate overall drainage strategy. The Study Area is shown on the enclosed *Notice of Project Initiation and Public Information Centre*. This system-wide approach provides for a strategic level of assessment of various options to address the overall system's needs better and to plan appropriately various drainage undertakings within the Study Area in a comprehensive manner.

The Master Plan is available on the City of Owen Sound website and at City Hall ($808 - 2^{nd}$ Avenue East, Owen Sound). Comments are invited for incorporation into the planning of this project and will be received by the City until November 25^{th} , 2022. We will continue to provide correspondence as the project progresses.

The Master Plan is being completed in accordance with Phases 1 and 2 of the Municipal Class Environmental Assessment (Class EA) process. Upon completion, the intention is to include a sufficient level of investigation, consultation and documentation to fulfill the requirements for the Schedule A/A+ and Schedule B EA projects for the proposed individual drainage projects.

The Public Information Centre (PIC No.1) will be held on Tuesday, November 8th, 2022, at City Hall (Council Chambers) from 4:30 to 5:30, followed by a formal presentation to the Operations Committee.



While I am always pleased to speak with you, it may be advantageous to direct any specific questions or concerns to the Manager of Engineering Services, Mr. Chris Webb, at cwebb@owensound.ca or 519-376-4530 (ext.3300).

Miigwetch!

lan C. Boddy

Mayor

c: Members of Council

Tim Simmonds, City Manager

The Office of the Mayor lan Boddy City Hall 808 2nd Avenue East Owen Sound, ON N4K 2H4



Telephone: 519 376-4440 ext. 1212 Facsimile: 519-376-3579 E-mail: iboddy@owensound.ca

www.owensound.ca

October 17, 2022

George Govier, Consultation Coordinator
Historic Saugeen Métis
204 High Street
P.O. Box 1492
Southampton, ON N0H 2L0
hsmasstlrcc@bmts.com; saugeenmetisadmin@bmts.com

Dear Mr. Govier:

Re: Master Plan: Brooke Area Basin A3 Outlet Municipal Class Environmental Assessment

Notice of Project Initiation and Public Information Centre

In July 2008, the City of Owen Sound (City) and the Township of Georgian Bluffs completed the 'Brooke Area Stormwater Management Study', which investigated drainage issues within seven drainage areas that cross the common municipal border and outlet through the City to Georgian Bay. Brooke Area Basin A3 was identified as one drainage area with multiple issues.

The City has initiated a Master Plan study to address the drainage deficiencies identified within the Study Area-specific to Brooke Basin A3 and to assist in planning seven individual projects (or Reaches) toward an appropriate overall drainage strategy. The Study Area is shown on the enclosed *Notice of Project Initiation and Public Information Centre*. This system-wide approach provides for a strategic level of assessment of various options to address the overall system's needs better and to plan appropriately various drainage undertakings within the Study Area in a comprehensive manner.

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Committee.

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Miigwetch!

lan C. Boddy

Mayor

c: Members of Council

Tim Simmonds, City Manager



PEOPLE | ENGINEERING | ENVIRONMENTS

October 25, 2022 Our File: 216301

Via Email: c.seider@waterprotection.ca

Drinking Water Source Protection c/o Grey Sauble Conservation Authority Risk Management Office 237897 Inglis Falls Road, RR#4 Owen Sound, ON N4K 5N6

Attention: Mr. Carl Seider

Re: Source Water Protection Consultation

Master Plan: Brooke Area Basin A3

City of Owen Sound

Dear Carl,

In July 2008, the City of Owen Sound (City) and the Township of Georgian Bluffs completed the 'Brooke Area Stormwater Management Study' which investigated drainage issues within seven drainage areas that cross the common municipal border and outlet through the City to Georgian Bay. Brooke Area Basin A3 was identified as one of the drainage areas having multiple issues.

The City has initiated a Master Plan study to address the drainage deficiencies identified within the Study Area specific to Brooke Basin A3 and to assist in the planning of seven individual projects (or Reaches) toward an appropriate overall drainage strategy. The Study Area is shown on the attached *Notice of Project Initiation and Public Information Centre*. This system wide approach provides for a strategic level of assessment of various options better to address the needs of the overall system and appropriately to plan various drainage undertakings within the Study Area in a comprehensive manner. The Master Plan is available on the City of Owen Sound website.

The proposed drainage projects will address stormwater management and will include the installation of storm sewer services in some areas and may include watermain and sanitary sewer upgrades, as required. This will result in road works, potentially outside of the existing rights-of-way, including grading and paving, as well as landscaping of adjacent areas. The creation of lands that would include chemical or fuel storage are not included as part of this plan.

Based on our preliminary review, the Study Area is situated within the Grey Sauble Source Protection Area. According to the Saugeen-Grey Sauble-Northern Bruce Peninsula Source Protection Plan, the Study Area is situated within an intake protection zone, with a 2-hour time of travel capture zone (IPZ-2) and a vulnerability score of 4. In addition, the easterly portion of the Study Area is considered to be a highly vulnerable aquifer with a vulnerability score of 6. The Study Area is also within an Events Based Area (EBA) for a fuel spill with a threshold for on-site storage in the range of 25,000L to 50,000L.

We have reviewed the planned project and associated activities in relation to the *Tables for Drinking Water Threats*. Based on the potential scope of the project, it not anticipated that:

- i. Any project activities will be considered a prescribed drinking water threat; or
- ii. Any activities will change or create new vulnerable areas.



As part of the EA process, we are reviewing the project with respect to requirements under the Clean Water Act. At this time, we are requesting confirmation of the above, as well as whether you are aware of any other potential considerations and policies in the Source Protection Plan that may apply to the project.

Should you have any questions, please feel free to contact our office.

Yours truly,

GM BLUEPLAN ENGINEERING LIMITED

Per:

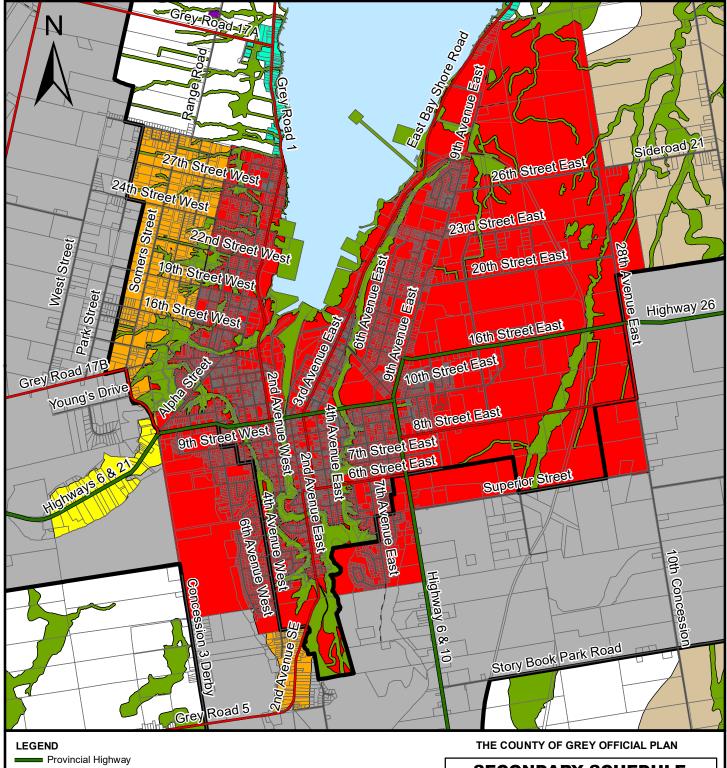
Matthew Nelson, P.Eng., P.Geo.

AN/md

cc: City of Owen Sound: Chris Webb, via Email – cwebb@owensound.ca

File No. 216301

APPENDIX B: PLANNING INFORMATION



County Road

Local Road- - Seasonal Road

- - Seasonal Road
Agricultural

Special Agricultural

Rural
Primary Settlement Area

Secondary Settlement Area
Inland Lakes & Shoreline

Recreational Resort Area

Sunset Strip Area

Industrial Business Park

Space Extensive Industrial and Commercial

Niagara Escarpment Plan Boundary **

Niagara Escarpment Development Control Area

Escarpment Natural Area
Escarpment Recreation Area

Hazard Lands
Provincially Significant Wetlands

SECONDARY SCHEDULE

Land Use Types

MAP 1h

OWEN SOUND BROOKE - CREAMERY HILL

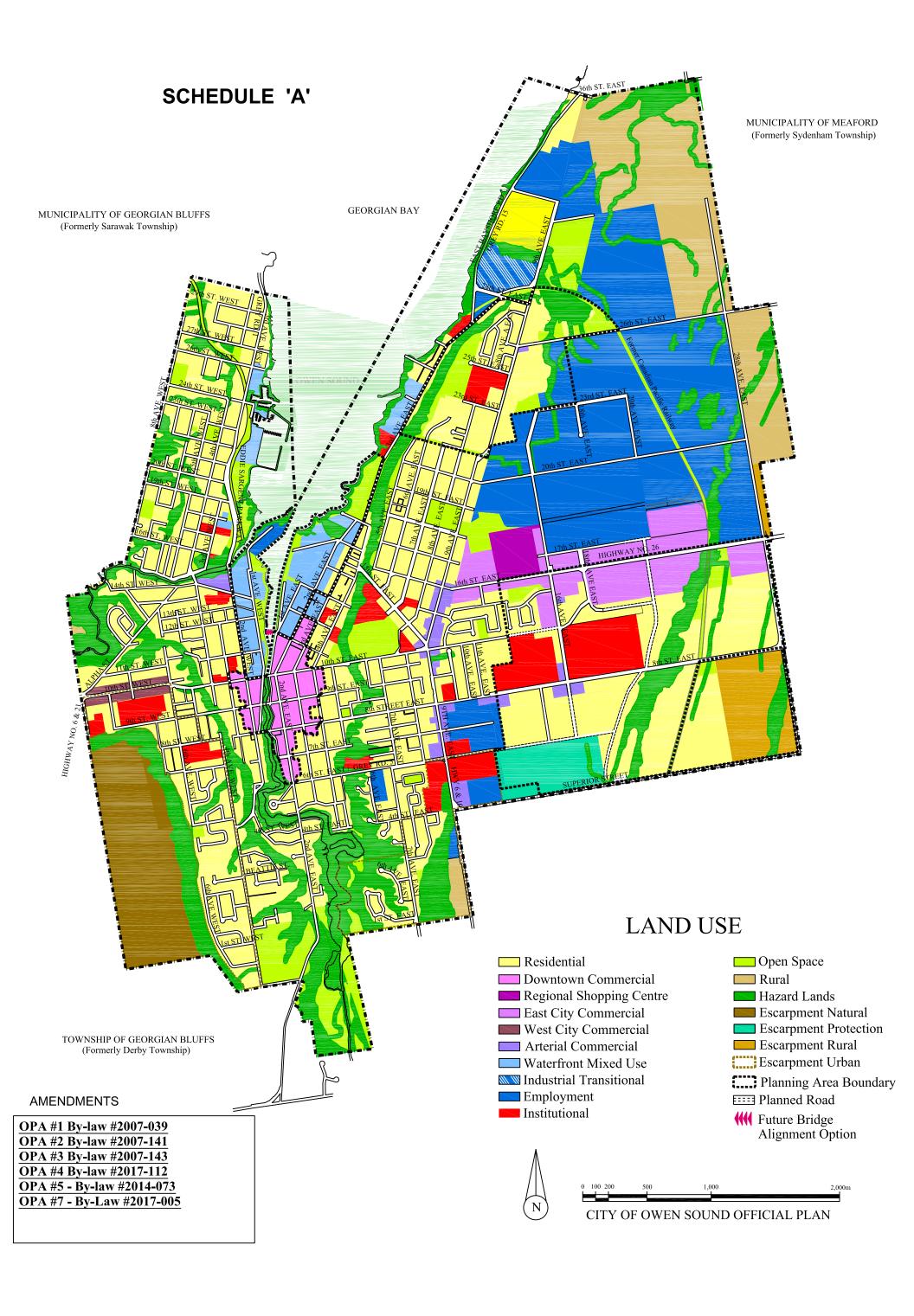
SCALE 1:43 000

INTERACTIVE MAP: geo.grey.ca

DOWNLOAD PDF: grey.ca/planning-development

GR_OP_SecSched_Map1hOwen SoundX11.mxd

^{**} certain settlement areas within the Niagara Escarpment Plan Boundary may be subject to Development Control.



APPENDIX C: BASIN A3 SWM STUDY (JULY 2008)

BROOKE AREA STORMWATER MANAGEMENT STUDY CITY OF OWEN SOUND TOWNSHIP OF GEORGIAN BLUFFS FINAL REPORT

GAMSBY AND MANNEROW LIMITED CONSULTING PROFESSIONAL ENGINEERS GUELPH – KITCHENER – LISTOWEL – OWEN SOUND

> July, 2008 Our File: M-1586

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- Appendix "C" Culvert Capacity Design Charts
- Appendix "D" MIDUSS Computer Model Output
- Appendix "E" Stormwater Management Study Township of Sarawak G&M, September, 1990
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 - Detention Pond Alternatives Drainage Area A3 G&M, February, 1992
 - 24th Street Stormwater Management Project Environmental Assessment Report Schedule 'B' – Ainley and Associates Ltd., June, 1994
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BROOKE AREA STORMWATER MANAGEMENT STUDY CITY OF OWEN SOUND TOWNSHIP OF GEORGIAN BLUFFS FINAL REPORT

July, 2008 Our File: M-1586

1.0 BACKGROUND

1.1 Introduction

Gamsby & Mannerow Limited (G&M) was retained by the Township of Georgian Bluffs and the City of Owen Sound to undertake a Stormwater Management Study for the Townplot of Brooke. The scope of this study encompasses Stormwater Management analysis and planning within the Brooke area of the Township of Georgian Bluffs and the City of Owen Sound, as outlined in Figure 1, and on Drawing No. M-1586-1.

This submission describes the planning and review process, documents the engineering analyses and presents recommendations for implementation of the study findings. These recommendations are presented throughout this report and are recapitulated in Section 4.0.

1.2 STUDY PURPOSE

The purpose of the Study is to protect life and property from the effects of stormwater flooding by developing an appropriate drainage solution for each drainage basin within the study area, which is acceptable to both municipalities.

1.3 STUDY OBJECTIVE

The objective of the Brooke Area Stormwater Management Study is to present alternative drainage solutions and related costs to each municipality and, ultimately, to establish a recommended solution for each drainage area, with an implementation schedule, to the mutual satisfaction of the two participating municipalities.

1.4 STUDY AREA AND BACKGROUND

The study area and existing conditions are illustrated on Drawing No. M-1586-2.

In 1990, the former Township of Sarawak commissioned G&M to prepare a Stormwater Management Study (SWM), as supporting documentation for the Township Official Plan review, and is included in Appendix "E". As part of that Study, a Development Feasibility Study was

also prepared, which focussed on the Townplot of Brooke area within the Township of Sarawak, including drainage patterns.

The Stormwater Management Study delineated thirty-four (34) drainage areas within the Township of Sarawak, seven (7) of which relate to the Townplot of Brooke area and the subject Study Area, and are identified as catchment areas (basins) A1 to A7 on the attached Figure 2. Sub-basin areas are also delineated within each municipality, numbers representing sub-basins within the Townplot of Brooke (i.e. A3-1, A3-2, etc.), and lower-case letters representing sub-basins within the City of Owen Sound (i.e. A4a, A4b, etc.). Townplot of Brooke sub-basins often drain across the Owen Sound City limits at multiple locations which may confluence within one Owen Sound sub-basin.

1.4.1 Georgian Bluffs, Townplot of Brooke Drainage System

The following summarizes our understanding of the Georgian Bluffs, Townplot of Brooke drainage system.

Basin A1 outlets to the Pottawatomi River within the Townplot of Brooke and does not impact on City of Owen Sound storm sewer infrastructure.

Basin A2 has two (2) sub-basin areas. Sub-basin A2-1 drains across the municipal boundary and outlets to the Pottawatomi River through sub-basin A2a. Contribution from sub-basin A2a is considered to be negligible due to the close proximity of its outlet to the municipal boundary. A smaller sub-basin (Basin A2-2) outlets to a City storm sewer on 7th Ave W (A2b), between 15th St W and 16th St W (Hunters Run subdivision).

Basin A3 has six (6) ravine outlets from Georgian Bluffs into the City, at 19th St W, a location between 19th St W and 20th St W, 20th St W, 21st St W, 22nd St W, and 23rd St W. A study by G&M in 1992 of Basin A3 investigated design flows and three alternative stormwater management pond locations along the major drainage route, which outlets into the City at 21st St W.

Basin A4 has a main outlet (A4-2) to the City's 24th St W storm sewer, with a secondary, high flow spill outlet south-easterly from the SWM pond, combining with sub-basin A4-1, to a ravine between 23rd St W and 24th St W. A review of G&M archive files relating to this area indicates that the Township "purchased" 30 ft³/s (0.85 m³/s) capacity within the City's 24th St W storm sewer, with greater flows to be diverted into the "Fromager" stormwater management pond, south of Keppel Sarawak school. A design report, prepared by Ainley and Associates Limited in August, 1994, indicates how ultimate development flows to the Fromager pond are controlled to existing (1990) flow rates. The 1994 Final Design Report and Schedule "B" EA Report are included for reference in Appendix "E".

Basin A5 discharges from Georgian Bluffs at six (6) locations. Sub-basins A5-1 to A5-6 discharge from Georgian Bluffs via a 750 mm Ø CSP at 26th St W, 450 mm Ø CP between 26th St W and 27th St W, 450 mm Ø CSP at 27th St W, 300 mm Ø CSP at 27th St W, open channel flow at 28th St W, and open channel flow at 29th St W, respectively.

Basin A6 discharges to a ravine along the 30th St W right-of-way. Basin A7 also discharges via a ravine north of the City limit across Grey Road 1 to Owen Sound Bay. Within Basins A5, A6 and A7 were noted a variety of drainage complaints and potential for spills between the Basins. A review by G&M in 1992 included eight alternative drainage schemes for managing drainage within these three Basins.

1.4.2 City of Owen Sound Drainage System

The following summarizes our understanding of the City of Owen Sound drainage system.

The drainage areas, which outlet from Georgian Bluffs into the City of Owen Sound, discharge to Owen Sound Bay at four (4) major storm sewer outlets, at 19th St W (Kelso Beach – Basin A3), 24th St W (Yacht Club Basin – sub-basin A4a), 27th St W (sub-basin A5a), and 30th St W (Basin A6). Additional outlets exist at 8th Ave W (to the Pottawatomi River – sub-basin A2a), 7th Ave W (to the Pottawatomi River – sub-basin A2b), 24th St W (sub-basin A4b), 26th St W (drains local runoff), 28th St W (sub-basin A5b) and 29th St W (sub-basin A5c). These additional outlets, with the exception of sub-basins A2a and A2b, drain predominantly local area runoff within the City.

Drainage designs were prepared by G&M for the City of Owen Sound for outlets at 19th St W (Kelso Beach – Basin A3), 24th St W (Yacht Club – Basin A4), 27th St W (Basin A5) and 29th St W. The 30th St W outlet remains as an open channel to a culvert across Grey Road 1.

In 2003, following a joint meeting between Township and City officials regarding a drainage complaint in the 6th Ave W area, G&M prepared MIDUSS flow models on behalf of the City for the 24th St W storm sewer system within the City, with a view to re-routing discharge from the 7th Ave W storm sewer to the 22nd St W storm sewer, which connects to the 24th St W outlet. This project was not implemented due to the apparent need to investigate broader drainage issues in the area. More recent investigations were conducted by G&M, on behalf of the City, for the 19th St W – Kelso Beach storm sewer, including the recently constructed 8th Ave W / 19th St W storm sewer, 6th Ave W drainage course review and Kelso Beach outfall review.

1.5 PHYSIOGRAPHY

The Sydenham River descends Inglis Falls just south of the City limits, and flows northward through the central business district to the inner harbour of Owen Sound Bay. A series of crescent-shaped bluff and plateau features rise from the bay water level. The lower plateau represents the former glacial Lake Nippissing wave-cut terrace. The upper plateau represents the former glacial Lake Algonquin wave-cut terrace. The upper-most rise in the series was confined by the Niagara Escarpment.

The steep gradients of the rises and the relatively flat plateaus create unique challenges for establishing traditional gravity draining sewer systems. For example, despite the significant relief, large stormwater management ponds are often required to moderate peak runoff from development to maintain manageable storm sewer sizes downstream across the flatter plateau areas.

The Niagara Escarpment forms the westerly limit of the Study Area. The Brooke area of Sarawak is located predominantly on the upper plateau, or Algonquin terrace. The Nippissing Rise runs approximately along the boarder between the two municipalities, while the Nippissing terrace is located primarily within the City of Owen Sound.

1.6 OFFICIAL PLANS

The Grey County Official Plan includes the Township of Georgian Bluffs. The westerly half (approximately) portion of the Study Area is included in the Niagara Escarpment Planning area. The easterly half is designated as Hamlet. The Official Plan prepared for the Township of Sarawak in 1992 remains as the controlling document for development planning within the Study Area. The Township of Georgian Bluffs Comprehensive Zoning By-Law No. 6-2003, as amended January, 2007, designates the easterly half as R1 – General Residential zoning, with some EP – Environmental Protection zoning along the watercourses. Minor areas of I - Institutional and M1 – General Industrial zoning are also included within the area.

The Owen Sound Official Plan indicates that lands within the study area are predominantly residential, with small areas of hazard land, open space, and waterfront mixed use (small commercial).

1.7 DEVELOPMENT POTENTIAL

1.7.1 Georgian Bluffs

The background reports, which led to the development of the Township of Sarawak Official Plan, 1992, included the following:

- Development Feasibility Study, Townplot of Brooke, Township of Sarawak, May, 1990.
- Stormwater Management Study, Township of Sarawak, September, 1990.
- Background Report to the Official Plan for the Township of Sarawak, June, 1991.

These reports considered a variety of development scenarios, including one which would rely on the provision of municipal water and sewer servicing. The provision of municipal water and sewer servicing would allow development density to approach 5 units per acre, which is significantly greater than the development density achievable based on individual, private wells and sewage systems. The Official Plan (1992) restricts the density of development until such time as municipal water and sewer servicing is available. The development scenario advanced since that time does not include municipal water or sewer servicing and, for the purposes of this report, no extension of municipal servicing throughout the Brooke area of Georgian Bluffs is contemplated.

Generally, the lands within the Niagara Escarpment Planning area may be developed on 5 acre (2.0 ha) lots. Lands within the Hamlet designation may be developed on 0.5 acre (0.2 ha – R1c), 1.5 acre (0.6 ha – R1b), or 2.47 acre (1.0 ha – R1a) lots, with no municipal water or sewer services (depending on the ability of local soil conditions to support an on-site sewage system), or 0.4 acre (0.15 ha) lots where municipal water service, extended from the City of Owen Sound, currently exists. These areas are delineated in the Municipal Zoning By-law No. 6-2003, as

amended January, 2007, and is provided as Figure No. 4 for reference. Developable lot areas are delineated on Drawing No. M-1586-3.

The Stormwater Management Study utilizes the following criteria and assumptions in establishing existing and ultimate development runoff scenarios:

- 1. The density of development throughout the Township will be no greater than that illustrated on G&M Drawing No. M-1586-3, which reflects the Municiapl Zoning By-law.
- 2. There will not be extensive industrial or commercial development.
- 3. Impervious areas consist of road surfaces, roof-tops and driveways.
- 4. Lawns and agricultural lands are considered as pasture land.
- 5. Runoff within Georgian Bluffs will continue to be controlled through open ditch drainage. No underground storm sewer network is contemplated.
- 6. The population growth rate within the Townplot of Brooke will continue at 2% per year, which will achieve an ultimate development condition within the 20-year planning horizon.

The Brooke area is an original Townplot. As such, the road and lot fabric is already surveyed and created. Therefore, development of these lots occurs on an individual basis and not through a plan of subdivision process. The result, with respect to stormwater management, is that there is little opportunity for Georgian Bluffs to have a developer construct a single facility to manage stormwater runoff on an area-wide basis.

1.7.2 Owen Sound

Aside from some small commercial and residential land uses, the lands within the Owen Sound portion of the Study Area are developed, predominantly with residential land use. For the purposes of this report, it is assumed that the City portion of the Study Area is already fully developed.

1.8 Drainage Considerations

A watercourse is defined generally as a stream of water, which flows along a defined channel, with bed and banks, for a sufficient time to give it substantial existence. This may include streams that dry up periodically. Watercourses within the Study Area may be subject to Riparian Rights. These rights include the right to drain lands that abut the watercourse into the natural stream, with ditches and drains, even though it results in an increase in the volume or rate of flow. Riparian property owners are entitled to receive water flowing in its natural state (both quantity and quality) and, thereto, are required to accept the natural state of flowing water, even if flooding conditions occur.

Surface water not flowing in a natural watercourse has no right of drainage. An owner of lower land may, at his or her own choice, either allow the water from higher land to flow over it, or by dams or banks keep such water off his or her property. No owner has the right to collect such surface water by ditches or drains and discharge it on lands of another. He or she has the responsibility to take this water to a sufficient outlet, i.e., a natural watercourse or a drain constructed under The Drainage Act. For a municipality this means that, once water is collected in ditches or storm sewers, they cannot discharge it onto another property and should take responsibility to ensure the water is taken to a sufficient outlet.

The drainage basins delineated on G&M Drawing No M-1586-1 are based on historical documentation and current field reviews. In many instances, roadside ditches in the table lands area within Georgian Bluffs do not provide a clear drainage divide and high flows may spill from one drainage basin to the next. We recommend that clear separation of drainage be established by installing berms within the ditches at the locations where drainage divides between basins exist. In this manner, stormwater flows may be managed on a more consistent basis.

Allowable flows from Georgian Bluffs into the City of Owen Sound can be based on the greater of the pre-development design flow, or the capacity of existing storm sewer infrastructure within the City. Where the capacity of the existing City storm sewer system is inadequate, and no suitable overland flow route is available, the available options include providing SWM ponding areas to regulate flows, or increasing storm sewer capacity.

Georgian Bluffs has recently introduced the practice of requiring on-site stormwater management controls for developing lots within the Brooke area. Theoretically, this practice could control ultimate development peak flows downstream at existing condition flow rates. However, considering that the modelled ultimate development flows are not significantly greater than existing flow rates, and that private systems may not be sufficiently reliable, we have not included the effects of these private systems in our ultimate development flow calculations, or in our considerations for drainage infrastructure planning.

Design flows are considered as the calculated peak of runoff due to a statistical rainfall event, based on recorded rainfall events. In an un-controlled drainage system, the peak of runoff occurs only for a relatively short duration. In a controlled drainage system (i.e. a stormwater management pond) a volume of the runoff water is temporarily held back and released at a "lower than peak rate" for an extended period of time.

Generally, road crossing culverts and storm sewer systems are designed to convey the 1:5 year design flow with no surcharging. These systems may convey more than the 1:5 year design flow under surcharged conditions. Overland flow routes convey flows in excess of the drainage system capacity.

The Grey Sauble Conservation Authority (GSCA) has mapped regulated areas along watercourses and sloped areas within the Study Area. The municipality should take ownership of these hazard lands as development proposals are advanced.

There is a claim by Native Peoples on the lands of un-opened road allowances within the Georgian Bluffs portion of the Brooke area. Recent rulings by the Province dictate that Natives are to be consulted regarding any proposals to utilize lands under these claims.

1.9 THE CLASS ENVIRONMENTAL ASSESSMENT PROCESS

The key principles of successful environmental planning under the EA Act include the following:

• Consultation with affected parties early in and throughout the process, such that the planning process is a cooperative venture.

- Consideration of a reasonable range of alternatives.
- Identification and consideration of the effects of each alternative on all aspects of the environment.
- Systematic evaluation of alternatives in terms of their advantages and disadvantages.
- Provision of clear and complete documentation of the planning process.

The "environment" to be considered generally includes the natural, social, cultural, built and economic environments. The Municipal Engineers Association has prepared a "parent" Class EA for municipal projects, which outlines a generic process for municipal projects to fulfill the requirements of the EA Act. This document was amended in 2007 to include Schedule A+ projects (pre-approved with the public to be advised) and Municipal Transit Projects. A flowchart, illustrating the process, is provided as Figure No. 3. It is presumed that the projects discussed herein would be either Schedule "A", "A+", or "B" activities under the Municipal Class EA.

This report is intended to provide sufficient documentation to fulfill the requirements of the first two Phases of the Municipal Class Environmental Assessment process, although specific projects may require a further degree of public and review agency consultation prior to implementation.

2.0 RAINFALL AND SNOWMELT

Surface water management is often referred to as stormwater management, although the design practices also are reflective of runoff from snowmelt. Since snowmelt flows are difficult to predict, surface water management plans are based on calculated runoff from statistical rainfall events. The Atmospheric Environment Service records rainfall data at the City's Water Pollution Control Plant (WPCP).

2.1 RAINFALL

Rainfall data are collected at the City of Owen Sound WPCP, with statistical analyses prepared by the Atmospheric Environment Service, for the years 1965 to 1990. A copy of the statistical rainfall data is included in Appendix "A". The statistical data were entered into the MIDUSS computer modelling software to generate coefficients for the Chicago – type rainfall distribution patterns. Computer model output is located in Appendix "A", and is summarized in the following Table 2-1.

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Table 2-1 –	Cincago	rxan.	пап	Distrib	uuon	Coefficients

MIDUSS Coefficients	1:2-Year	1:5-Year	1:10-Year	1:25-Year	1:50-Year	1:100-Year
A	786.171	1129.529	1340.877	1648.994	1912.945	2117.123
В	6.530	7.382	7.570	8.074	8.567	8.610
С	0.822	0.840	0.846	0.855	0.863	0.864
R	0.375	0.375	0.375	0.375	0.375	0.375
Imax (mm/hr)	77.251	101.133	116.940	136.784	151.473	166.328
PTOT (mm)	36.810	47.462	54.358	63.313	69.976	76.527

The Regional storm for the study area is the Timmins Regional storm. This rainfall event has characteristics as outlined in Appendix "A".

2.2 SNOWMELT

Runoff events due to snowmelt are difficult to quantify due to a high degree of variability in a number of natural conditions such as temperature, rainfall, amount of snow, density of snow, permeability of soils (frozen or saturated), etc. Therefore, statistical rainfall events are used to approximate the runoff due to snowmelt. This approximation is achieved by comparing streamflow records for spring runoff conditions, with dry weather conditions for a monitored watershed.

Historical streamflow records are compiled by Environment Canada, Inland Waters Directorate, Water Resources Branch, Water Survey of Canada, in the Historical Streamflow Summary, Ontario, 1990. The data is compiled for the Sydenham River near Owen Sound (Station No. 02FB007), with an upstream catchment area of 181 km². A table of Annual Extremes of Discharge for the Sydenham River, copied from the Historical Streamflow Summary, is included in Appendix "B".

The data correlated between the years 1915 and 1990 indicate a maximum instantaneous discharge rate of 59.5 m³/s on April 19th, 1975 (no record is available prior to 1959), and a maximum daily discharge of 67.7 m³/s on April 12th, 1947. The minimum daily discharge on record is 0.028 m³/s, measured on July 17th, 1952.

The MIDUSS computer model was used to model runoff due to rainfall from the same 181 km² catchment area. Results are included in Appendix "B", and are summarized in the following Table 2-2.

Table 2-2 – Peak Runoff Rates due to Rainfall in Sydenham River

	1:2-Year	1:5-Year	1:10-Year	1:25-Year	1:50-Year	1:100-Year	Regional
Peak Flow (m ³ /s)	12.140	27.856	41.526	63.613	83.336	104.555	382.557

Therefore, as a comparison, runoff due to snowmelt is approximately equivalent to the runoff due to a 1:25 year return rainfall event. Surface water management planning for this Brooke Area Stormwater Management Study includes runoff events due to a 1:100 year rainfall event, and a regional storm event (Timmins Regional storm), which is considered to also provide a sufficient degree of consideration for snow melt events.

3.0 DRAINAGE AREAS

The following sections include a description of existing conditions within each drainage area. Modelled design flows for pre-development, existing and ultimate development conditions are presented on Drawing Nos. M-1586-4 to 6, with capacity restrictions noted in bold type. Drawing No. M-1586-3 illustrates the remaining lots on which development may occur within

the Township, which was used in determining ultimate development conditions. Existing and potential drainage problems are identified and discussions regarding various alternative solutions to the drainage problems are presented. For the purposes of a Municipal Class Environmental Assessment, the "Do Nothing" option is also considered. Cost estimates are provided for various recommended solutions. The cost estimates include construction costs plus 15% for contingencies and 15% for engineering design and construction inspection. Land costs, legal costs, permit fees and additional investigative study costs (i.e. environmental impact study, geotechnical investigation, environmental assessment etc.) are not included. Recommended solutions are illustrated on Drawing Nos. M-1586-7 to 9, along with the resultant design flows on Drawing Nos. M-1586-10 to 12.

Recommendations are accompanied by a High, Medium or Low priority. A High priority correlates to a proposed implementation schedule of between 0 and 5 years, Medium between 5 and 10 years, and Low for 10 years and beyond.

Culvert capacities, denoted within this report and on G&M Drawings Nos. M-1586-4 to 6 and M-1586-10 to 12, were calculated based on a headwater/diameter ratio of 1.0, unless otherwise stated. In some instances, surcharge conditions may result in temporary ponding upstream where the 'top of bank' elevations permit. Culvert capacity design charts are provided in Appendix "C".

MIDUSS computer model output is provided in Appendix "D".

3.1 BASIN A1

3.1.1 Preamble

Drainage Basin A1 covers 13.8 ha, which discharges easterly on 14th St W to the Pottawatomi River, outside of the City of Owen Sound limits. Currently, a 450 mm Ø CSP conveys flows down the bluff to the river. The outlet is located where 14th Street West crosses the Pottawatomi River. Inlets to the sewer often become plugged with leaves and flows can spill overland along the roadway to the river. Roadside ditches are not well defined and nuisance flooding can occur. Increases in runoff due to anticipated development within Basin A1 is expected to be negligible, due to the large area of hazard land within the Basin, and only four potentially developable lots.

3.1.2 Design Flows

Due to the small catchment area, the 450 mm Ø CSP outlet pipe is considered to be the only key infrastructure within the Basin.

• 450 mm Ø CSP (14th St W) – Capacity of about 0.46 m³/s (most critical location), capable of conveying the 1:10 year flow.

3.1.3 Recommendations

We recommend that drainage improvements be incorporated into any road improvements planned for 14th St W. These improvements are summarized in the following:

Description Cost **Priority** Replace existing catchbasin grates on 14th St W with bird cage style inlet grates, or other appropriate inlet to reduce plugging potential, to \$5,000 High allow leaves to inlet to the sewer, rather than collecting and plugging at the inlet. Reconstruct 14th St W (350 m), including replacing the existing 450 mm Ø CSP with a larger diameter storm sewer (600 mm Ø), with a sufficient number of inlets, to improve flow hydraulics, increase \$385,000 Low capacity and facilitate maintenance, and improving roadside ditches to drain road granulars, direct surface flows to appropriate inlets, and reduce nuisance flooding.

Table 3-1 – Basin A1 Recommended Improvements

These works are Schedule A activities under the Municipal Class EA and, therefore, no further review of alternatives is warranted.

3.2 **BASIN A2**

3.2.1 Preamble

Drainage Basin A2 drains 123.8 ha and primarily discharges via a ravine system and outlets to the Pottawatomi River within the City of Owen Sound, approximately 25 m east of the City limits. There are reports of some nuisance flooding problems within the developed portions of this Basin, which may be attributed to poor lot grading and/or poorly defined private drainage routes.

The increase in runoff due to future development is relatively minor, due to the large area of hazards lands within the Basin. The twenty-two potentially developable lots would have some impact on downstream flow velocities and, therefore, channel protection measures are proposed.

3.2.2 Design Flows

The following components are considered to be key infrastructure within the Basin and are presented from upstream to downstream.

- (2) 450 mm Ø CSP (Park St) Capacity of about 0.3 m³/s, capable of conveying the 1:2 year flow. Possible roadway overtopping conditions exist for the 1:5 year flow and greater.
- 900 mm Ø CSP (14th St W) Capacity of about 0.9 m³/s, capable of conveying the 1:10 year flow.
- 1500 x 900 CSPA (Somers St) Capacity of about 1.65 m³/s, capable of conveying the 1:10 year flow.
- 450 mm Ø CSP (16th St W, between Carney St and Somers St) Capacity of about 0.15 m³/s, insufficient to convey the 1:2 year flow.
- 450 mm Ø Inlet and Outlet (Basin A2b) Sufficient capacity exists for all modelled storm events and development conditions.

3.2.3 Recommendations

A smaller sub-basin (Basin A2-2) drains via a ravine system to a City storm sewer in the Hunters Run subdivision (7th Ave W). The storm sewer has sufficient capacity to convey the 1:100 year and Regional storm flows. Previous flooding, due to leaves blocking the inlet, has been corrected by City forces, however, a well defined overland flow route should be constructed to the street in the event that future plugging at the inlet occurs.

We recommend that the main outlet channel be walked with staff of the GSCA to target specific areas in need of erosion protection and to determine appropriate protection measures. In the following cost estimate, stone rip rap erosion protection is assumed to be provided at critical locations within the ravine and at the outlet to the river. Based on the foregoing, the recommendations for improvements within Basin A2 are presented in Table 3-2.

1		
Description	Cost	Priority
Remove and replace existing (2) 450 mm Ø CSP (Park St, between 13 th St W and 14 th St W) with (2) 600 mm Ø CSP	\$15,000	Medium
Create an overland flow route from the existing ditch inlet catchbasin to 7 th Ave W in the Hunters Run subdivision.	\$6,500	Low
Place stone rip rap protection at critical locations within the ravine system and at the outlet to the Pottawatomi River.	\$6,500	Low
Remove and replace existing 450 mm Ø CSP (16 th St W, between Somers St and Carney St) with (2) 600 mm Ø CSP	\$15,000	Medium

Table 3-2 – Basin A2 Recommended Improvements

These works are Schedule A activities under the Municipal Class EA and, therefore, no further review of alternatives is warranted.

3.3 BASIN A3

3.3.1 Preamble

Drainage Basin A3 covers 103.5 ha of land within Georgian Bluffs, and 44.1 ha within the City of Owen Sound. The Georgian Bluffs portion includes six smaller sub-catchment areas, which outlet across 8th Ave W (Albert Street) and eventually confluence within the City, and outlet via a 1500 mm Ø CSP on 19th St W, through Kelso Beach Park to Owen Sound Bay.

Following receipt of a drainage complaint in the Basin A3 area of 6th Ave W, in July, 2003, the City of Owen Sound retained G&M to review the potential implications of diverting flows from the 7th Ave W storm sewer, which currently discharge down the bluff within A3, to the 22nd St W storm sewer system in Basin A4, which connects with the 24th St W outlet. That review identified that capacity may be available within the Basin A4 storm sewer system, but the effect of diverting this flow on flows within Basin A3 would be minimal. The project was not implemented due to the apparent need to investigate broader drainage issues within the area, which precipitated this study.

3.3.2 Boundary Conditions

The capacities of the outlets, at the boundary between Georgian Bluffs and Owen Sound, from the six sub-basin areas within Drainage Basin A3 are summarized in the following Table 3-3.

Table 3-3 – A3 Boundary Condition Outlet Capacities

	A3-1	A3-2	A3-3	A3-4	A3-5	A3-6
Outlet Size	600Ø	300Ø	600Ø	Open Channel	800Ø	300Ø
Outlet Capacity (m ³ /s)	0.971	0.06	0.32	-	0.65	0.06

3.3.3 Outlet Conditions

Sub-basins A3-1 and A3-2 combine east of 8th Ave W (Albert Street) and flow via an open channel to 6th Ave W. A 600 Ø CSP culvert directs flow across 6th Ave W to an open channel along the south side of 20th St W. The capacity of this culvert is about 0.32 m³/s. The channel combines with flows from the other four upstream sub-basin areas at 5th Ave W.

Sub-basins A3-3 to A3-6 all combine just east of 7th Ave W, and drain along an open channel between two private residences to the inlet to a 2700 x 1500 box inlet to a twin 1500 mm Ø CSP storm sewer on 6th Ave W. Nuisance flooding has been reported in the area of the two private residences. The box section has an inlet capacity of about 6.8 m³/s. The storm sewer system has a capacity of about 6.2 m³/s. The storm sewer directs flow to an open channel south of 21st St W. The dwelling at the south east corner of 6th Ave W and 21st St W has a walk-out basement door facing the open channel. A significant portion of the drainage course between 20th St W and 21st St W is on private property and siltation has caused ponding, reduced capacity and nuisance flooding. A 3200 x 1000 box culvert conveys flows across 20th St W to the confluence with flows from A3-1 and A3-2, at 5th Ave W. An open channel then conveys the combined flows south-easterly to a 2740 x 1220 box inlet at 19th St W, where additional flows from within the City combine and flow easterly on 19th St W to the outlet at Kelso Beach.

The outlet portion of this storm sewer system, from the Eddie Sargent Parkway through Kelso Beach Park to the Bay, is a 1500 Ø CSP at 0.2% grade, with a capacity of about 1.712 m³/s. This is not adequate to convey a 1:2 year flow under existing conditions. It is assumed that, as the water level rises, storage is achieved within the ditches and low-lying areas along each side of the Parkway, and overland spill occurs through the Park to the Bay. The City reports that nuisance flooding occurs in this area and, therefore, flow controls upstream should ensure that existing flooding conditions do not worsen.

3.3.4 Design Flows

The following components are considered to be key infrastructure within the Basin and are presented from upstream to downstream.

- (2) 1050 x 800 mm CSPA (Somers St and 19th St W) The culverts provide a combined capacity of about 1.7 m³/s, capable of conveying the 1:100 year flow.
- 1200 mm Ø CSP (Carney Street, north of 20th St W) Capacity of about 1.8 m³/s, capable of conveying the 1:100 year flow.
- 800 mm Ø CSP (8th Ave W and 22nd St W) Capacity of about 0.65 m³/s, capable of conveying all design storm flows.

• 2700 x 1500 mm box culvert (and (2) 1500 mm Ø CSP) (6th Ave W, between 21st St W and 22nd St W) – Limiting capacity of about 6.2 m³/s, capable of conveying all design storm flows.

- 3200 x 1000 mm box culvert (21st St W, between 5th Ave W and 6th Ave W) Capacity of about 4.48 m³/s, capable of conveying the 1:100 year flow.
- 600 mm Ø CSP (6th Ave W, between 19th St W and 20th St W) Capacity of about 0.32 m³/s, capable of conveying the 1:2 year flow.
- 2740 x 1220 mm box culvert (29th St W, between 4th Ave W and 5th Ave W) Capacity of about 5.069 m³/s, capable of conveying the 1:50 year flow.
- 1500 mm Ø (Outlet to Owen Sound Bay) Capacity of about 1.712 m³/s, insufficient to convey all design storms modelled.

3.3.5 Definition of Problem(s)

The following problems have been identified within Basin A3.

- Runoff from Georgian Bluffs carries eroded materials from the ravine systems east of Carney Street to a common watercourse about 7th Ave W. The flat channel gradient within this watercourse, downstream to 20th St W, reduces flow velocity and causes sedimentation to occur, which leads to reduced channel capacity and nuisance flooding on the surrounding residential properties.
- The 1500 mm Ø outlet to this system, through Kelso Beach Park, has insufficient capacity to convey the 1:2 year design flow under existing conditions. Nuisance flooding conditions at the outlet should not worsen under ultimate development conditions.

The "Do Nothing" alternative would not address the problem(s) identified and, therefore, alternative solutions to the identified problem(s) are investigated in the following sections.

3.3.6 Review of Alternative Solutions

In February, 1992, G&M prepared a report entitled "Detention Pond Alternatives, Drainage Area A-3", for the former Township of Sarawak, and is provided in Appendix "E" for reference. That report reviewed runoff hydrographs resulting from the 1:5 year and 1:100 year return storms, under existing development, 20-year development and ultimate development conditions, to determine the volume of surface water detention, and approximate land area required. The report concluded that, in order to reduce the overall peak flow from Basin A3 to existing (1990) conditions, a storage volume of about 5100 m³ would be necessary for the 20-year development condition, and about 10400 m³ would be necessary for the ultimate development condition. Three optional detention pond scenarios were considered, with the recommended option being the construction of a stormwater detention pond west of Carney Street, between 20th St W and 22nd St W.

We note that under natural conditions, watercourses can erode, transport and deposit a sediment load. The level of development within Basin A3 in Georgian Bluffs has contributed to increased activity of these mechanisms, the degree of which is difficult to accurately quantify and, thus difficult to allocate shared maintenance and construction costs appropriately. Therefore, an alternative which provides a clear separation of responsibilities is considered to be more favourable than one which does not.

A summary discussion for the three optional SWM pond scenarios is presented in the following Sections 3.3.6.1 to 3.3.6.3. Additional alternative solutions are discussed in Sections 3.3.6.4 to 3.3.6.5. A decision framework is presented in Section 3.3.6.6, which directs a recommended solution.

3.3.6.1 Alternative 1 – Option 1 – SWM Pond West of Carney Street

The Carney Street location, located west of Carney Street between 20th St W and 21st St W, is predominantly within an existing ravine feature, which would need to be enhanced to accommodate the required storage volume. There are no known natural, cultural, or built environmental constraints at this location.

Potential social environment considerations include the following:

- The lands are privately owned. The Township would need to acquire sufficient lands through negotiated easement or purchase, or expropriation,
- The lands are located in a highly visible and residential area. The Township would need to consider aesthetics and public safety in the design of a SWM ponding facility, and
- Sediment removal and water quality protection / enhancement features could be designed into this facility.
- The outlet to the system at Kelso Beach would need to be upgraded to achieve a 1:5 year flow capacity.

Economic environment considerations include land acquisition costs, construction costs and annual maintenance costs.

3.3.6.2 Alternative 1 – Option 2 – SWM Pond West of 8th Ave W (Albert Street)

The 8th Ave W (Albert Street) location is predominantly within an existing ravine feature, which would need to be enhanced to accommodate the required storage volumes. There are no known natural, cultural or built environmental constraints at this location, although the construction of a large berm, or dam would be required to achieve the storage volumes required.

Potential social environment considerations include the need for the Township to acquire sufficient lands through negotiated easement or purchase, or expropriation. The aesthetics of the facility may not be as important, since it would not be located in a highly visible area. Sediment removal and water quality protection / enhancement features could be designed into this facility. This facility would require the construction of a dam and the use of an un-opened road allowance. The outlet to the system at Kelso Beach would need to be upgraded to achieve a 1:5 year flow capacity.

Economic environment considerations include land acquisition costs, construction costs and annual maintenance costs.

3.3.6.3 Alternative 1 – Option 3 – Combined SWM Facilities

This alternative considers the construction of smaller SWM ponds at each of the Carney Street and 8th Ave W (Albert Street) locations. Construction could be staged to coincide with the need based on development.

Considerations regarding natural, social, cultural and built environments are the same as previously discussed. However, since this alternative would involve land acquisition, construction and maintenance at two locations, the implementation costs would be compounded. The outlet to the system at Kelso Beach would need to be upgraded to achieve a 1:5 year flow capacity.

3.3.6.4 Alternative 2 – Modify or Upgrade City Storm Sewer System

There are no known natural, social, or cultural environmental considerations.

Other than the outlet through Kelso Beach, the City storm sewer system has adequate capacity to convey the 1:5 year pre-development flows from the Township lands within Basin A3. No upgrades would be required, other than to support development within the Township. Therefore, costs would be solely at the expense of the Township.

The estimated construction cost to modify or upgrade the City storm sewer system would be in excess of \$1M and, therefore, this option is not considered further.

3.3.6.5 Alternative 3 – Modify Existing Channel and Upgrade Outlet

This option considers the potential to improve the existing channel capacity between 20th St W and 21st St W, and to upgrade the outlet storm sewer capacity at Kelso Beach Park.

The channel modifications would include removing accumulated sediments and broadening the channel width to provide 1:100 year design flow capacity, and providing a low flow channel. The required channel section would be about 11 metres wide, which would not fit well within the available land area between the existing 6th Ave W road and the adjacent house at 21st St W. Although the GSCA has verbally agreed to the concept of permitting sediment removal from this channel reach for routine maintenance purposes, we expect the extent of work considered under this option would be considered a Harmful Alteration Disturbance or Destruction (HADD) to fish habitat, and would not likely be permitted.

The area from the storm sewer outlet to the Bay was reviewed by G&M in July, 2005. The area is considered by the GSCA to be fish habitat, and any dredging or re-aligning of the channel, downstream from the storm sewer outlet, would be a HADD. Relatively minor aesthetic improvements and erosion control measures were planned at that time, which had the support of the GSCA. The estimated cost of these improvements is \$25,000.

To achieve a 1:5 year outlet capacity the existing 1500 mm \emptyset CSP storm sewer should be replaced with a 1500 mm \emptyset CP storm sewer at an estimated cost of \$100,000.

3.3.6.6 Decision Framework

The following Table 3-4 provides a decision making framework for the review of the alternatives discussed for Basin A3. Each alternative is ranked preferentially, within each environmental consideration, with a score of 1 for least desirable and 6 for most desirable. The highest scoring identifies the recommended alternative.

Table 3-4 – Basin A3 Decision Framework

	Environmental Considerations							
Description	Natural	Social	Cultural	Built	Economic	Total		
Do Nothing	1	1	6	1	6	15		
(1.1) SWM Pond west of Carney Street	6	6	3	6	5	26		
(1.2) SWM Pond West of Albert Street	5	4	2	5	4	20		
(1.3) Combined SWM Facilities	2	3	1	4	2	12		
(2) Upgrade City Storm Sewer System	4	2	4	2	1	13		
(3) Modify Ex. Channel and Upgrade Outlet	3	5	5	3	3	19		

Based on the above results, construction of a SWM pond west of Carney Street emerges as the recommended solution.

3.3.7 Recommendations

Based on the foregoing, recommendations are made for improvements to the Drainage Basin A3 system in the following Table 3-5.

Table 3-5 – Basin A3 Recommended Improvements

Description	Cost	Priority
Acquire property or easements over watercourses west of Carney Street, which convey municipal drainage.	-	High
Acquire land immediately upstream from Carney Street for purposes of stormwater management.	-	High
Construct a 10,000 m ³ stormwater management pond upstream from Carney Street, or modify existing channel profiles to store 10,000 m ³ to reduce downstream peak flows and erosion.	\$250,000	High
Acquire property or easement over the channel west of 6 th Ave W.	-	High
Provide rip rap erosion protection at the intersection of channels west of 6 th Ave W.	\$6,500	High
Remove existing sediments from channel west of 6 th Ave W.	\$10,000	High
 Replace ex. box culvert structures at 6th Ave W and at 21st St W. Reconstruct 6th Ave W., North of 21st St W (full services) Place additional box sections between road crossings (North of 21st St W) * *Consider restoring natural channel section. Additional land may be required, or the road may be shifted. 	1) \$120,000 2) \$350,000 3) \$160,000	High
Acquire an easement over the channel upstream from 20 th St W to 21 st St W, between 5 th Ave W and 6 th Ave W.	-	High
Remove existing sediments from channel upstream from 20 th St W.	\$15,000	High

Redirect 7 th Ave W storm sewer between 22 nd St W and 23 rd St W easterly on 22 nd St W and connect to existing storm sewer within Basin A4. To be completed when 7 th Ave W is scheduled for full road replacement. (approx. 60m)	\$150,000	Low
Remove and replace existing 600 mm Ø CSP (6 th Ave W, between 19 th St W and 20 th St W) with larger 750 mm Ø PE.	\$6,500	Medium
Construct minor improvements to outfall area within Kelso Beach Park, as outlined in G&M Drawing No. C-6460-1.	\$25,000	Medium
Improve Kelso Beach outlet to achieve 1:5 year flow capacity.	\$100,000	Low

Implementation of the stormwater management pond recommended as part of this alternative would be a Schedule B activity under the Municipal Class EA, which would require a Notice of Project Initiation, Public Review and a Notice of Completion.

3.4 BASIN A4

3.4.1 Preamble

Drainage Basin A4 covers 98.1 ha of land within Georgian Bluffs, and 29.5 ha within the City of Owen Sound. The Georgian Bluffs portion includes two sub-basin areas. The smaller, southerly area (A4-1) outlets to a ravine feature within the City of Owen Sound. The larger, northerly area (A4-2) outlets along the southerly ditch of 24th St W Street to a storm water management pond at the south west corner of the intersection with 8th Ave W (Albert Street), and includes Keppel Sarawak School.

At the corner of West Street and 24th St W, two (2) 450 mm Ø culverts convey flow across West Street. The culverts are about the same elevation. It appears that the northerly culvert was intended to direct local runoff westerly across West Street, to the southerly 450 mm Ø culvert, which drains easterly in the south ditch on 24th St W to the Fromager SWM pond, within Basin A4. It appears that the northerly ditch on 24th St W, just east of West St, was recently lowered to re-direct this flow easterly in the north ditch, and into Basin A5. The effect is the diversion of drainage from about 24 ha from A4 to A5.

An outlet control structure is in place to limit the discharge from the SWM pond at 30 ft³/s (0.85 m³/s), to the City storm sewer on 24th St W. A secondary outlet, or overflow, exits the SWM pond at the south east corner and drains down a ravine to 4th Ave W, south of 24th St W. This flow, and other flows from other City storm sewers, confluence at 24th St W and 3rd Ave W, and outlet via a 1200 mm Ø CP on 24th St W, through the yacht club to Owen Sound Bay.

3.4.2 Boundary Conditions

Flooding issues at the intersection of 24th St W and 8th Ave W are recorded in G&M files as dating back to 1974. In 1979, to alleviate flooding problems, the City of Owen Sound and the Township of Sarawak agreed to cost share the construction of a storm sewer along 24th St W from 8th Ave W to Owen Sound Bay. In that agreement, the Township secured 30 ft³/s (0.85 m³/s) capacity within the storm sewer system. A berm along the south side of the southerly ditch, west of 8th Ave W, was intended to divert flows in excess of 30 cfs into the Fromager Pond.

In 1985, the Grey Sauble Conservation Authority engaged Henderson, Paddon & Associates Ltd. (HPA) to review the existing drainage system within the area, and to assess system capacities based on land use planning from the Grey Owen Sound Official Plan, North Grey Secondary Plan, June 1980. The final report concluded "that the existing stormwater system in the area of 24th St W and 8th Ave W and downstream provides a satisfactory level of protection for the public and private property and that no remedial works are required." Design flows calculated by HPA, to the intersection of 24th St W and 8th Ave W, were 0.89 m³/s and 3.55 m³/s, for the 1:5 year and 1:100 year storms, respectively.

In 1991 G&M prepared a Master Drainage Study for the Township of Sarawak, as part of the preparation of a new Official Plan. Updated design flows were prepared for existing and future development conditions, based on updated land use planning at that time. Design flows calculated by G&M, to the intersection of 24th St W and 8th Ave W, were 1.77 m³/s and 3.73 m³/s, for the 1:5 year and 1:100 year storms, respectively, under ultimate development conditions.

In 1994, the Township of Sarawak engaged Ainley and Associates Limited to update the design and approvals for the SWM pond to accommodate the expected ultimate development condition. Stormwater runoff from sub-basin A4-1, up to the 1:5 year flow condition, was to be routed easterly beyond the pond to maintain base flows within the existing ravine in the City of Owen Sound. Flows exceeding the 1:5 year design flow in A4-1 are designed to spill into the SWM pond. An orifice control plate was placed on the inlet to the Owen Sound 24th St W storm sewer system to limit flows to a maximum 0.85 m³/s. The design provides that flows exceeding the capacity of the orifice will backup and store within the pond. The pond was designed to overflow south-easterly to the existing ravine for the 1:10 year design flow and beyond, under ultimate development conditions, such that the combined flows entering the two Owen Sound drainage systems would not exceed existing (1990) flow rates.

3.4.3 Outlet Conditions

The outlet from the Fromager Pond to the City's 24th St W storm sewer is controlled by a steel plate over the outlet pipe from the manhole on the north west corner of the intersection of 24th St W and 8th Ave W. The outlet to this system is a 1200 mm Ø CP on 24th St W, through the yacht club to Owen Sound Bay. The capacity of this outlet is 4.932 m³/s at 1.6% grade.

A secondary system by-passes the Fromager pond and drains south-easterly to a 600 mm Ø CSP culvert across 8th Ave W, then down through a ravine to the rear of lots fronting onto 4th Ave W. Flow enters a 900 mm Ø storm sewer on the west side of 4th Ave W, between 23rd St W and 24th St W, across 4th Ave W, then across private properties to 3rd Ave W. We recommend that, as funding permits, this storm sewer be re-routed along 4th Ave W, southerly to 23rd St W, then easterly on 23rd St W to 3rd Ave W, then northerly to reconnect at the same location. Alternatively, an easement should be acquired to facilitate maintenance of the existing storm sewer.

3.4.4 Design Flows

The following components are considered to be key infrastructure within the Basin and are presented from upstream to downstream.

• 450 mm Ø CSP (south of West St and 24th St W intersection) – Capacity of about 0.15 m³/s, capable of conveying the 1:5 year flow.

- 1200 mm Ø CSP (Park St and 24th St W) Capacity of about 1.8 m³/s, capable of conveying the 1:100 year flow.
- 900 mm Ø CSP (Park St and 24th St W) Capacity of about 0.9 m³/s, capable of conveying the 1:100 year flow.
- 1600 x 1200 mm CSPA (Somers St and 24th St W) Capacity of about 2.3 m³/s, capable of conveying the 1:100 year flow.
- 1450 x 900 mm CSPA (Finden St and 24th St W) Capacity of about 1.500 m³/s, capable of conveying the 1:25 year flow.
- 825 mm Ø CSP (inlet to City of Owen Sound Storm Sewer at 8th Ave W and 24th St W) Capacity of about 0.850 m³/s, capable of conveying all design storms due to excess flows backing up into the SWM pond.
- 900 mm Ø (4th Ave W, between 23rd St W and 24th St W) Capacity of about 1.835 m³/s, capable of conveying the 1:100 year flow. This system drains overflows from the Fromager Pond.
- 1200 mm Ø CP (outlet to Owen Sound Bay) Capacity of about 4.932 m³/s, capable of conveying the 1:100 year flow.

3.4.5 Definition of Problem(s)

We are not aware of any current flooding problem, which would require further assessment at this time. A review of alternative solutions is, therefore, not warranted.

3.4.6 Recommendations

Based on the foregoing, the recommendations for drainage improvements within Basin A4 are provided in the following Table 3-6.

Table 3-6 – Basin A4 Recommended Improvements

Description	Cost	Priority
Remove the northerly 450 mm Ø culvert at the intersection of West Street and 24 th St W, and replace the southerly 450 mm Ø culvert with a 600 mm Ø culvert, to prevent the diversion of flows into A5.	\$15,000	High
Place stone rip rap protection at critical locations within ditch between top of bluff to Park Street. (Consider future storm sewer)	\$10,000	High
Replace the existing 600 mm Ø culvert across 8 th Ave W (between 23 rd St W and 24 th St W) with a 900 mm Ø culvert, to reduce overland flow events and protect adjacent dwellings.	\$32,500	Low
Replace existing 450 mm Ø storm sewer on 3 rd Ave W (between 23 rd St W and 24 th St W) with 900 mm Ø storm sewer (approx. 150m).	\$500,000	Medium
Re-route the 900 mm Ø storm sewer, which currently crosses private property, along 4 th Ave W and 23 rd St W. (approx. 250m)	\$820,000	Low
Provide a stormwater treatment unit on the southerly storm sewer, upstream from the outlet to the yacht club.(All urban area flows)	\$75,000	Low

These recommendations are Schedule A activities under the Municipal Class EA.

3.5 **BASIN A5**

3.5.1 Preamble

Drainage Basin A5 covers 102.1 ha of land within Georgian Bluffs, and 32.3 ha within the City of Owen Sound. The Georgian Bluffs portion includes six (6) smaller sub-basin areas, which outlet across 8th Ave W (Albert Street). A-5-1 to A-5-3 confluence within the City at the intersection of 6th Ave W and 27th St W, where a 1350 mm Ø concrete pipe inlets to the 1050 mm Ø CSP storm sewer on 27th St W to Owen Sound Bay. Under high flow conditions, a 450 mm Ø CSP on Finden Street at Maitland Street allows spill to occur from A5-3 to Drainage Basin A6.

Sub-basins A5-4 to A5-6 drain via a series of culverts and ravines across 8^{th} Ave W (Albert Street) to the former CN Rail line. Three culverts convey flow across the rail line to the storm sewer system of an apartment building complex and, ultimately, to a 900 mm Ø CSP storm sewer on 28^{th} St W.

A 450 mm Ø CSP storm sewer on 29th St W provides for local drainage within the City (subbasin A5c), between 6th Ave W and Owen Sound Bay.

3.5.2 Boundary Conditions

Six (6) sub-basin areas drain 102.1 ha of land, which comprises Drainage Area A5 within Georgian Bluffs:

- A5-1 drains 3.5 ha of land from north of Keppel Sarawak School to a 750 mm Ø CSP inlet to the 750 mm Ø storm sewer on 26th St W. This storm sewer outlets to the north side of 26th St W at 7th Ave W. Flows from this storm sewer traverse a wide ravine to a 1350 mm Ø concrete pipe inlet to the 27th St W storm sewer.
- A5-2 drains 14.7 ha of land to two (2) 600 mm Ø CSP culverts located between 26th St W and 27th St W. Flow from these culverts converge into one 450 mm Ø concrete pipe on the east side of 8th Ave W. This pipe outlets to a ravine behind houses which front onto the east side of 8th Ave W. Flow then traverses the ravine to the 1350 mm Ø concrete pipe inlet to the 27th St W storm sewer.
- A5-3 drains 78.5 ha of land along the south side of Maitland Street to a 600 mm Ø CSP inlet to the 450 mm Ø CSP storm sewer west of the former CN Rail line on 27th St W. The 450 mm Ø CSP storm sewer discharges via a 600 mm Ø CP immediately upstream of the 1350 mm Ø concrete pipe inlet to the 27th St W storm sewer. At the intersection of Finden Street and 27th St W, a 600 mm Ø CSP culvert conveys flow easterly across Finden Street toward the outlet. Additionally, a 450 mm Ø CSP culvert spills some flow to Drainage Area A6 across 27th St W to the westerly roadside ditch on Finden Street. The 450 mm Ø culvert is elevated about 100 mm above the ditch bottom, and spill at this location only occurs under heavy runoff conditions.
- A5-4 to A5-6 drain 5.5 ha of land across 8th Ave W to the former CN Rail line via a 300 mm Ø CSP immediately north of 27th St W and two open channels between 28th St W and 29th St W. Flow eventually enters the 28th St W storm sewer system.

The capacities of the outlets, at the boundary between Georgian Bluffs and Owen Sound, from the six (6) sub-basin areas within Drainage Basin A5 are summarized in the following Table 3-7.

Table 3-7 – A5 Boundary Condition Outlet Capacities

	A5-1	A5-2	A5-3	A5-4	A5-5	A5-6
Outlet Size	750Ø	450Ø	600Ø	300Ø	Open Channel	Open Channel
Outlet Capacity (m ³ /s)	0.55	0.15	0.32	0.06	-	-

A smaller area within Drainage Basin A5 (Basin A5c, in the City of Owen Sound) drains to the 29th St W storm sewer system and outlets via a 450 mm Ø CSP.

3.5.3 Outlet Conditions

The outlet capacities of the existing storm sewers within the City are summarized in the following Table 3-8.

Table 3-8 – A5 Outlet Conditions

	27 th St W	28 th St W	29 th St W
Outlet Size (mm)	1200 Ø	1200 Ø	450 Ø
Outlet Grade (%)	6.0	5.7	5.8
Outlet Capacity (m ³ /s)	5.17	5.06	0.69

3.5.4 Design Flows

- 450 mm Ø CSP (north of West St and 24th St W intersection) Capacity of about 0.15 m³/s, capable of conveying the 1:5 year flow.
- 1050 x 800 mm CSPA (Somers St and 27th St W) Capacity of about 0.85 m³/s, capable of conveying the 1:25 year flow.
- 450 mm Ø CSP (Finden St and 26th St W) Capacity of about 0.15 m³/s, capable of conveying the 1:2 year flow.
- 600 mm Ø CSP (Finden St and 27th St W) Capacity of about 0.32 m³/s, capable of conveying the 1:2 year flow.
- 750 mm Ø CSP (8th Ave W and 26th St W) Capacity of about 0.55 m³/s, capable of conveying flow from all modelled return storm conditions.
- 450 mm Ø CP (8th Ave W, between 26th St W and 27th St W) Capacity of about 0.15 m³/s, insufficient of conveying all design flows.
- 1350 mm Ø CP (27th St W and the former CN Rail line) Capacity of about 2.4 m³/s, capable of conveying the 1:50 year flow.
- 1050 mm Ø CSP (27th St W, between 4th Ave W and 5th Ave W) Capacity of about 1.4 m³/s, capable of conveying the 1:5 year flow.
- 1200 mm Ø CP (former CN Rail line, between 26th St W and 27th St W) Capacity of about 1.8 m³/s, capable of conveying flow from all modelled return storm conditions.
- 1200 mm Ø CSP (27th St W outlet to Owen Sound Bay) Capacity of about 5.173 m³/s, capable of conveying flow from all modelled return storm conditions.
- 1400 mm Ø CP (CN Rail between 28th St W and 29th St W) Capacity of about 2.6 m³/s, capable of conveying flow from all modelled return storm conditions.

• 1000 x 1000 mm box culvert (CN Rail between 28th St W and 29th St W) – Capacity of about 1.4 m³/s, capable of conveying flow from all modelled return storm conditions.

- 375 mm Ø CSP (Inlet to 28th St W storm sewer, west of 6th Ave W and 29th St W) Capacity of about 0.198 m³/s, capable of conveying the 1:2 year flow.
- 1200 mm Ø CSP (28th St W outlet to Owen Sound Bay) Capacity of about 5.055 m³/s, capable of conveying flow from all modelled return storm conditions.

3.5.5 Recommendations

Based on the foregoing, the recommendations for drainage improvements within Basin A5 are made in the following Table 3-9.

Table 3-9 – Basin A5 Recommended Improvements

Description	Cost	Priority
Eliminate the spill from A5 to A6 at Finden Street and 27 th St W.	\$5,000	Medium
Remove and replace existing 450 mm Ø CSP (Finden St and 26 th St W) with a 600 mm Ø CSP.	\$15,000	Medium
Remove and replace existing 400 mm Ø CSP (Park St, between 24 th St W and 25 th St W) with a 600 mm Ø CSP.	\$6,500	Medium
Remove and replace existing 600 mm Ø CSP (currently beginning to undercut downstream bank) (Finden St and 27 th St W) and replace with larger 900 mm Ø.	\$15,000	Medium
Georgian Bluffs should acquire easement or ownership over the watercourse west of 8 th Ave W.	-	Medium
Intercept flows on W side of 8 th Ave W, from south of 26 th St W (A5-1), at 26 th St W (A5-2) and north of 26 th St W (A5-3) and construct 600 mm Ø and 900 mm Ø storm sewers to direct these flows northerly to 27 th St W. Provide for drainage from the north west corner of 8 th Ave W and 27 th St W (A5-4) southerly to the 27 th St W storm sewer (Remove existing 300 mm Ø CSP crossing 8 th Ave W). (150 m incl. one lane of road)	\$250,000	Medium
Reconstruct the 27 th St W storm sewer from 8 th Ave W to the Rail Trail, with a 900 mm Ø storm sewer. Continue to discharge to ravine, then outlet to existing 1050 mm Ø storm sewer (200m incl. full road)	\$500,000	Medium
Eliminate the 750 mm Ø culvert across the Rail Trail, north of 27 th St W and direct flows southerly to the proposed drainage enhancement at the north west corner of the Rail Trail and 27 th St W. Provide for drainage from the north west corner of the Rail Trail and 27 th St W to the 27 th St W storm sewer.	\$10,000	Medium
Remove and replace existing 375 mm Ø CSP (Inlet to 28 th St W storm sewer, west of 6 th Ave W and 29 th St W) with a larger 450 mm Ø pipe.	\$25,000	Medium
Construct a new 26 th St W storm sewer from 8 th Ave W to 3 rd Ave W and connect to existing (2) 450 mm Ø outlet which currently drains local runoff on 26 th St W from 3 rd Ave W to Owen Sound Bay.	\$650,000	Low
Eliminate the storm sewers across private property.	-	Low

These recommendations are Schedule A activities under the Municipal Class EA The diversion of flows on 8th Ave W, away from the ravine system may affect Riparian property owners, who should be consulted in advance of this project implementation.

3.6 BASIN A6

3.6.1 Preamble

Drainage Basin A6 covers 38.2 ha of land within Georgian Bluffs, and 7.8 ha within the City of Owen Sound. The Georgian Bluffs portion includes a single catchment area, which outlets across 8th Ave W (Albert Street) via a ravine system, which drains through a 1000 x 1000 mm concrete box culvert under the former CN Railway line to an open channel along the 30th St W road allowance to Grey Road 1, where a 1830 x 1120 mm CSPA culvert outlets flow across Grey Road 1 to Owen Sound Bay. Under high flow conditions, a 450 mm Ø CSP on Finden Street at Maitland Street allows spill to occur from A5-3 to Drainage Area A6.

3.6.2 **Boundary Conditions**

Flow across the boundary between Georgian Bluffs and the City is via an open channel, at the Rail Trail

3.6.3 Outlet Conditions

The capacity of the existing 1830 x 1120 mm CSPA outlet culvert across Grey Road 1 is 2.60 m³/s.

3.6.4 Design Flows

- (2) 600 mm Ø CSP (Somers St and 28th St W) Capacity of about 0.64 m³/s, capable of conveying the 1:100 year flow.
- 900 mm Ø CSP (Finden St and 29th St W) Capacity of about 0.9 m³/s, capable of conveying the 1:100 year flow.
- 550 mm Ø CSP (Finden St and 29th St W) Capacity of about 0.25 m³/s, capable of conveying the 1:10 year flow.
- 1000 x 1000 mm box culvert (former CN Rail line, between 29th St W and 20th St W) Capacity of about 1.4 m³/s, capable of conveying the 1:50 year flow.
- 1830 x 1120 mm CSPA (Basin A6 outlet to Owen Sound Bay) Capacity of about 2.6 m³/s, capable of conveying the 1:100 year flow.

3.6.5 Definition of Problem(s)

Erosion of the steeper sections of the A6 watercourse, especially within the reach which spans from the Rail Trail easterly to Grey Road 1, has been accelerated due to development and by channelization of flow within the upper reaches. Left unchecked, these conditions will continue to deteriorate as development progresses and runoff increases.

3.6.6 Review of Alternatives

In February, 1992, G&M undertook a review of drainage options within Drainage Basin A6. Eight alternative drainage schemes were investigated to determine their effectiveness in

preventing further degradation of the outlet channel. Three of the schemes were deemed to warrant further consideration:

- i) Construction of a storm sewer from the Rail Trail to Owen Sound Bay,
- ii) Construction of an erosion resistant channel, lined with rip rap and filter fabric, from the Rail Trail to Owen Sound Bay, and
- iii) Construction of a stepped ponding system.

That report identified an enclosed storm sewer as the preferred solution. A copy of that report is provided as Appendix "E". Considering that 30th St W is the boundary road between Georgian Bluffs and Owen Sound, and that almost all water generated comes from Georgian Bluffs, the construction of a lined channel on the Georgian Bluffs side of the right of way would be more cost effective and maintain consistency of ownership.

3.6.7 Recommendations

Based on the foregoing the following Table 3-10 makes recommendations for drainage improvements within Basin A6.

Table 3-10 – Basin A6 Recommended Improvements

Description	Cost	Priority
Replace existing collapsed (2)600 mm Ø concrete pipes downstream of Finden St and 29 th St W intersection.	\$10,000	High
Georgian Bluffs should acquire easement or ownership over the watercourse west of Grey Road 1.	-	Medium
The reach below the Rail Trail should be lined with rip rap over filter cloth. Consideration should be given to re-aligning the watercourse in this area to accommodate the possible construction of 30 th St W.	\$215,000	Medium
The 4 th Ave W storm sewer should be re-routed to flow southerly to the 29 th St W storm sewer outlet, to ensure a clear separation of responsibility for this watercourse.	\$225,000	Low

These recommendations are Schedule A, or A+ activities under the Municipal Class EA. Schedule A+ activities require public advisement prior to project implementation.

3.7 BASIN A7

3.7.1 Preamble

Drainage Basin A7 covers 45.5 ha of land within Georgian Bluffs, and does not drain through the City of Owen Sound. Basin A7 includes a single catchment area, which drains through a 1000 x 600 mm concrete box culvert under the former CN Railway line to an open channel north of the City limits to Grey Road 1, where a 1090 x 690 mm CSPA culvert outlets flow across Grey Road 1 to Owen Sound Bay. The outlet capacity of the 1090 x 690 mm CSPA is 0.75 m³/s, however the culvert can convey 1.40 m³/s at Hw/D=1.7 (970mm depth of water at the inlet).

3.7.2 Design Flows

• 900 mm Ø PE (Carney St and 30th St W) – Capacity of about 0.9 m³/s, capable of conveying the 1:100 year flow.

- 400 mm Ø CSP (Gale St (Range Rd) and 30th St W) Capacity of about 0.12 m³/s, insufficient of conveying the 1:2 year flow.
- 1000 x 600 mm box culvert (former CN Rail line, north of 30th St W) Capacity of about 0.65 m³/s, capable of conveying the 1:2 year flow. Sufficient head exists at this location to allow a capacity of about 2.8 m³/s, capable of conveying all design storm flows.
- 1090 x 690 mm CSPA (Basin A7 outlet to Owen Sound Bay) Capacity of about 0.75 m³/s, capable of conveying the 1:2 year flow. A headwater/diameter ratio of 1.7 provides a capacity of about 1.40 m³/s, capable of conveying the 1:10 year flow.

3.7.3 Recommendations

Based on the foregoing recommendations are made for drainage improvements within Basin A7 in the following Table 3-11.

Table 3-11 – Basin A7 Recommended Improvements

Description	Cost	Priority
Remove and replace existing 400 mm Ø CSP (north of 30 th St W at	\$7,500	High
Gale St (Range Rd)) with larger 750 mm Ø pipe.		
Georgian Bluffs should acquire easement or ownership over the		Medium
watercourse west of Grey Road 1.	-	ivieululli
The reach below the Rail Trail should be lined with rip rap over filter	\$275,000	Low
cloth.	\$473,000	Low

These recommendations are Schedule A, or A+ activities under the Municipal Class EA. Schedule A+ activities require public advisement prior to project implementation.

4.0 SUMMARY OF RECOMMENDATIONS

Recommendations provided above have been consolidated into more convenient tables below for each municipality based on priority sequence. Coinciding projects have been 'linked' via reference number.

Table 4-1 – Township of Georgian Bluffs – High Priority (0-5 Years)

Ref#	Description	Cost	Priority
-	A1 – Replace existing catchbasin grates on 14 th St W with bird cage style inlet grates, or other appropriate inlet to reduce plugging potential, to allow leaves to inlet to the	\$5,000	High
	sewer, rather than collecting and plugging at the inlet.		
-	A3 – Acquire property or easements over watercourses west	-	High
	of Carney Street, which convey municipal drainage.		
-	A3 – Acquire land immediately upstream from Carney Street		High
	for purposes of stormwater management.	-	nigii

	Total	\$297,500	0-5 Yrs.
-	A7 – Remove and replace existing 400 mm Ø CSP (north of 30 th St W at Gale St (Range Rd)) with larger 750 mm Ø pipe.	\$7,500	High
-	A6 – Replace existing collapsed (2)600 mm Ø concrete pipes downstream of Finden St and 29 th St W intersection.	\$10,000	High
-	A4 – Place stone rip rap protection at critical locations within ditch between top of bluff to Park Street. (Consider future storm sewer)	\$10,000	High
-	A4 – Remove the northerly 450 mm Ø culvert at the intersection of West Street and 24 th St W, and replace the southerly 450 mm Ø culvert with a 600 mm Ø culvert, to prevent the diversion of flows into A5.	\$15,000	High
-	A3 – Construct a 10,000 m ³ stormwater management pond upstream from Carney Street, or modify existing channel profiles to store 10,000 m ³ to reduce downstream peak flows and erosion.	\$250,000	High

Table 4-2 – Township of Georgian Bluffs – Medium Priority (5-10 Years)

Ref#	Description	Cost	Priority
-	A2 – Remove and replace existing (2) 450 mm Ø CSP (Park St, between 13 th St W and 14 th St W) with (2) 600 mm Ø CSP	\$15,000	Medium
-	A2 – Remove and replace existing 450 mm Ø CSP (16 th St W, between Somers St and Carney St) with (2) 600 mm Ø CSP	\$15,000	Medium
-	A5 – Eliminate the spill from A5 to A6 at Finden Street and 27 th St W.	\$5,000	Medium
-	A5 – Remove and replace existing 450 mm Ø CSP (Finden St and 26 th St W) with a 600 mm Ø CSP.	\$15,000	Medium
-	A5 – Remove and replace existing 400 mm Ø CSP (Park St, between 24 th St W and 25 th St W) with a 600 mm Ø CSP.	\$6,500	Medium
-	A5 – Remove and replace existing 600 mm Ø CSP (currently beginning to undercut downstream bank) (Finden St and 27 th St W) and replace with larger 900 mm Ø.	\$15,000	Medium
-	A5 – Georgian Bluffs should acquire easement or ownership over the watercourse west of 8 th Ave W.	-	Medium
1	A5 – Intercept flows on W side of 8 th Ave W, from south of 26 th St W (A5-1), at 26 th St W (A5-2) and north of 26 th St W (A5-3) and construct 600 mm Ø and 900 mm Ø storm sewers to direct these flows northerly to 27 th St W. Provide for drainage from the north west corner of 8 th Ave W and 27 th St W (A5-4) southerly to the 27 th St W storm sewer (Remove existing 300 mm Ø CSP crossing 8 th Ave W). (150 m incl. one lane of road)	\$250,000	Medium
-	A6 – Georgian Bluffs should acquire easement or ownership over the watercourse west of Grey Road 1.	-	Medium

	Total	\$536,500	5-10 Yrs.
-	A7 – Georgian Bluffs should acquire easement or ownership over the watercourse west of Grey Road 1.	-	Medium
-	A6 – The reach below the Rail Trail should be lined with rip rap over filter cloth. Consideration should be given to realigning the watercourse in this area to accommodate the possible construction of 30 th St W.	\$215,000	Medium

Table 4-3 – Township of Georgian Bluffs – Low Priority (10+ Years)

Ref#	Description	Cost	Priority
-	A1 – Reconstruct 14 th St W (350 m), including replacing the existing 450 mm Ø CSP with a larger diameter storm sewer (600 mm Ø), with a sufficient number of inlets, to improve flow hydraulics, increase capacity and facilitate maintenance, and improving roadside ditches to drain road granulars, direct surface flows to appropriate inlets, and reduce nuisance flooding.	\$385,000	Low
-	A2 – Place stone rip rap protection at critical locations within the ravine system and at the outlet to the Pottawatomi River.	\$6,500	Low
-	A4 – Replace the existing 600 mm Ø culvert across 8 th Ave W (between 23 rd St W and 24 th St W) with a 900 mm Ø culvert, to reduce overland flow events and protect adjacent dwellings.	\$32,500	Low
_	A7 – The reach below the Rail Trail should be lined with rip rap over filter cloth.	\$275,000	Low
	Total	\$699,000	10+ Yrs.

Table 4-4 – City of Owen Sound – High Priority (0-5 Years)

Ref#	Description	Cost	Priority
-	A3 – Acquire property or easement over the channel west of 6 th Ave W.	-	High
-	A3 – Provide rip rap erosion protection at the intersection of channels west of 6 th Ave W.	\$6,500	High
-	A3 – Remove existing sediments from channel west of 6 th Ave W.	\$10,000	High
-	A3 – 1) Replace ex. Box culvert structures at 6 th Ave W and at 21 st St W. 2) Reconstruct 6 th Ave W., North of 21 st St W (full services) 3) Place additional box sections between road crossings (North of 21 st St W)* *Consider restoring natural channel section. Additional land may be required, or the road may be shifted.	1) \$120,000 2) \$350,000 3) \$160,000	High
-	A3 – Acquire an easement over the channel upstream from 20 th St W to 21 st St W, between 5 th Ave W and 6 th Ave W.	-	High

-	from 20 th St W.	\$15,000 otal \$661,500	High 0-5 Yrs.
_	A3 – Remove existing sediments from channel upstr	eam \$15,000	High

Table 4-5 – City of Owen Sound – Medium Priority (5-10 Years)

Ref#	Description	Cost	Priority
-	A3 – Remove and replace existing 600 mm Ø CSP (6 th Ave W, between 19 th St W and 20 th St W) with larger 750 mm Ø PE.	\$6,500	Medium
-	A3 – Construct minor improvements to outfall area within Kelso Beach Park, as outlined in G&M Drawing No. C-6460-1.	\$25,000	Medium
-	A4 – Replace existing 450 mm Ø storm sewer on 3 rd Ave W (between 23 rd St W and 24 th St W) with 900 mm Ø storm sewer (approx. 150m).	\$500,000	Medium
1	A5 – Reconstruct the 27 th St W storm sewer from 8 th Ave W to the Rail Trail, with a 900 mm Ø storm sewer. Continue to discharge to ravine, then outlet to existing 1050 mm Ø storm sewer (200m incl. full road)	\$500,000	Medium
1	A5 – Eliminate the 750 mm Ø culvert across the Rail Trail, north of 27 th St W and direct flows southerly to the proposed drainage enhancement at the north west corner of the Rail Trail and 27 th St W. Provide for drainage from the north west corner of the Rail Trail and 27 th St W to the 27 th St W storm sewer.	\$10,000	Medium
-	A5 – Remove and replace existing 375 mm Ø CSP (Inlet to 28 th St W storm sewer, west of 6 th Ave W and 29 th St W) with a larger 450 mm Ø pipe.	\$25,000	Medium
	Total	\$1,066,500	5-10 Yrs.

Table 4-6 – City of Owen Sound – Low Priority (10+ Years)

Ref#	Description	Cost	Priority
-	A2 – Create an overland flow route from the existing ditch inlet catchbasin to 7 th Ave W in the Hunters Run subdivision.	\$6,500	Low
-	A3 – Redirect 7 th Ave W storm sewer between 22 nd St W and 23 rd St W easterly on 22 nd St W and connect to existing storm sewer within Basin A4. To be completed when 7 th Ave W is scheduled for full road replacement. (approx. 60m)	\$150,000	Low
-	A3 – Improve Kelso Beach outlet to achieve 1:5 year flow capacity.	\$100,000	Low
-	A4 – Re-route the 900 mm Ø storm sewer, which currently crosses private property, along 4 th Ave W and 23 rd St W. (approx. 250m)	\$820,000	Low
-	A4 – Provide a stormwater treatment unit on the southerly storm sewer, upstream from the outlet to the yacht club.(All urban area flows)	\$75,000	Low

	Total	\$2,026,500	10+ Yrs.
-	A6 – The 4 th Ave W storm sewer should be re-routed to flow southerly to the 29 th St W storm sewer outlet, to ensure a clear separation of responsibility for this watercourse.	\$225,000	Low
-	A5 – Eliminate the storm sewers across private property.	-	Low
-	A5 – Construct a new 26 th St W storm sewer from 8 th Ave W to 3 rd Ave W and connect to existing (2) 450 mm Ø outlet which currently drains local runoff on 26 th St W from 3 rd Ave W to Owen Sound Bay.	\$650,000	Low

5.0 PUBLIC COMMENTS

A public meeting was held on June 23, 2008 from 6:00 pm to 8:00 pm at the Keppel Sarawak Elementary School to update the public on the study findings, allow for public comment, and to answer specific questions related to individual properties or the study area as a whole. A sign-in sheet was provided and is included in Appendix "F". Comment sheets and meeting minutes containing comment's received verbally at the public meeting are included for reference in Appendix "F".

The following is a summary of public comments received.

Public Meeting Verbal Comments

- A resident on 21st St W, just east of 6th Ave W inquired if something could be done to clean the channel abutting their and their neighbours property as this past spring's flooding came close to flooding his neighbours house. The neighbour also spoke indicating that they have lost many mature trees due to the nuisance flooding, and two sheds and some contents have been damaged due to the high water on their property. The neighbour also inquired about who will clean up the dead trees and if they will be replaced.
- A resident of the area noted that in 1992 Sarawak completed a similar study, and that no action had been taken. The resident suggested that something be done now so that another 20 years does not pass by without implementing recommended solutions.
- A property owner in the area noted that the 21st St W channel has filled in over the years and has 'moved' as well.
- Another resident inquired regarding the stormwater retention pond proposed and if there are any other options under consideration.
- An inquiry was made regarding how many years until action will take place on the study's recommended solutions, and if the A3 channel would be maintained in the mean time.
- A resident inquired if there could be another public meeting in six months to provide an update to the process; this was supported by various residents in attendance.
- A resident on 24th St W between West Street and Park Street noted that ditches on the south side of 24th St W are eroded and that driveways and front yards are at risk for future erosion/washouts. Upstream improvements could result in a greater volume of water flowing through this ditch, and may result in increased erosion/washout potential.

Public Meeting Comment Sheets, Faxes, and E-Mails

- Another public meeting in six months should be held.
- Objection to the removal of (2)600Ø CP culverts with no replacement culverts proposed just east of Finden Street and 29th St W as this is a right of way to allow public access along 29th St W to private property.
- Clean out channel west of 6th Ave W at 21st St W or place SWM facility at this location rather than at Carney Street. A SWM facility at this location is not cost effective and may need to be filled in (due to drownings, smell, etc).
- Provide flooding relief as it happens, clean culverts twice a year, and maintain roads over culverts.
- A writer noted that driveway washout conditions occurred within the vicinity of 27th St W and 8th Ave W.
- It would be nice to have something done to correct some of the areas that need help so badly.
- Disagree with the proposed removal of (2)600Ø CP culverts downstream of Finden Street and 29th St W. Culverts should have been maintained to prevent failure. Culverts should be replaced and maintained in the future.
- Severe flooding in backyard (21st St W and 6th Ave W) has resulted in the loss of 45 to 50 mature trees. Major damage to two storage sheds due to flooding and from a dead tree falling on one. Over time, water levels from rainstorms continually get closer to basement door. Dead trees should be removed and replaced, and the damaged sheds repaired or replaced.
- Location of watercourse west of Finden Street at 26th St W should be on 26th St W road allowance. Hazard land designation on Drawings No. 3 is a surprise.

Field Investigation Public Comments

- A resident adjacent to the Pottawatomi River on 14th Street West (Basin A1) noted that the storm sewer inlets were insufficient to collect runoff from Basin A1 Southeast toward the Pottawatomi River. The resident explained that runoff frequently flows over his property to the Pottawatomi River due primarily to clogging of the catch basin inlets.
- A resident in Georgian Bluffs noted that many ditches within the study area have been ditched lower than the outletting culvert, creating many unsightly ponding areas within roadside ditches.

These comments have been provided to assist the Township of Georgian Bluffs and the City of Owen Sound in their decision making processes for the noted recommendations this report has provided.

All of which is respectfully submitted.	
GAMSBY AND MANNEROW LIMITE Per:	D
David Reid, E.I.T.	
John Slocombe, P.Eng. Principal	

M-1586 Twp. of Georgian Bluffs & City of Owen Sound OWEN SOUND BAY CIRI CUIDE ROAD AULT WORK! ROAD STREET YOUNG'S DRIVE STREET EAST

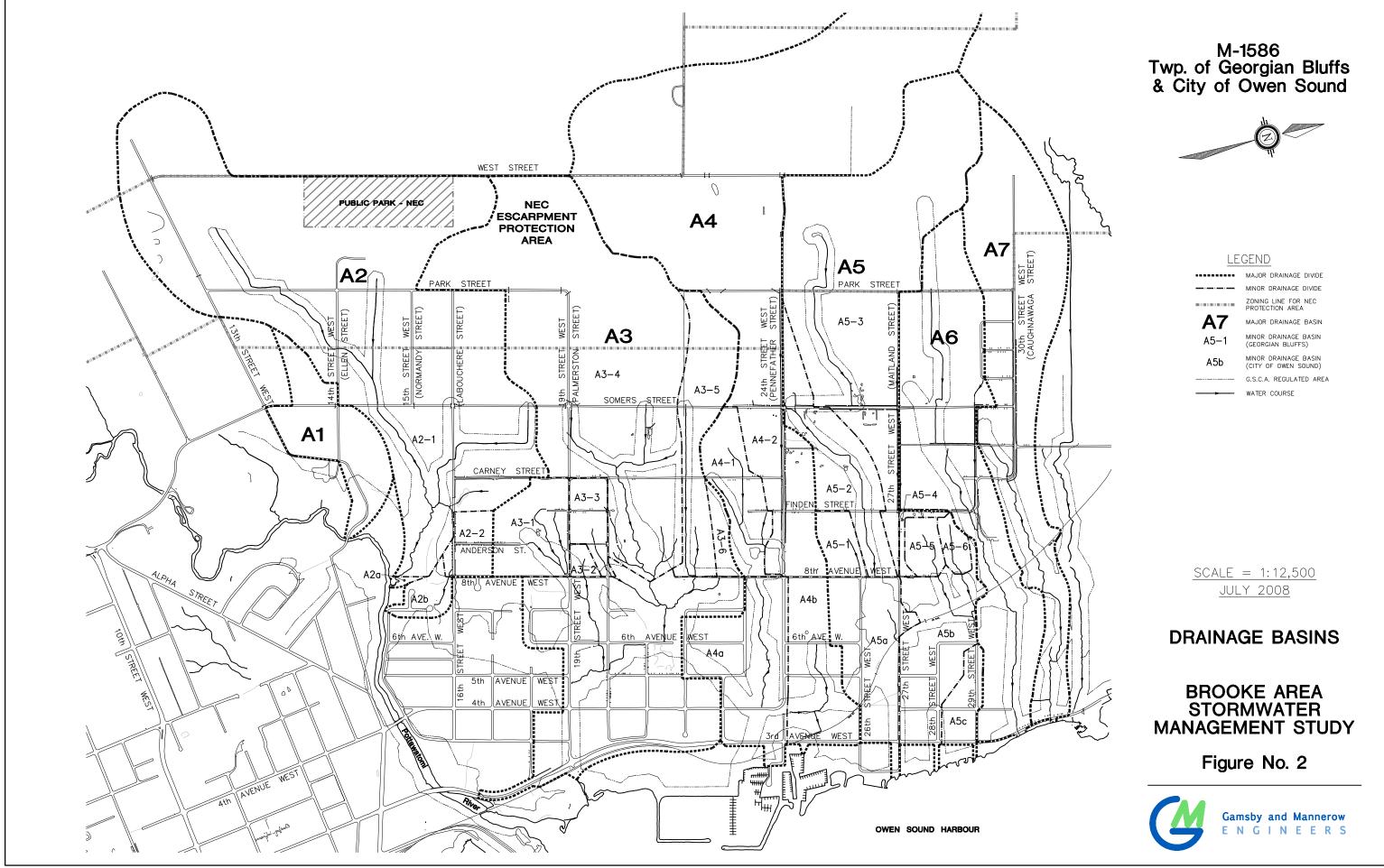
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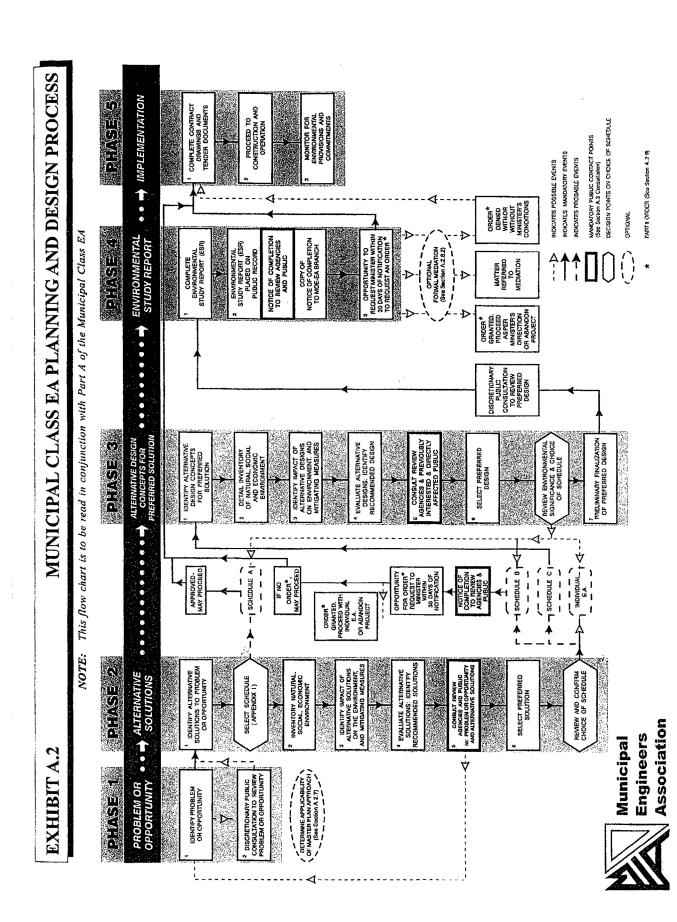
GENERAL STUDY AREA

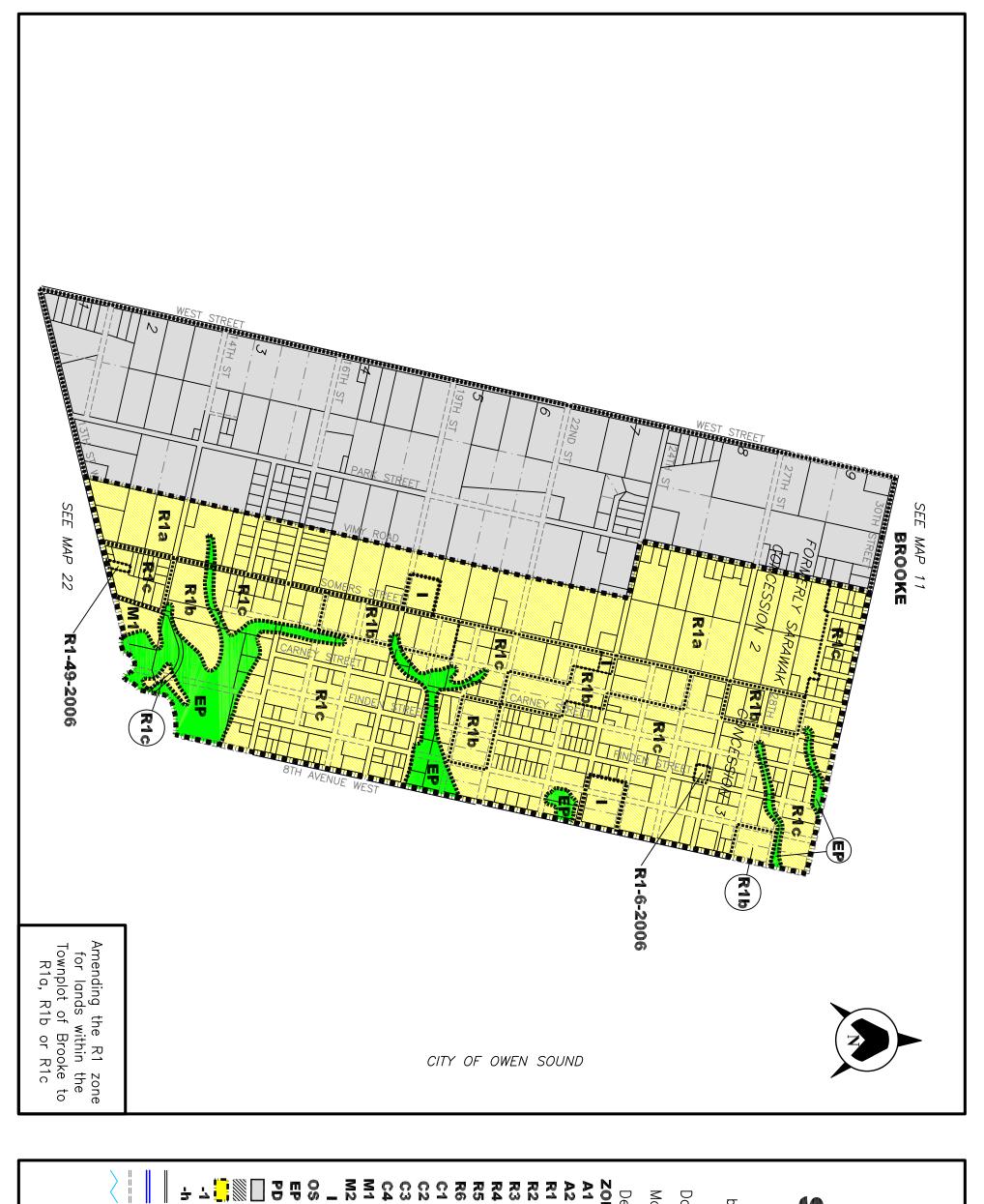
BROOKE AREA STORMWATER MANAGEMENT STUDY

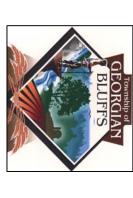
Figure No. 1











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By-Law No. 6-2003 as amended by By-law No. 44-2003 as amended by By-law No. ____-2006

)ate Passed
Mayor
)eputy-Clerk)NES
1 General Rural

Restricted Rural General Residential

Medium—High Density Residential Medium Density Residential Mobile Home Park Low Density Residential Inland Lake and Shoreline Residential

Rural Commercial General Commercial

General Industrial Space Extensive Commercial Tent and Trailer Campground

Planned Development Institutional Extractive Industrial **Environmental Protection** Open Space

Wetland Niagara Escarpment Development Control

Holding Provision Zone Exception Hamlet (may be numerical or alphabetical notation)

Waterway Other Right of Way or Road Allowance County Road or Provincial Highway Municipal Road



BROOKE AREA STORMWATER MANAGEMENT STUDY CITY OF OWEN SOUND TOWNSHIP OF GEORGIAN BLUFFS FINAL REPORT

FIGURES

Figure No. 1 – General Study Area

Figure No. 2 – Drainage Areas

Figure No. 3 – Class EA Process

Figure No. 4 – Georgian Bluffs Municipal Zoning By-law No. 6-2003, as amended January, 2007

BROOKE AREA STORMWATER MANAGEMENT STUDY CITY OF OWEN SOUND TOWNSHIP OF GEORGIAN BLUFFS FINAL REPORT – CD

FIGURES

Figure No. 1 – General Study Area

Figure No. 2 – Drainage Areas

Figure No. 3 – Class EA Process

Figure No. 4 – Georgian Bluffs Municipal Zoning By-law No. 6-2003, as amended January, 2007

DRAWINGS

Drawing No. 1 – General Plan

Drawing No. 2 – Drainage Areas – Existing Conditions

Drawing No. 3 – Development Plan

Drawing No. 4 – Drainage Areas A1 & A2 – Existing Design Flows

Drawing No. 5 – Drainage Areas A3 & A4 – Existing Design Flows

Drawing No. 6 – Drainage Areas A5, A6 & A7 – Existing Design Flows

Drawing No. 7 – Drainage Areas A1 & A2 – Proposed Capital Works

Drawing No. 8 – Drainage Areas A3 & A4 – Proposed Capital Works

Drawing No. 9 – Drainage Areas A5, A6 & A7 – Proposed Capital Works

Drawing No. 10 – Drainage Areas A1 & A2 – Proposed Capital Works Design Flows

Drawing No. 11 – Drainage Areas A3 & A4 – Proposed Capital Works Design Flows

Drawing No. 12 – Drainage Areas A5, A6 & A7 – Proposed Capital Works Design Flows

APPENDIX "A"

Statistical Rainfall Data (IDF)
MIDUSS Results - Chicago Rainfall Parameters
Timmins Regional Storm Characteristics

APPENDIX "B"

Sydenham River Table of Annual Extremes of Discharge MIDUSS Results for Sydenham River Peak Flows

APPENDIX "C"

Culvert Capacity Design Charts

APPENDIX "D"

MIDUSS Computer Model Output

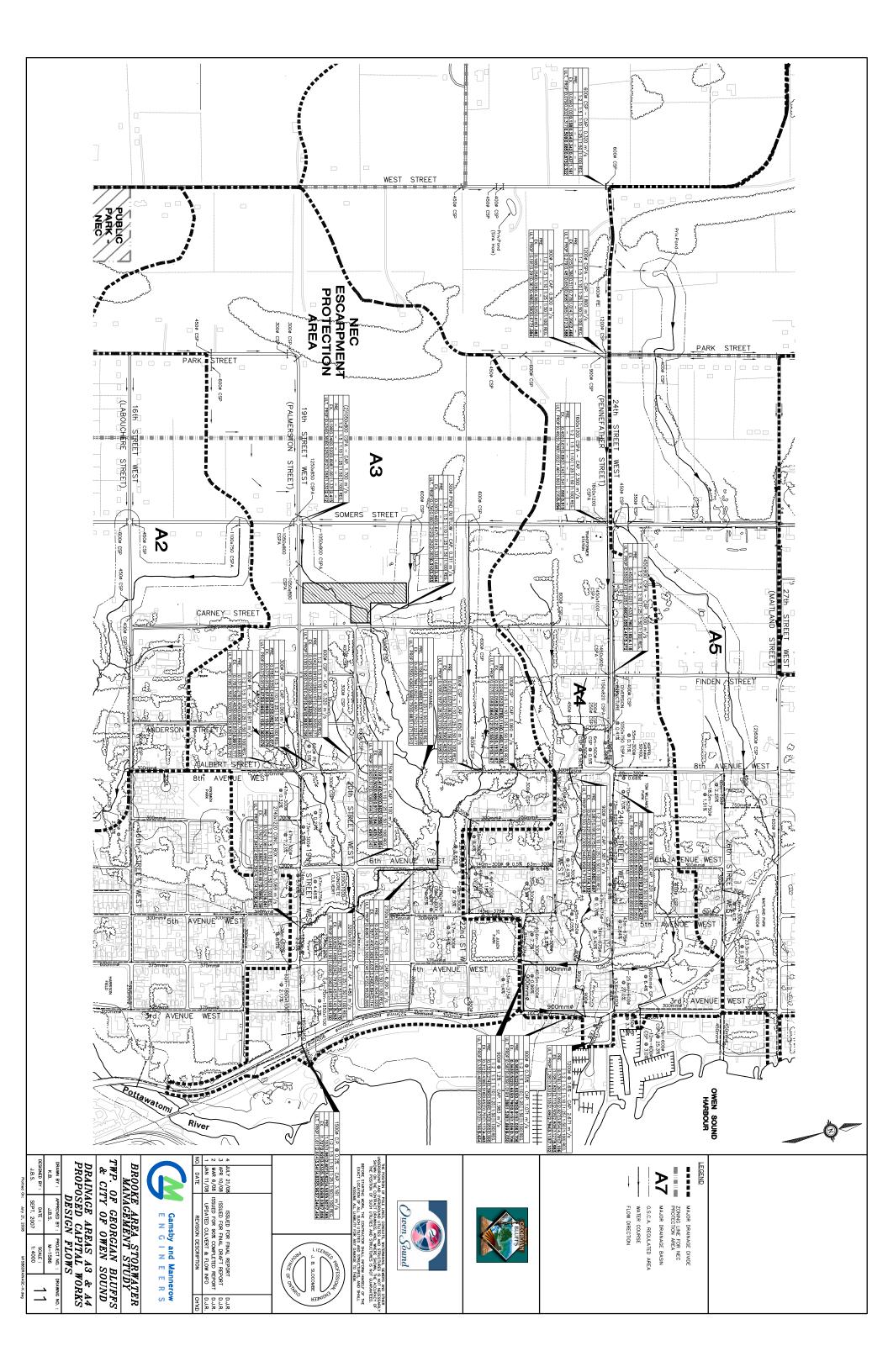
APPENDIX "E"

30th Street West Drainage Study – Drainage Area A6 – G&M, February, 1992
Detention Pond Alternatives – Drainage Area A3 – G&M, February, 1992
Stormwater Management Study – Township of Sarawak – G&M, September, 1990
24th Street SWM Project Final Design Report – Ainley and Associates Ltd., August, 1994
24th Street SWM Project EA Report Schedule 'B' – Ainley and Associates Ltd., June, 1994

APPENDIX "F"

Public Meeting Sign-In Sheets Public Meeting Comment Sheets Public Meeting Minutes – June 23, 2008

(attach CD here)





November 2, 2015 Our File: C-2876

Via Email: hmorrison@georgianbluffs.on.ca

Township of Georgian Bluffs R.R. #3 177964 Grey Road 18 Owen Sound, ON N4K 5N6

Attn: Ms. Holly Morrison

Re:

Carney Street SWM Facility Drainage Basin A-3

As-Built Conditions

Dear Holly:

The purpose of this letter is to address two issues related to the recent construction of the Carney Street Stormwater Management (SWM) Facility:

- i) Verification that the as-built SWM Facility will function as intended in the Brooke Area Stormwater Management (BASWM) Study, and;
- ii) Resolution of the Municipally zoned Environmental Protection area and the Grey Sauble Conservation Authority Regulated Area on 5 properties within the local area.

The Carney Street SWM Facility, located west of Carney Street between 20th Street West and 21st Street West, was constructed as a result of recommendations made in the BASWM Study conducted by Gamsby and Mannerow Limited in July, 2008 (our file: M-1586). The purpose of the study was to examine the effects of stormwater flooding of several drainage basins within the City of Owen Sound and the Municipality of Georgian Bluffs, and to present alternative drainage solutions to the mutual satisfaction of both municipalities.

As part of the BASWM Study, the construction of the Carney Street SWM Facility was proposed to attenuate peak flow rates within Basin A-3, to minimize the effects of stormwater flooding downstream, and ultimately, to reduce peak flow rates discharging into Owen Sound Bay. The study provided peak flow rates for Basin A-3 under existing and proposed drainage patterns for pre-development, existing and ultimate development conditions, for various design storm events.

i) <u>Verification of Operation</u>

Upon completion the Carney Street SWM Facility, a topographic survey of the site was conducted on September 24, 2015. With the use of this survey, the existing SWM Facility was modelled in the MIDUSS computer program in conjunction with the previous drainage models created for the BASWM Study. The modelling was used to compare planned peak flow rates to as-built peak flow rates at three locations downstream from the Carney Street SWM Facility;

- A. At the SWM Pond outlet at Carney Street;
- B. At 6th Avenue West, and:
- C. At Owen Sound Bay.



The peak flow rates from Basin A-3 are compared in Table 1 for the following conditions, under existing and ultimate conditions.

Table 1: Peak Flow Rates Results at Various Locations Within Drainage Basin A-3

		Peak Flow Rates as Reported in the BASWM Study				
Location	Return Storm Frequency (yr)	Pre- Development Conditions (m³/s)	Existing Development - Pre-SWM Facility Conditions (m³/s)	Ultimate Development – Pre-SWM Facility Conditions (m³/s)	Ultimate Development - Proposed Conditions with SWM Facility per BA SWM Study (m ³ /s)	Ultimate Development - As-Built Conditions with existing SWM Facility (m³/s)
At Carney Street	5	-	0.465	1.698	0.180	0.267
	100	-	0.523	1.706	0.310	0.580
At 6 th Avenue West	5	0.421	1.416	1.522	1.119	1.131
	100	1.934	3.894	4.088	2.952	2.984
At Owen Sound Bay	5	1.961	2.920	3.034	2.645	2.649
	100	5.507	8.038	8.249	7.244	7.270

As shown in Table 1, with the construction of the Carney Street SWM Facility in its as-built state, the expected peak flow rates downstream under ultimate development conditions are approximately equal to those previously proposed in the BASWM Study. Ultimately, the Carney Street SWM Facility in its as-built state is expected to function as intended in the BASWM Study.

In general, the recently constructed SWM Facility is expected to achieve its objective in attenuating peak flow rates within Basin A-3, reduce the effects of stormwater flooding downstream, and ultimately, reduce the peak flow rates discharging through Owen Sound.

ii) EP Zoning and Regulated Area Boundaries

A second issue, which the construction of the Carney Street SWM Facility intended to address, is a resolution to the Municipal Zoning and GSCA Regulated Area boundaries in the subject area.

The current Zoning Map 20 delineates an EP – Environmental Protection Zone within a R1c – General Residential Zone. It is assumed that the zoning boundary was intended to follow the ravine feature which existed at that time but the EP zone includes the locations of existing residences west of Carney Street. The construction of the Carney Street SWM Pond (outlined in red on the attached map) was intended to permit an appropriate re-zoning of the affected properties; keeping the EP zone within the limits of the SWM Pond and permitting the developed portions of the properties to be re-zoned to R1.



Similarly, the Grey Sauble Conservation Authority Map 66 delineates a Regulated Area which includes developed portions of the subject properties. The GSCA Regulated Area may include setbacks from the Environmental Protection Zoning but, should still be re-evaluated based on the recent construction.

Justification for the proposed adjustments to the Zoning Area boundaries is provided on the enclosed Figure Nos. 1 and 2. Based on our topographic survey and modelling of as built conditions for the Carney Street SWM Pond, we have verified the following:

- 1:100 year HWL 208.25m
- Regulatory Flood HWL 208.50m
- High Flow Spill HWL (low point on Carney Street) 209.26m
- Minimum grade at adjacent dwellings. 209.41m (SW corner 164 Carney F/F 210.38)
- Minimum Finished Floor at adjacent dwellings 210.17m

We propose that the EP zone be re-delineated to follow the contour of the Regulatory Flood HWL (208.50m), as delineated on Figure 1.

We propose that the GSCA Regulated Area be re-delineated to follow the contour of the High Flow Spill HWL (209.26m), including the low point area of Carney Street.

We expect that the Township will advance the appropriate planning processes based on this submission but if we can provide additional assistance, please contact the writer.

Yours truly,

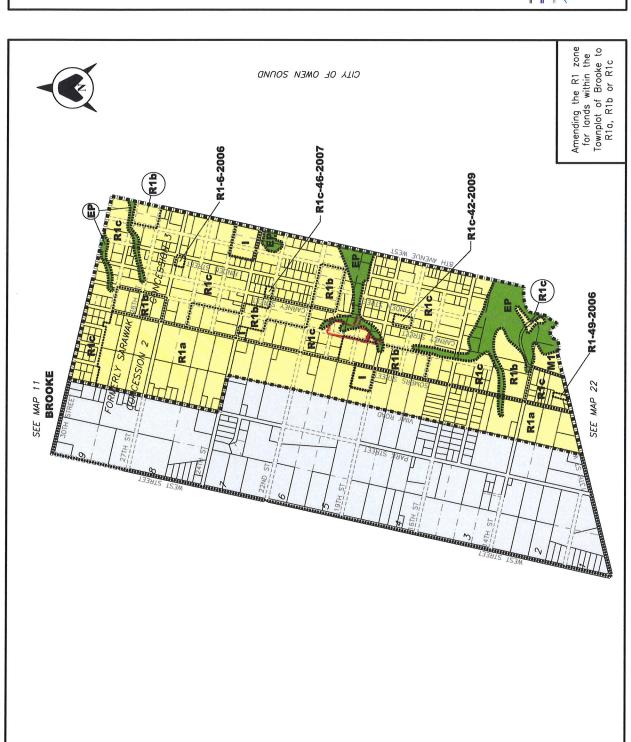
GM BLUEPLAN ENGINEERING LIMITED

Per:

J. B. Slocombe, P.Eng.

ACW/mz Encl.

cc: File No. C-2876





By-Law No. 6–2003 as amended by By-law No. 44–2003 as amended by By-law No. ____2006

Larry J Miller July 9, 2003 Date Passed_ Mayor_ Bruce Hoffman

ZONES

Deputy-Clerk_

- A1 General Rural
- Restricted Rural
- General Residential
- Inland Lake and Shoreline Residential Low Density Residential

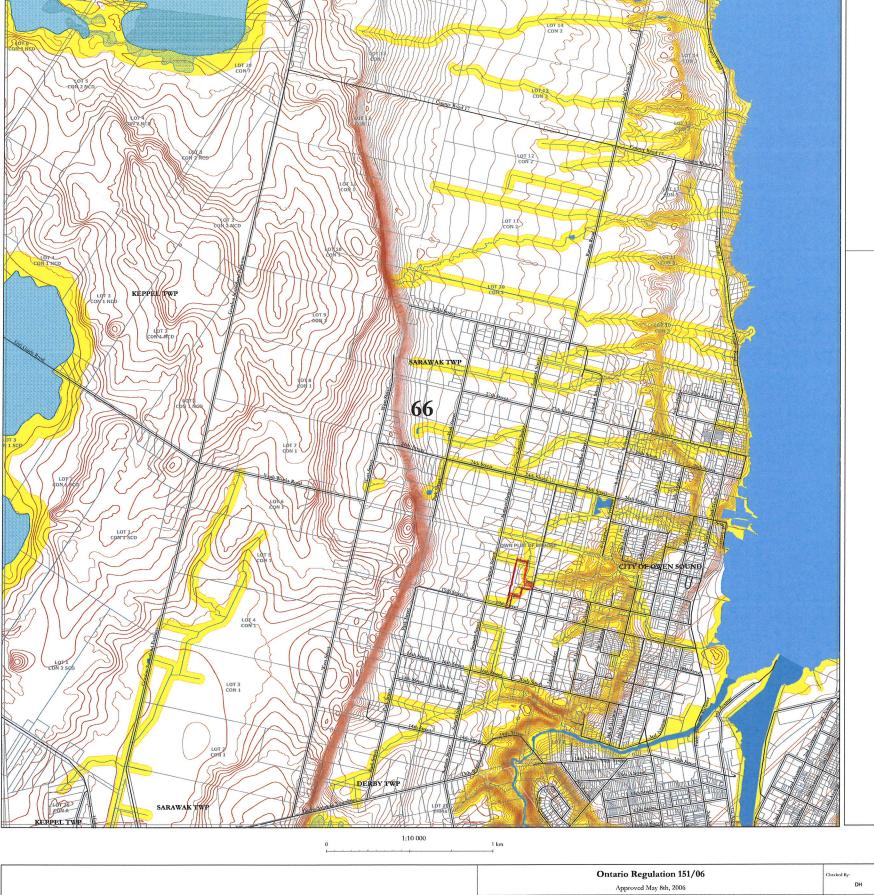
 - Medium Density Residential Medium—High Density Residential Mobile Home Park

- General Commercial
- Tent and Trailer Campground Rural Commercial
- General Industrial Extractive Industrial

Space Extensive Commercial

- Institutional
- Environmental Protection Open Space
 - Planned Development
- Niagara Escarpment Development Control
- Zone Exception Wetland Hamlet
- Holding Provision Municipal Road
- County Road or Provincial Highway Other Right of Way or Road Allowance Waterway
 - 132

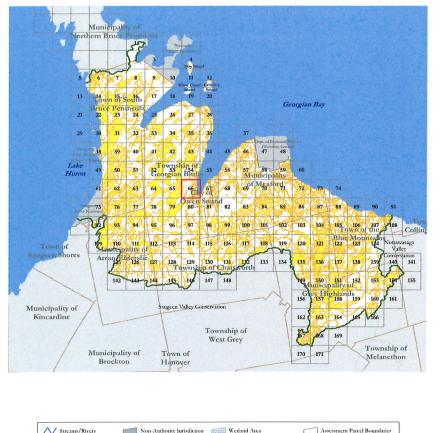
JANUARY 22 2003 - CUESTA PLANNING AMENDED AUGUST 2010



REGULATION FOR DEVELOPMENT, INTERFERENCE WITH WETLANDS, AND ALTERATIONS TO SHORELINES AND WATERCOURSES. ONTARIO REGULATION 151/06









THE REGULATION LIMIT IS A COMPILATION OF VARIOUS INFORMATION SOURCES. EXISTING FLOODPLAIN MAPPING AND SHORELINE HAZARD MAPPING WERE PREVIOUSLY PREPARED FOR GSCA BY ENGINEERING CONSULTANTS. EROSION HAZARDS & APPROXIMATED FLOODPLAINS WERE DETERMINED BY GSCA STAFF AND ASSIGNED AN ADDITIONAL ALLOWANCE OF 15 METRIS. PROVINCIALLY & LOCALLY SIGNIFICANT WETLAND (PSW/15W) DELINEATIONS WERE PROVIDED BY THE MINISTRY OF NATURAL RESOURCES. ALL OTHER WETLANDS WERE MAPPED FROM ORIGINAL OBM MAPS. PROVINCIALLY SIGNIFICANT WETLANDS WERE ASSIGNED AN ALLOWANCE OF 120 METRES AND ALL OTHER WETLANDS WERE MAPPED FROM ORIGINAL WETLANDS WERE SASIONED AN ALLOWANCE OF 120 METRES AND ALL OTHER WETLANDS WERE MAPPED FROM ORIGINAL OF 10 METRES.

FOR MORE INFORMATION CONTACT GREY SAUBLE CONSERVATION AUTHORITY (519-376-3076).

		Ontario Regulation 151/06 Approved May 8th, 2006	Checked By:	Capagit (n. y. Sauk Camenian Aukolo), 2018 This oph as in one-plain for union a season, and it is rejected up appear suly. The Gry Saide Convenient Aukolo), or an operation of a consequence of the survey of the subsection reseased which are plained to apply.	Sheet Number	
	Revisions May 2007 to May 2008	Revision Number (See -Nacoled Table for Resisons light - ON Regulations 151/16 Resisons Table)	Plot Date:	The included mapping has been compiled from various sources and is for information purposes only. Grey Stable Conservation is not responsible for, and carnes guarantee, the accessing of all the information entained within the susp. Rigidation lates were created by Grey Stable Conservation using later contents interpolated from the Proceeded (10 metry) Egilar Delevation 18.64. Persona 18.2—8. Extended from the Proceeded (10 metry) Egilar Delevation 18.64. Persona 18.2—8. Extended from the Proceeded (10 metry) Egilar Delevation 18.64. Persona 18.2—8. Extended from the Content Recovery of Extended (10 metry) Egilar Delevation 18.65. Extended from the Proceeded (10 metry) Egilar Delevation 18.65. Personal Recovery through the Citation of Extended (10 metry) Egilar Delevation (10 metry) Egilar		
			May, 2008 Mapping By: GD		or 171	

APPENDIX D: FLOODLINE STUDY MAPPING INFORMATION

-- Direction of Flow --

FLOODLINE MAPPING STUDY REACH #1 TO REACH #5

	W.S. Elev (m)										
River Sta	Existing Twin 1500 mm dia. CSP			New Twin 1200 mm dia. PP				New Twin 1500 mm dia. PP			
	Α	В	B - A	С	C-A	D	D - A	E	E - A	F	F - A
(m)	Phase 1	Phase 2	Diff.	Phase 1	Diff.	Phase 2	Diff.	Phase 1	Diff.	Phase 2	Diff.
501.5	189.43	189.43	0.00	189.43	0.00	189.43	0.00	189.43	0.00	189.43	0.00
482.5	189.30	189.30	0.00	189.32	0.02	189.32	0.02	189.30	0.00	189.30	0.00
464	189.26	189.26	0.00	189.29	0.03	189.28	0.02	189.26	0.00	189.26	0.00
441.5	189.16	189.16	0.00	189.21	0.05	189.20	0.04	189.16	0.00	189.16	0.00
433	189.02	189.01	-0.01	189.12	0.10	189.12	0.10	188.95	-0.07	188.95	-0.07
425	189.01	189.00	-0.01	189.11	0.10	189.11	0.10	188.86	-0.15	188.86	-0.15
6th Ave W/	21st St W Culve	ert									
345	188.47	188.20	-0.27	188.47	0.00	188.20	-0.27	188.47	0.00	188.20	-0.27
336.5	188.29	187.96	-0.33	188.29	0.00	187.96	-0.33	188.29	0.00	187.96	-0.33
316	188.20	187.91	-0.29	188.20	0.00	187.91	-0.29	188.20	0.00	187.91	-0.29
295.5	188.17	187.89	-0.28	188.17	0.00	187.89	-0.28	188.17	0.00	187.89	-0.28
275	188.16	187.88	-0.28	188.16	0.00	187.88	-0.28	188.16	0.00	187.88	-0.28
261	188.15	187.87	-0.28	188.15	0.00	187.87	-0.28	188.15	0.00	187.87	-0.28
240.5	188.14	187.87	-0.27	188.14	0.00	187.87	-0.27	188.14	0.00	187.87	-0.27
221.5	188.12	187.87	-0.25	188.12	0.00	187.87	-0.25	188.12	0.00	187.87	-0.25
201.5	187.89	187.86	-0.03	187.89	0.00	187.86	-0.03	187.89	0.00	187.86	-0.03
181.5	187.85	187.86	0.01	187.85	0.00	187.86	0.01	187.85	0.00	187.86	0.01
173	187.64	187.64	0.00	187.64	0.00	187.64	0.00	187.64	0.00	187.64	0.00
20th St W Cւ	ılvert										
136	186.60	186.60	0.00	186.60	0.00	186.60	0.00	186.60	0.00	186.60	0.00
124	186.36	186.36	0.00	186.36	0.00	186.36	0.00	186.36	0.00	186.36	0.00
92	186.01	186.01	0.00	186.01	0.00	186.01	0.00	186.01	0.00	186.01	0.00
81	185.77	185.77	0.00	185.77	0.00	185.77	0.00	185.77	0.00	185.77	0.00
67	185.04	185.04	0.00	185.04	0.00	185.04	0.00	185.04	0.00	185.04	0.00
59	185.06	185.06	0.00	185.06	0.00	185.06	0.00	185.06	0.00	185.06	0.00
32	185.05	185.05	0.00	185.05	0.00	185.05	0.00	185.05	0.00	185.05	0.00
0	185.05	185.05	0.00	185.05	0.00	185.05	0.00	185.05	0.00	185.05	0.00

A Existing ditch (Phase 1 considered to be completed 2008)

B Re-graded ditch (Phase 2)

C Existing ditch w/ new twin 1200 mm dia. PP pipes

D Re-graded ditch w/ new twin 1200 mm dia. PP pipes

E Existing ditch w/ new twin 1500 mm dia. PP pipes

F Re-graded ditch w/ new twin 1500 mm dia. PP pipes

B-A Change from ex. WS Elv due to re-graded ditch (ex. twin CSP pipes remain)

C-A Change from ex. WS Elv due to new twin 1200 mm dia. PP culverts and existing ditch maintained

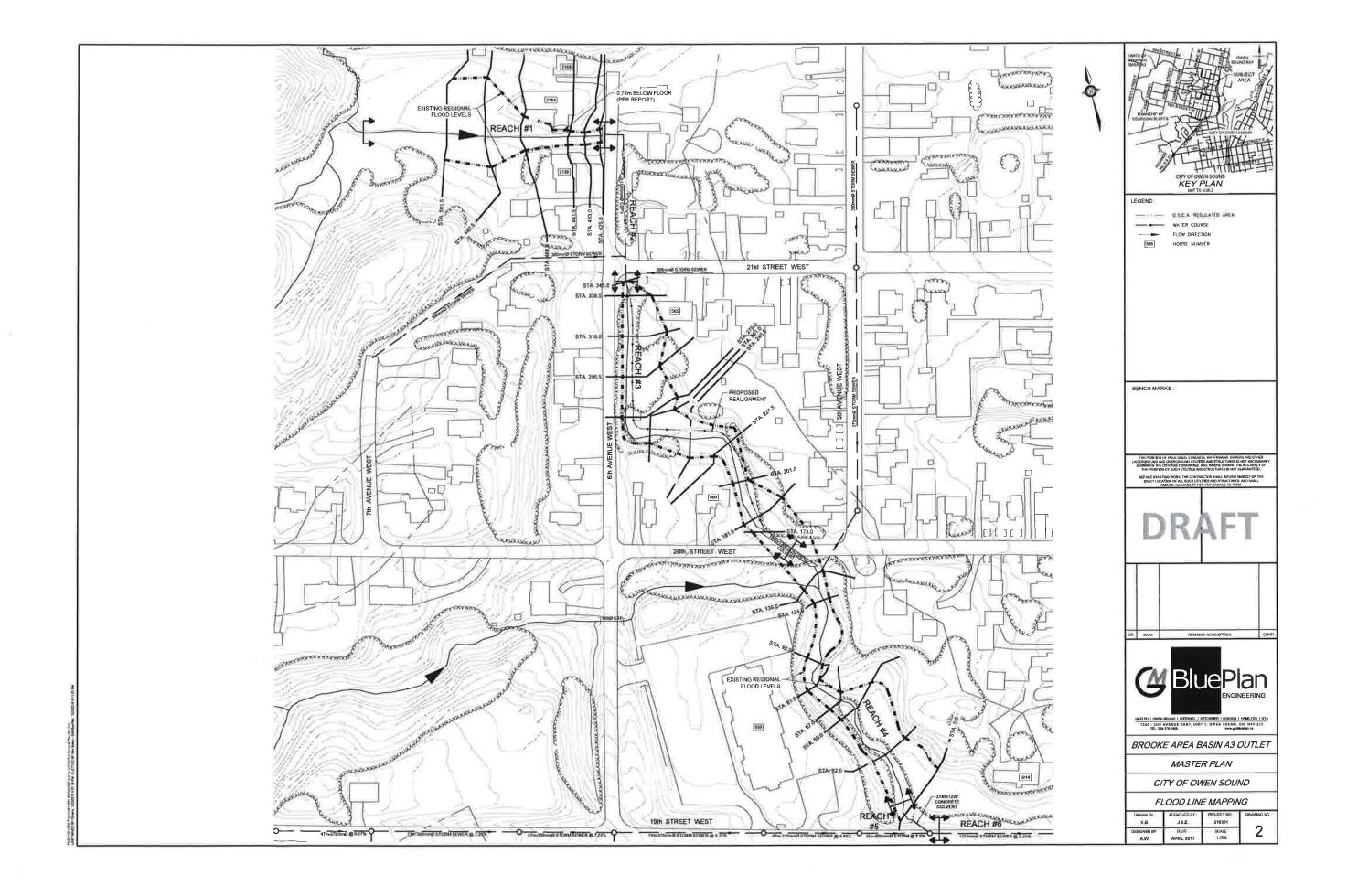
D-A Change from ex. WS Elv due to new twin 1200 mm dia. PP culverts and re-graded ditch

E-A Change from ex. WS Elv due to new twin 1500 mm dia. PP culverts and existing ditch maintained

F-A Change from ex. WS Elv due to new twin 1500 mm dia. PP culverts and re-graded ditch

W.S. Elv. Increase (undesirable)
No Change
W.S. Elv. Decrease (desirable)

Project No. 216301 GM BluePlan Engineering



APPENDIX E: CULTURAL ENVIRONMENT: BACKGROUND INFORMATION STAGE 1 ARCHAEOLOGICAL ASSESSMENT FOR BROOKE AREA BASIN A3, LOTS 129, 131, 133, 135, 137, 139 EAST AMELIA STREET, 130 WEST EDWARD STREET, 135, 137, 139 EAST EDWARD STREET, 136, 138, 140 WEST MARKET STREET, PT LOT 139 EAST MARKET STREET AND LOTS 130, 132, 134, 136, 138, 140 WEST SOUND STREET, TOWN PLOT OF BROOKE, GEOGRAPHIC TOWNSHIP OF SARAWAK, CITY OF OWEN SOUND, GREY COUNTY, ONTARIO ORIGINAL REPORT

Prepared for:

GM BluePlan Engineering Limited and Ontario Ministry of Tourism, Culture and Sport

SCARLETT JANUSAS ARCHAEOLOGY INC.

Main: 269 Cameron Lake Road, Tobermory, Ontario, N0H 2R0 Branch: 1166 2nd Ave. W, Unit 1, Owen Sound, ON, N4K 2N2

Phone: 519-596-8243 / Cell: 519-374-1119

jscarlett@amtelecom.net www.actionarchaeology.ca



License #: P027

PIF #: P027-0331-2018

April 25, 2018

©SJAI

Executive Summary

The proponent retained the services of Scarlett Janusas Archaeology Inc. (SJAI) to conduct a Stage 1 archaeological resource assessment for the area that will be impacted by the Brooke Area Basin A3. The Study Area consists of an area five metres on either side of an existing storm water drainage system. There are no existing structures or ruins within the Study Area boundaries. The Study Area is located on part of historic Lots 129, 131, 133, 137, 139 East Amelia Street, 130 West Edward Street, 135, 137, 139 East Edward Street, 136, 138, 140 West Market Street, part Lot 139 East Market Street and Lots 130, 132, 134, 136, 138, 140 West Sound Street, Town Plot of Brooke, Sarawak Township, City of Owen Sound, Grey County, Ontario.

The archaeological assessment was triggered by the City of Owen Sound wishing to complete a comprehensive review of the Study Area to assist with planning.

Background research indicated that there are no registered archaeological sites within one kilometer of the Study Area nor any known archaeological assessments within 50 metres of the Study Area. There are two provincial plaques which relate to the Study Area relating to the founding of Owen Sound, and the establishment of the Newash Indian village.

The soils of the Study Area are identified as the Elderslie. Field observations noted that the topography of the project area ranges from 180 to 190 metre above sea level (asl).

The Stage 1 archaeological assessment of the Study Area, consisting of a property inspection and background research, was conducted under license P027 (Scarlett Janusas, PIF#: P027-0331-2018). The property inspection was conducted on March 28th, 2018 under good assessment weather conditions.

Based upon the background research of past and present conditions, and the property visit, the following is recommended:

• A Stage 2 archaeological assessment is recommended for approximately 56% of the Study Area (areas of archaeological potential), more specifically: 1) the west side of Reach 1 should be the subject of Stage 2 archaeological assessment if there is any proposed development, excluding routine maintenance of the existing culvert; 2) the west side of Reach 2 exhibit potential and will require Stage 2 archaeological assessment if this area is to be developed; 3) the water course in Reach 3 has been dredged several times, although the majority of the area on either side of the course has remained undeveloped. Should any development be proposed in this area, Stage 2 archaeological assessment is recommended. 4) Reach 4 is a mix of areas of both archeological potential and no potential. Those areas of archaeological potential are recommended for Stage 2 archaeological assessment should

development be proposed within Reach 4. 5) There is no potential for Reach 5, and no further archaeological assessment is required in the area of Reach 5. 6) There is no archaeological potential for Reach 6 and no further archaeological assessment is recommended within the Reach 6 area.

 Compliance legislation must be adhered to in the event of discovery of deeply buried cultural material or features

As per Section 2.1.2 Standards 1, 2, and 5-9 of the MTCS 2011 Standards and Guidelines, it is recommended that areas of archaeological potential as identified on Map 15 be subject to a Stage 2 archaeological assessment. Based on the current condition of the land, the area cannot be ploughed. Stage 2 archaeological assessment should be conducted using a test pitting methodology conducted in five metre intervals across the areas of archaeological potential. Each test pit should be at least 30 cm in diameter and excavated a minimum of five cm into subsoil and examined for stratigraphy, cultural features, or evidence of fill. All soil shall be screened through mesh no greater than six mm, all artifacts should be collected according to their associated test pit, and all test pits backfilled unless instructed not to by the landowner/proponent. If test pits are found to be positive (artifacts or cultural features), test pitting should be intensified around the positive test pits with eight additional test pits excavated at 2.5 metre intervals around the positive test pit. If there are sufficient positive test pits located to recommend a Stage 3 archaeological assessment (and sufficient materials), no additional intensification is required. If there is some question as to whether the positive test pit(s) is sufficient for a recommendations of Stage 3 assessment, a minimum of one – one metre square test unit must be excavated over the positive test pit. All recovered archaeological materials shall be bagged and tagged according to provenience.

This archaeological assessment has been conducted under the 2011 Standards and Guidelines for Consultant Archaeologists (Ministry of Tourism, Culture and Sport 2011).

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Project Personnel

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STAGE 1 ARCHAEOLOGICAL ASSESSMENT FOR BROOKE AREA BASIN A3, LOTS 129, 131, 133, 135, 137, 139 EAST AMELIA STREET, 130 WEST EDWARD STREET, 135, 137, 139 EAST EDWARD STREET, 136, 138, 140 WEST MARKET STREET, PT LOT 139 EAST MARKET STREET AND LOTS 130, 132, 134, 136, 138, 140 WEST SOUND STREET, TOWN PLOT OF BROOKE, GEOGRAPHIC TOWNSHIP OF SARAWAK, CITY OF OWEN SOUND, GREY COUNTY, ONTARIO

1.0 PROJECT CONTEXT

1.1 Development Context

The proponent retained the services of Scarlett Janusas Archaeology Inc. (SJAI) to conduct a Stage 1 archaeological resource assessment for the area that will be impacted by the Brooke Area Basin A3 (Maps 1 - 4). The following is a description provided by the proponent (personal communication, Andrea Nelson January 11, 2018):

"In July, 2008, GM BluePlan Engineering Limited (GMBP), on behalf of the City of Owen Sound (City) and the Township of Georgian Bluffs (Township), completed a "Brooke Area Stormwater Management Study" (BAWSM Study), which investigated drainage issues within seven drainage areas that cross the common municipal border and outlet through the City to Georgian Bay. Brooke Area Basin A3 was identified as one of these drainage areas.

Brooke Area Basin A3 is generally bounded by West Street in the west, 23rd Street West in the north, the Eddie Sargent Parkway (ESP; Grey Road 1) in the east, and the 17th Street West and 18th Street West rights-of-way (ROW) in the south. The specific Study Area includes the outlet portion of the drainage system of Basin A3, which is located entirely within the City's boundaries; east of 8th Avenue West to the outlet at Kelso Beach.

The BASWM Study identified various deficiencies with drainage infrastructure within the City. The City has chosen to investigate in greater detail, by following a Master Plan approach, the outlet system for Brooke Area Basin A3 with the Study Area broken down into the following component reaches:

- i) Reach #1 Open Channel East of 8th Avenue West to 6th Avenue West
- ii) Reach #2 Culvert 6th Avenue West and 21st Street West
- iii) Reach #3 Open Channel / Culvert 21st Street West to 20th Street West
- iv) Reach #4 Open Channel 20th Street West to 19th Street West
- v) Reach #5 Culvert Inlet System 19th Street West near 5th Avenue West
- vi) Reach #6 Storm Sewer System 19th Street West, from Inlet System to ESP

vii) Reach #7 – Outlet System – ESP to Kelso Beach"

The Stage 1 archaeological assessment is being completed only for Reaches 1 through 6.

The archaeological assessment was triggered by the City of Owen Sound wishing to complete a comprehensive review of the Study Area to assist with planning.

Permission to access the property and to conduct all activities associated with the Stage 1 archaeological assessment was provided by the proponent. The Study Area is a five metre (m) zone on either side of an existing storm water drainage system. There are no existing structures within the Study Area boundaries. The Study Area occupies parts of historic Lots 129, 131, 133, 137, 139 East Amelia Street, 130 West Edward Street, 135, 137, 139 East Edward Street, 136, 138, 140 West Market Street, part Lot 139 East Market Street and Lots 130, 132, 134, 136, 138, 140 West Sound Street, Town Plot of Brooke, Sarawak Township, City of Owen Sound, Grey County, Ontario. The Study Area is 8,350m² in size.

This Stage 1 archaeological assessment has been conducted under the 2011 Standards and Guidelines for Consultant Archaeologists (Ministry of Tourism, Culture and Sport 2011).

1.2 Historical Context

1.2.1 **Current Environment**

The Study Area encompasses a five metre area on either side of an existing storm water drainage system. There are no existing structures within the Study Area boundaries. The elevation of the terrain ranges from 180 m above sea level (asl) gradually rising to a height reaching 190 m asl.

1.2.2 Prehistory of Study Area

The Paleo period, 9500 – 8000 B.C., represents the first human populations in Ontario. These people subsisted largely on caribou and small mammals and fish. They were nomadic in nature, traveling large areas, but generally following glacial strandlines. Sites from this period are represented solely by lithic assemblages. There are no registered early or late Paleo Indian sites located on or in the vicinity of the Study Area.

The Archaic period spans a large time period from 7000 to 1000 B.C. Raw materials used by these nomadic people became much more diverse, and they remained hunters and gatherers. There are no registered archaeological sites identified as Early, Middle or Late Archaic periods located near the Study Area.

The Woodland periods span from 1000 B.C. to 1650 A.D. The introduction of

ceramics marks the differentiation between the Woodland and Archaic periods. The Ministry of Tourism, Culture and Sport has indicated there are no registered archaeological sites of the Woodland period within one kilometre of the Study Area.

1.2.3 Indigenous Historic Period

The Chippewas of Saugeen First Nation and the Chippewas of Nawash First Nation share the same traditional territories in southwestern Ontario. They were a part of the ancient Three Fires Confederacy of Ojibway, Odawa, and Pottawatomi. Prior to 1650, these groups inhabited the lands bordering on Lake Huron. Around 1650 conflict with the Iroquois forced them to move westwards. After the defeat of the Iroquois, some of the Ojibway settled in the Saugeen Territory. The Ojibwa retained all territories won during the battles with the Iroquois until they surrendered them to the Crown more than a century later.

Throughout the 18th century the Saugeen Territory was inhabited by several generations of Ojibway whose immediate territory was threatened neither by war nor by European settlers. Some of these Ojibwa were the Wahbadicks, the Newashes, the Wahwahnoses, and the Metegwob who fished, trapped and hunted along the many rivers, streams and lakes of their lands (Schmalz 1991:2-9). It should also be noted that there were many "foreign" Indians from the United States that settled within the territory as well.

The Saugeen Ojibway Nation (SON) traditional territories cover the watersheds bounded by the Maitland River and the Nottawasaga River (east of Collingwood on Georgian Bay). The area includes all the Bruce Peninsula (which was once known as the Saugeen Peninsula), all of Grey and Bruce Counties, and parts of Huron, Dufferin, Wellington and Simcoe Counties.

To accommodate British and European immigration, officers of the Crown began their quest to secure Aboriginal lands toward the end of the 18th century. Large portions of the Mississauga Tract along the northern shores of Lake Ontario had been obtained in 1792, and the bulk of the Huron Tract including present day Grey County in 1825. On August 9, 1836, after negotiations on Manitoulin Island between the chiefs of the Saugeen Ojibway and the Government of Upper Canada led by Sir Francis Bond Head, the Crown gained title to approximately 1.5 million acres (607,028.5 hectares) of Indigenous land along the shores of Lake Huron (Schmalz 1977:233). The "Saugeen Tract Agreement" as it was called, was registered as Crown Treaty #45 ½ and included all of present day Grey County (Maps 5 - 8). This area was surrendered to the Crown through Crown Treaty #72 dated October 12, 1854. Both treaties allowed for the presence of five reservations on the Peninsula, including: Saugeen, Chief's Point, Colpoy's Bay (Oxenden), Newash and Cape Croker (Davidson 1972:13).

The following is an excerpt from Smith's 1865-66 Directory of the County of Grey:

"Brooke is a village in the township of Sarawak,... formerly called Newash, and was a village inhabited by Ojibway and Pottawatamie Indians, chiefly the former.

In 1837, beyond which we have no connected account of anything around Owen's Sound, Newash, the Ojibway Chief, was living alone, with this family, where Brooke now stands. He had lived there all his life and his father and grandfather before him. Newash is now a man in extreme old age, living at Cape Croker...

In 1840, when preparations were first made for the settlement [Euro-Canadian] of Sydenham town and township, and country around, a few Ojibways and Pottawatamies had settled beside Newash. The Indian village had a pretty appearance. It was a fine dry sandy side; small clearings were made, and the forest around presented majestic elms and basswoods, with a sprinkling of hemlock and cedar, interspersing the invariable maple and beech...

Newash, Saco, Cahpenais, and Wahbatick were the principal men of the tribe. The place became known as Newash's Village, or "Newash"...

In October, 1842, a number of workmen, who had been sent by the Government to put up houses for the Newash band, arrived at "Sydenham". Six log houses were put up that fall; others, log and frame were put up afterward. There were 16 in all; most of these are still standing. The Government also had 100 or 150 acres cleared for them; and made them a present of several yoke of oxen and cows... In 1855 the writer was informed by an intelligent and educated member of the Band, that late Charles Keeshick that the Indian population of Newash was exactly 105.

Early in 1857, the Indians surrendered Newash and the Reserve which now constitutes the township of Sarawak,... and removed to Cape Croker... in June 1858".

Map 9 illustrates the Newash "Indian" village, and a church near Owen Sound Harbour. This village was located to the north of the entrance to the Potawatamie River, and is north of the Study Area.

The Newash (now known as Nawash) reservation remained until the "Peter Jones Treaty" of 1857. The following is an excerpt from the *History of Cape Croker* (CNED 1980:5) and describes events leading up to the signing of the treaty:

"John Telfur, a land agent and surveyor Charles Rankin P. L., came to Nawash, October 1840, they informed the Indians that the land upon which they now resided was to be surrendered and sold for their benefit. This was followed by the signing of the "Peter Jones Treaty".

One surprising feature noted in the treaty was that it was signed at Toronto on February 9th 1857. How the Red delegation reached that city in the middle winter,

with the nearest railway connection then at Collingwood is not known to this writer. It appears strange too that Chief Nawash who was the acknowledged leader of the band, had apparently no part in the transaction. It is possible that the chief by that time was too aged or infirm to travel far. He is known to have agreed to the transfer and to have later taken part in the migration.

In the spring of 1857 soon after the treaty was signed, Lord Burgh who had followed Oliphant as superintendent of Indian Affairs, organized the survey of the Nawash lands. The village was laid out in town lots and given the name of "Town of Brookeholm" in honour of Burg's kinsman Major Brooke of Sarawak. The neighbouring lands were surveyed into the townships of Sarawak and Keppel."

Hamilton's 1862 map shows the general location of the former village (Map 10).

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1.2.4 Historic Métis

The Historic Saugeen Métis are descendants of the Métis who traded at Saugeen. Pierre Piché was considered this first Métis in the area, trading in about 1816. The Ojibwa invited Piché to share the resources within the Saugeen territory, but also required him to "share" in the protection of these same resources and the environment for mutual benefit.

"In 1816-1818, Wampum, strings of bead, was presented to Piché as a tangible reminder, an enduring record, of the historic diplomatic exchange, and the words spoken between the Ojibwe and Métis, that formed their peaceful and sharing relationship in the Saugeen territory" (http://www.saugeenmetis.com/main.php?page=heritage).

The Historic Saugeen Métis are descended from unions between European traders and Indigenous women. The Lake Huron watershed Métis lived, fished, hunted, trapped and harvested the lands and waters of the Bruce Peninsula, the Lake Huron proper shoreline and its watershed. These are considered the traditional Métis territory.

The contemporary Métis community extends for 275 km on the Lake Huron shoreline from Tobermory to south of Goderich, and includes the counties of Bruce, Grey and Huron.

1.2.5 Euro-Canadian Historic Period

The County of Grey was created by lands negotiated in the Treaty of 1818 and contained 1,592,000 acres (644,259.54 hectares). The price of the first treaty was "for the yearly payment for ever of twelve hundred pounds currency in goods at Montreal prices" (Marsh 1931). Due to the expansion of settlers in the new County of Grey, it too was expanded with the Sauking Treaty signed in 1836 (Marsh 1931).

The "sound of water" now known as "Owen Sound" was not officially surveyed until 1815. It has been postulated that Samuel de Champlain, as well as many early fur traders, mapped the shoreline. In 1815 Captain William Fitzwilliam Owen arrived to officially survey the region. Captain Owen changed the original name of Mer Douce (meaning 'Sweetwater Sea'), given to the large bay by Champlain, to Manitoulin Lake (Thomas 2015). It was not until 1825 that the modern name of Georgian Bay was given to the area in honour of King George III. The earliest record showing when the name "Owen Sound" was first used is in Lieutenant Bayfield's survey of 1819, in honour of Captain William Fitzwilliam Owen (Thomas 2015).

The Township of Sarawak is nestled between the townships of Sydenham, Keppel and Derby in the County of Grey. The land was originally owned by the Nawash Indigenous tribe and was occupied as a reserve until the Jones Treaty of 1857. It is a known fact that the reserve land was the desired land to start the town plot of Sydenham, which would later be called Owen Sound. The land was not surveyed and assigned lots and concessions until after the Jones Treaty was signed in 1857.

For almost 25 years the Sarawak Reserve (Map 8) remained alongside the growing township of Sydenham. In the spring of 1857, after the Jones Treaty was signed, the land was surveyed and the town plot of Brooke established. The former Indigenous village was laid out in town lots and given the name of "Town of Brookeholm, now the Town of Brooke. The part of Brooke townplot, east of Albert Street, was annexed to Owen Sound by the Province in February, 1909.

The town plot of Brooke was named after Lord Burgh's kinsmen James Brooke in honour of his exploits in Sarawak (Marsh 1931). The Nawash did not want to leave their land, and were forced to move to Cape Croker once the Jones Treaty had been signed. The, then, local Indian Affairs Department did not allow the Indigenous people to build saw or grist mills, sell their timber to white men; or even trade with their European neighbours. This likely caused monetary issues for the reserve, forcing them to sell their lands. There was much contestation at the auction for Sarawak lands. The Indigenous people attempted to purchase back their land but were denied, and the neighbours who had good relationships with the Nawash did not wish to occupy or purchase the land upon seeing this "treatment" (Marsh 1931, Davidson 1972, Croft 2011). As a result of these problems, the initial Euro-Canadian settlement of Brooke was very slow.

Specific Lot History

The Land Registry Index and Canadian/Ontario Census records were used to obtain the specific lot histories (Map 11 shows lots in 1862). The Collectors/Assessment Rolls for the Township of Sarawak were destroyed by fire (Davidson 1972:321-322; Noble, personal correspondence, 2018). Appendix A details the land abstract records for each municipal address in the Study Area.

#550 19th Street West (Lots 129, 131, 133, 135, 137, 139 East Amelia Street and Lots 130, 132, 134, 136, 138, 140 West Edward Street, Town Plot of Brooke, Sarawak Township)

According to the 'Abstract Land Index' Lots 129, 131, 133,135, 137, and 139 East Amelia Street and Lots 130, 132, 134, 136, 138 and 140 West Edward Street, Town Plot of Brooke, were sold as a single property (1.75 acres / 0.71 hectares). The Crown patent was issued to William J. Graham on July 7, 1888. William J. Graham is listed in the 1881 census as an Inland Revenue Collector, married to Louisa M. Graham and father to a Louisa, William, Henrietta and Harold Graham. It is unclear on the historical maps whether or not a structure was built by William J. Graham, however he was the sole owner of the collective lots until at least 1932.

In 1932 the property was willed to his daughter Henrietta S. Blade. She retained the lands until 1946, when she granted them to her brother Harold F. Graham. Harold Graham sold the land to Marricou Development in 1976 and since 1986 the lands have been under the ownership of Regency Towers Owen Sound. Although the trustees of the land have changed, Regency Towers remains the owner with Trustees coming and going since 1976.

#1914 4th Avenue West (Lots 135, 137, 139 East Edward Street and Lots 136, 138, 140 West Market Street, Town plot of Brooke, Sarawak Township)

According to the 'Abstract Land Index', Lots 135, 137, and 139 East Edward Street and Lots 136, 138, and 140 West Market Street, Town plot of Brooke (1.5 acres / 0.61 hectares) were purchased, as a single block, by William J. Graham from the Crown on July 6, 1888. He remained the sole owner until March 26, 1932 when he and his wife sold the 1.5 acre (0.61 hectare) property to Maria L. Wiselands who owned the land from 1932 until 1945. On February 24, 1945, she sold the property to Jean S. Walpole for \$3,300.00. On March 6, 1952, Walpole granted the property to Norman R. Walpole and his wife. They remained the sole owners until the May 1966 when they sold it to Morley D.B. Atton for \$12,200.00. On October 11, 1990 it was willed to Dorothy M. Atton, who was also the executor of his will.

#1909 4th Avenue West (Part Lot 139 East Market Street, Town Plot of Brooke, Sarawak Township)

The Patent for Part Lot 139 East Market Street, Town Plot of Brooke, was issued to James Douglas (0.25 acres / 0.10 hectares) on May 21, 1886. James Douglas, according to the 1881 census, was a tailor born in Scotland, married to Ellen Douglas and father to James, John, Ellen, Robert, Bella, Anne, Lizzie and William. He held the land until August 27, 1886 when he sold it to Alexander Brass for \$440.00. Alexander Brass retained the property until his passing.

On January 17, 1945 the Mayor and Treasurer of the Corporation of the City of Owen Sound purchased the property for \$1,104.63, due to unpaid taxes. A second Tax Deed was issued June 10, 1946 for the same amount. It appears that the land remained unoccupied until March 19, 1973, when a Deed was issued by Central M. Housing Corporation to Franklin G. Graham and Frances Graham. They paid \$4,000.00 for the property. On March 28, 1973, the Grahams deeded the land to The Director, Veteran's Land Act for \$2.00.

The land was severed on October 8, 1975 when the Minister of Revenue passed a certificate to the estate of Franklin G. Graham for the north part of the lot, some 22 feet (6.71 meters) for a right-of-way.

#280 19th Street (Lots 130, 132, 134, 136, 138 and 140 West Sound Street, Town plot of Brooke, Sarawak Township)

The Crown Patent for Lots 130, 132, 134, and 136, West Sound Street, Town plot of Brooke, were issued to William F. Wolfe on September 18, 1885. The 1881 Census records indicate that William F. Wolfe was a dry goods merchant born in Germany and married to Mary Ann. He and his wife owned the property until July 3, 1901 when they sold each lot to William Graham for \$1,475.00. William Graham sold the land later that same year to the Owen Sound Planning Company Limited for \$12,750.00.

On June 9, 1919 the Owen Sound Planning Company Ltd. sold the lands to the Dominion Oil Company. They retained ownership of the lands until October 15, 1927 when they declared bankruptcy. On December 10th of that same year the land was listed for sale under "Agent for Sale" Norman L. Martin (Trustee for Dominion Oil Ltd.). It was sold to Walter G. Scott in the amount of \$37,000.00. On November 21, 1928 a grant was issued by Norman L. Martin (Trustee of Dominion) Oil) to Dominion Oils Company Ltd. Inc. for part 1.75 acres (0.40 hectares) tax asset copy \$2,000.00 and right-of-ways for Lots 134, 136 and Part Lot 130 (approved by the inspector). The Dominion Oils Company Ltd. Inc. owned the lots until April 1, 1959 when Reliance Petroleum Limited sold the land to Supertest Petroleum Corporation Limited. Supertest Petroleum owned the land until February 13, 1968 when John F. McArthur purchased the lots for \$3,100.00 each. John F. McArthur sold the lots to Noxa Investments Limited on December 12, 1975. In September of 1984 Noxa Investments mortgaged the property through the Toronto Dominion Bank for \$200,000.00. The last transaction within the Land Registry Index was for a grant issued on April 29, 1985 by John F. McArthur to Noxa Investments Limited for "Part and Other Lands".

The Crown Patent for Lots 138 and 140 West Sound Street, Town of Brooke was granted to James Douglas on May 21, 1886. Douglas sold the lots to Alexander Brass on August 27, 1886 who retained the lots until his passing.

On January 17, 1945 the Mayor and Treasurer of the Corporation of the City of Owen Sound purchased the property for \$1,104.63, due to unpaid taxes. A second Tax Deed was issued June 10, 1946 for the same amount. On February 28, 1949 the Corporation of the City of Owen Sound sold the land to McManus Petroleum Limited for \$200.00. That same day McManus Petroleum Limited granted all the lands to Reliance Petroleum Limited. Reliance Petroleum held the lands for 10 years and on April 1, 1959 sold them to Supertest Petroleum. Supertest Petroleum owned the land until February 13, 1968 when John F. McArthur purchased them for \$3,100.00 per lot. John F. McArthur later sold the lands to Noxa Investments Limited on December 12, 1975. On the September 20, 1984 Noxa Investments mortgaged the property through the Toronto Dominion Bank for \$200,000.00 (Part and other lands). The last transaction was a grant issued on April 29, 1985 from John F. McArthur to Noxa Investments Limited for "Part and Other Lands".

#596 20th Street West (Part Lots 123, 125 and 127 East Amelia Street, Town Plot of Brooke, Sarawak Township)

According to the 'Abstract Land Index', William F. Wolfe was issued the patent by the Crown on July 23, 1878, for all three acres (1.21 hectares) of Lots 123, 125 and 127 and other lands. No purchase price was noted. William Wolfe was a dry goods merchant born in Germany and married to Mary Ann. On May 11, 1898 William Wolfe and his wife sold these lands to Walter J. Hemming for \$400.00. Walter Hemming and his wife sold the land to George W. Gurnett for \$500 on October 18, 1910. George Gurnett and his wife later granted the lots to John Mitchell for \$300.00 on August 11, 1914. John Mitchell and his wife granted the land to John Burke for \$280.00 on December 15, 1923. John Burke then granted the land to Joseph and Harold Eldred for \$400 on July 4, 1929. A guit claim was issued between Joseph Eldred and his wife to Harold Eldred for \$200.00 on December 5, 1929. Harold Eldred and his wife later deeded the northwest part of Lot 123, and the west part of Lot 121 to Beverly R. Howey on May 4, 1970, for \$800.00. Harold Eldred and his wife also deeded the northeast part of Lot 123, and the east part of Lot 121 to William G. Davis and his wife Margaret on May 4, 1970 as joint tenants, for \$500.00.

Harold Eldred and his wife deeded their portion of Lots 123, 125 and 127 to William and Shirley Kivell, as Part 2 of registered plan 16R-412 on May 1, 1974, for \$1.00. On February 13, 1987, Beverly Howey granted the northwest part of Lot 123 and other lands to herself and Ruth Howey as joint tenants. No purchase price was provided. William and Shirley Kivell granted Part 2 of registered plan 16R-412 for Lots 123, 125 and 127 to James R. Comeau and his wife JoAnne as joint tenants on May 15, 1987. No purchase price was provided. William and JoAnne Comeau then mortgaged Part 2 of registered plan 16R-412 and other lands to National Trust Co. for \$71,000.00 on October 30, 1987. Beverly and Ruth Howey charged the Confederation Trust Company \$111,500 for the northwest part of Lot 123 and other lands on August 2, 1990. Beverly and Ruth Howey charged Neil McDonald \$55,000.00 for the same on March 30, 1992. James and Marie Comeau charged

the National Trust Co. \$40,000.00 for Part 2 of registered plan 16R-412 for Lots 123, 125 and 127 on September 25, 1992. Later, Beverly and Ruth Howey charged Norman McKibbon \$28,000.00 for the northwest part of Lot 123 and other lands on June 17, 1993.

Beverly and Ruth Howey mortgaged their property on Lot 123 with themselves and Edward S. Howey for \$2.00 on December 22, 1993. Beverly, Ruth and Edward Howey later charged Neil S. McDonald \$86,500.00 for the same lands on December 22, 1993. The Confederation Trust Co. assigned the mortgage for the northwest part of Lot 123 and other lands to the Toronto Dominion Bank on February 3, 1995. The Toronto Dominion Bank then transferred the same property to Michael William and Eyselein L.J. Moore on February 3, 1995 for \$114,000. Michael William and Eyselein Moore then charged the northwest part of the lot and other lands to CIBC Mortgage Corp. for \$65,000.00 on the same day.

#2006 5th Ave West (Part Lot 128 West Edward Street, Town Plot of Brooke, Sarawak Township)

Lot 128 East Edward Street, Town Plot of Brooke, was owned by William Wolfe who was issued the patent by the Crown on January 23, 1878, for the entirety of the lot (0.25 acres / 0.10 hectares). William F. Wolfe was a dry goods merchant born in Germany and married a Mary Ann. He and his wife held the Lot until May 11, 1898 when they sold it to Walter J. Hemming for \$400.00. Walter Hemming and his wife sold off the east part of the lot (99 feet / 30.17 m) to Henry Miller on July 19, 1909 for \$52.00. On October 18, 1910, Walter Heming and his wife sold the remaining land to George Gurnett for \$500.00. Henry Miller sold his east 99 feet (30.17 m) to Stanley Raven on December 26, 1911 for \$385.00. On August 11, 1914 George Gurnett and his wife further divided the lot by granting 66 feet (20.12 m) by 66 feet (20.12 m) to John Mitchell for \$300.00. Stanley Raven sold his part of the land for \$1,450.00 to Bessie Lusltenburg on March 19, 1920. A John Burke bought John Mitchell's portion of the land for \$280.00 on December 15, 1923. John Burke held that land for six years before selling it to Joseph and Harold Eldred at the cost of \$400.00 on January 4, 1929. A guit claim was issued between Joseph Eldred and wife to Harold Eldred for \$200.00 on December 5, 1929. On November 24, 1964, Annie McMann and Walter Waltenburg (executors of the estate of Elizabeth Breen) sold the land to Melville and Lorraine Waltenburg for \$5,500.00. It is unclear at what point Elizabeth Breen became a land holder of this particular parcel. On April 13, 1970 Adam Publske (Admin. of Lorraine Waltenburg) with Emma Carleton, William Tovelofeski and Edith Klagis of the public institute deeded the land to Melbourne and Dorothy Bauman. Harold Eldred and his wife sold their land to William and Shirley Kivell as Part 3 of registered plan 16R-412 on May 1, 1974. No purchase price was provided. William and Shirley Kivell granted the land of Part 3 16R-4112 to James and JoAnne Comeau on May 15, 1987. James and JoAnne Comeau mortgaged their property with National Trust Co. for \$71, 000.00 on October 30, 1987. On September 25, 1992, James and JoAnne charged National Trust Co. for an additional \$40,000.00.

#560 20th Street West (Part Lot 123 Amelia Street East; Lot 125 and 127 East Amelia Street; Part Lot 128 West Edward Street, Town Plot of Brooke, Sarawak Township)

Part Lot 128 West Edward Street was discussed above, but it is part of the municipal address, 560 20th Street West. Lots 123, 125 and 127 East Amelia Street were all purchased by William F. Wolfe from the Crown on July 23, 1878. The lands total 0.75 acres (0.30 hectares). William F. Wolfe and his wife sold all three lots to Walter Hemming for \$400.00 on May 11, 1898. Walter Hemming and his wife held the lands over a decade before selling them all to George Gurnett for \$500.00 on October 18, 1910. On August 11, 1914, George Gurnett and his wife sold the lands to John Mitchell for \$300.00. John Mitchell sold the lands to John Burke for \$280.00, on December 15, 1923. John Burke held the land for six years before selling it to Joseph and Harold Eldred at the cost of \$400.00 on January 4, 1929. A guit claim was issued between Joseph Eldred and his wife to Harold Eldred for \$200.00 on December 5, 1929. Harold Eldred and his wife sold their land to William and Shirley Kivell as Part 3 of registered plan 16R-412 on May 1, 1974, no price given. William and Shirley Kivell granted the land of Part 3 16R-4112 to James and JoAnne Comeau on May 15, 1987. James and JoAnne Comeau mortgaged the property with National Trust Co. for \$71, 000.00 on October 30, 1987. On September 25, 1992 James and JoAnne charged National Trust Co. for an additional \$40,000.00.

#2020 5th Avenue West (Lot 126 West Edward Street, Town Plot of Brooke, Sarawak Township)

Lot 126 West Edward Street, Town Plot of Brooke, was owned by William F. Wolfe, patent, (0.25 acres / 0.10 hectares) on January 23, 1878. William Wolfe and his wife sold the land to Walter Hemming on May 11, 1898, for \$400.00. Walter Hemming and his wife sold the land to George Gurnett for \$500.00 on October 18, 1910. Gurnett then split the lot into two parts, selling the south half (33 feet by 165 feet / 10.06 m by 50.29 m) to Percy Minard for \$175.00 on June 15, 1915, and the north half to Harry Peel for \$594.00 on April 16, 1916. On May 2, 1921, Harry Peel and his wife sold the north half of the lot to Percy Minard for \$340.00. Percy Minard later sold the land to Allan George for \$687.00 on November 20, 1923. A Tax Deed was issued on February 23, by the Mayor and Treasurer to the Corporation of the City of Owen Sound for \$7,852.00. After this the land lay stagnant for 12 years when it was sold by John and Olive Brittain to William Bowman. The Land was sold after William Bowman's death by his executors Emma and Anne Bowman to Robert and Carol St. Jacques for \$1,300.00 on April 15, 1964. Robert and Carol St. Jacques deeded the land to Grey Bruce Development Limited for \$1,500.00 on April 10, 1967. On January 9, 1968, Grey Bruce Development limited sold the land to Stark-Janecek Limited for \$2,000.00 who held the land until 1971. On May 1, 1971 Stark-Janecek sold the land to Richard and Ethel Brown for \$200.00 as joint tenants. Richard and Ethel deeded the land to Peter and Charlotte Sorbara for \$2.00 on May 1, 1978. Two years later, on March 26, 1980, Charlotte Sorbara sold the land to John and Connie Matheson for \$10.00. John and Connie Matheson changed the land title to be listed under Connie Matheson on December 21, 1984 and on June 3, 1985 Connie Matheson sold the land to Douglas and Nancy Bishop. No purchase price was provided.

#563 21st Street West (Part Lot 121 East Amelia Street and Lot 123 East Amelia Street, Town Plot of Brooke, Sarawak Township)

Lot 123 East Amelia Town plot of Brooke was included in the previous section, as it is also part of 2020 5th Avenue West. Lot 121 East Amelia Street, Town Plot of Brooke, follows the same land sales as Lots 123, 125 and 127 East Amelia Street until 1970. On May 4, 1970, Harold Eldred and his wife sold the northwest part of the lot to Beverley Howey for \$800.00. On the same day Harold Eldred and his wife also sold the northeast part of the lot to William G. Davis and Margaret Davis for \$500.00. Beverley Howey granted the land to include his wife Ruth Howey as owner of the northwest part of the lot on February 13, 1987. Beverley and Ruth Howey charged the land to the Confederation Trust Company for \$111,500.00 on August 2, 1990, as well as to Neil McDonald for \$55, 000.00 on March 30, 1992, and a third time to Norman McKibbon for \$28,000.00 on June 17, 1993. A fourth charge on the land was made on December 22, 1993, to Neil McDonald for \$86,500.00 as well as a transfer in land title to include Edward Stewart on the deed. On February 3, 1995 the charge to Confederation Trust Company was assigned to the Toronto Dominion Bank. The Toronto Dominion Bank transferred the land to Michael and Lisa Eyselein for \$114,000.00 on February 3, 1995, who then mortgaged the land through CIBC for \$65,000.00 on the same day.

#585 21st Street West (Part Lot 117 East Amelia Street; Lots 119, 121 and 123 East Amelia Street, Town Plot of Brooke, Sarawak Township)

Lots 121 and 123 East Amelia Street have been discussed above under 563 21st Street West. Lots 117 and 119 East Amelia Street, Town Plot of Brooke, were patented by the Crown to William Frederick Wolfe on January 23, 1878. The lots (0.50 acres / 0.20 hectares) were sold to Walter J. Hemming for \$400.00 each on May 11, 1898. Walter Hemming and his wife sold the lots to William Pedwell for \$600.00 on August 27, 1904. William and Annie Pedwell then transferred the land to Alfred Green in trust in 1917. Alfred Green sold it the land to Henry Still for \$3,300.00 on August 7, 1917, on behalf of William and Annie Pedwell. A grant was issued on the lands between Wilfrid J. Abell, John S. Wilson, E. Henry Abell, Harold Abell, Henry B. Abell, Reginald Abell, and Ola Wilson, to give the land to Ola Wilson on April 18, 1939. Ola Wilson then sold the land to Robert and Rosina Menzies for \$2,150.00 on June 15, 1942. Robert and Rosina Menzies sold a 105

foot by 132 foot (32.00 m by 40.23 m) parcel of the land to Beverley Howey on May 14, 1964, for \$2,000.00. Five years later Robert and Rosina Menzies sold the remaining part of the lot (60 feet by 132 feet / 18.09 m by 40.23 m) to William and Margaret Davies for \$3,600.00 on May 28, 1969. Beverley Howey granted the land to include his wife Ruth Howey as owner of the northwest part of the lot on February 13, 1987. Beverley and Ruth Howey charged the land to the Confederation Trust Company for \$111,500.00 on August 2, 1990, as well as to Neil McDonald for \$55,000.00, on March 30, 1992, and a third time to Norman McKibbon for \$28,000.00 on June 17, 1993. A fourth charge on the land was made on December 22, 1993 to Neil McDonald for \$86,500.00, as well as a transfer in land title to include Edward Stewart on the deed. On February 3, 1995, the charge to Confederation Trust Company was assigned to the Toronto Dominion Bank. The Toronto Dominion Bank transferred the land to Michael and Lisa Eyselein for \$114,000.00 on February 3, 1995, who then mortgaged the land through CIBC for \$65,000.00 on the same day.

#590 21st Street West (Part Lot 113 and 115 East Amelia Street, Town Plot of Brooke, Sarawak Township)

Lots 113 and 115 East Amelia Street, Town Plot of Brooke, were sold to George Hindman by the Crown on March 28, 1887 for \$144.00. The lots (0.50 acres / 0.20 hectares each) were sold that same year by George Hindman and his wife to Charles Barnhart for \$200.00 on December 24, 1888. Charles Barnhart and his wife then sold the same lands to Robert Gambion for \$1,500.00 on August 24, 1901. Robert Gambion and his wife split the land into two parts and sold both parts to John Worne on April 9, 1904, for \$100.00 (west half) and \$1,400.00 for the remaining lands. On September 19, 1904 John Worne and his wife sold the land to Lucy Kerr for \$1,435.00. A Mary J., executor of Lucy Kerr's estate sold the land on November 7, 1942, to Edward and Josephine Ard for \$2,000.00. Josephine Ard sold the land to Homer and Edith Hurlbut for \$5,000.00 on March 22, 1950. A discharge of mortgage was also entered on June 9, 1956 between Josephine Ard and Homer and Edith Hurlbut for the west part (115 feet / 35.05 m). Homer and Edith Hurlbut later sold the west part to William and Margaret Eden for \$100.00, on May 28, 1956. William and Margaret Eden sold a smaller parcel of the west part (55 feet / 16.76 m) to Murray George Cook for \$100.00 on March 10, 1958. Homer and Edith Hurlbut sold their land to Kenneth and Gwendolyn Morris for \$8,500.00 on July 16, 1964. Murray Cook then sold his land to Glen and Lillian Woods for \$8,800.00 on January 18, 1965. Glen and Lillian Woods sold their land to George McLeod for \$14,000.00 on July 6, 1966. Kenneth and Gwendolyn sell their portion of the land to David and Victoria Burke as joint tenants on August 17, 1972. No purchase price was provided. On September 7, 1976, David and Victoria Burke sold the land to Sandra Peters for \$2.00. Four years later on March 19, 1980, Sandra Peters deeded the land to William and Gwendolyn Summers. The following year William and Gwendolyn Summers deeded the lands to Leonard and Mari-An Edwards on May 20, 1981. Leonard and Mari-An Edwards sold their land to Paul and Bonnie Turcott on May 25, 1983. After this (mechanism unknown) a Ruby Showell was in control of the lands from February 28, 1991, and later sold them to John and Dana Eyeselein for \$72,750.00. John and Dana Eyeselein mortgaged their land through CIBC on September 18, 1992 for \$58,000.00.

#2164 6th Ave West (Lot 109 East Cocks Street, 110 West Amelia Street, Part lot 112 West Amelia Street and Part Lot 111 East Cocks Street, Town Plot of Brooke, Sarawak Township)

Lots 109 and 111 East Cocks Street, and Lots 110 and 112 West Amelia Street, Town Plot of Brooke, were purchased from Walter Wilson and his wife by Nicholas Horton for \$400.00 on June 3, 1881. Nicholas Horton and his wife mortgaged their properties under Walter Wilson for \$300.00 on the same day. On August 27, 1881, the Crown issued the patent for the lands to Walter Wilson for the four lots in their entirety (1 acre / 0.40 hectares). Walter Wilson then discharged the mortgage to Nicholas Horton on December 15, 1886. Three years later Nicholas Horton sold the land to Grey and Bruce Canning Company for \$700.00, on August 17, 1889. The Grey Bruce Canning Company sold the land to William Hickey for \$500.00 on August 29, 1901, William Hickey then sold the land to the Owen Sound Brick Company for \$400.00 on September 22, 1906. The Owen Sound Brick Company remained the sole land owner for 15 years and sold their land to John Connolly on January 10, 1921 for \$400.00. On July 7, 1950, Austin M. Scully, William P. Telford Jr., Ex. of James Connolly, Ethel Spindle, Della Skaal, Edward Purcell and his wife. Maude Law and Mary Shell, Marguerite Q. Swarts, Beatrice Willoughby, Fred McNichol, Margaret Reynolds, Laura MacKinnon, Joseph P. Wilson, George Wilson and his wife, Gertrude Keating sold the land to Matilda Ornsby for \$1,800.00. Clarence Orsnby and William Rathwell (Admin of Matilda Ornsby estate) later sold the land to Frank Schill for \$3,000.00 on June 21, 1961. On March 13, 1972, Frank placed his wife, Irene, on the title. Irene Schill then sold the land to Evert Johanson on December 4, 1990, for \$136,000.00.

#2133 6th Avenue West (Lot 111 Amelia Street East, Town Plot of Brooke, Sarawak Township)

Lots 113 and 115 East Amelia Street, Town Plot of Brooke, were sold to George Hindman by the Crown on March 28, 1887, for \$144.00. The lots (0.25 acres / 0.20 hectares) were sold that same year by George Hindman and his wife to Charles Barnhart for \$200.00 on December 24, 1888. Charles Barnhart and his wife then sold the land to Robert Gambion for \$1,500.00 on August 24, 1901. Robert Gambion and his wife sold the same to William Mitchell on September 10, 1907. No purchase price was provided. William Mitchell and his wife later sold the land to Frederick Leslie on August 31, 1911. No purchase price was provided. Frederick Leslie and his wife granted the land to Annie Lewis on April 30, 1923 at

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no cost. Annie Lewis granted the land to Viola Lewis on September 4, 1937. Viola Lewis then sold the land to Benjamin and Vera Herbison for \$300.00 on November 10, 1942. Benjamin and Vera granted the land to Margaret Gordon on July 17, 1947. On June 20, 1963, the Victoria & Grey Trust Company, administrators of Margaret Gordon's estate, sold the land to Kenneth and Hilda Smith for \$1,025.00. Kenneth and Hilda Smith deeded the land to Elsie McInnes on November 19, 1964. Elsie McInnes then deeded the land to Morris Howell on March 22, 1971. Morris Howell and his wife sold the land to Kenneth and Gwendolyn Morris for \$22,900.00 on August 4, 1972. Kenneth and Gwendolyn granted the land to Frederick and Helen Davenport on August 2, 1983. Frederick and Helen Davenport later granted the land to Bryan and Lisa McKay on June 1, 1984. Bryan and Lisa McKay transferred the land to Frederic Standing for \$150,000.00 on October 26, 1990. Frederick Standing then transferred the land to Kenneth Gardner for \$97,500.00, on August 12, 1994. Lastly, Kenneth Gardner mortgaged the land with CIBC for \$89,943.75 on August 12, 1994.

1.2.6 Plaques or Monuments

There are nine Ontario Heritage Trust historic plaques located in the City of Owen Sound (Map 12), but two are relevant to the Study Area.

The Newash Indian Village 1842 plaque is situated on the corner of 4th Ave West and 21st Street West. It reads as follows:

"Following the Indian treaty of 1836, a Reserve along the western shore of Owen Sound was set aside for the Band headed by Chief Newash. In 1842, the Indian village of Newash, established here previous to the founding of the adjacent community of Sydenham (now Owen Sound), was rebuilt by the government. It contained fourteen log houses, a school and a barn. Wesleyan Methodist missionaries ministered to the Indians, and in 1845 a frame chapel, the predecessor of the present church, was completed. In 1857 the Reserve, containing some 4,450 ha, was ceded to the government and most of the Indians moved to Cape Croker".

The Founding of Owen Sound

"In November, 1840, a townplot in Sydenham Township was surveyed as the terminus of the Garafraxa-Owen's Sound Road. John Telfer, government agent, completed his house by November 21 and a shelter for settlers by the following spring. Four private buildings were finished by July 1842. "Sydenham" by 1846 contained a sawmill and grist-mill and about 150 people. A post office opened in 1847 was named "Owen's Sound" after the settlement along the Garafraxa Road from Arthur north. "Sydenham" grew as land and water communication improved and in 1852 became the seat of Grey County. The community of "Sydenham" was incorporated as the Town of Owen Sound in 1857 with a population of almost 2000".

1.2.7 Cemeteries

There is one known cemetery that existed close to, but outside, the Study Area in the former Town Plot of Brooke (Map 9). The burial ground was the first official cemetery in Brooke and was established by the government in c.1850. The cemetery, no longer extant, was located west of 5th Avenue (on the hill) between 22nd and 23rd Streets. Although a number of early Euro-Canadian settlers had been buried there, it consisted primarily of Aboriginal graves (Croft 2011:157).

In 1895-96, Charles Lethbridge planned to open a brickyard in the location of the graveyard and during its development workers encountered some of the burials. In 1898 a public notice was issued advising people who had relatives buried there to remove them to Greenwood Cemetery (opened in 1858) on the outskirts of town (Croft 2011:203). By c.1903, approximately 20 burials had been reinterred at the new Greenwood Cemetery, however there were a "considerable number" of burials that had remained untouched while relatives arranged for their removal (ibid: 239), suggesting that there may still be individuals buried in this location. However, the former cemetery, is removed some distance from the Study Area and is not considered a concern.

1.2.8 Determination of Archaeological Potential

As per the Ministry of Tourism, Culture and Sports' Standards and Guidelines (2011: Section 1.3.1, Standard 1), there are a number of variables that are evaluated when determining archaeological potential. These include:

- presence of previously identified archaeological sites,
- water sources (primary, secondary, features indicating past water sources, accessible or inaccessible shoreline),
- elevated topography,
- pockets of sandy soil in heavy soil or rocky ground,
- distinctive land formations,
- resource areas (food or medicinal plants, scarce raw materials, early Euro-Canadian industry),
- non-Aboriginal settlement (monuments, cemeteries),
- areas of early Euro-Canadian settlement;
- · early historic transportation routes;
- listed or designated heritage property;
- and properties with archaeological potential as identified by local histories or informants.

1.2.9 Rationale for Stage 1 Fieldwork Strategy

A property visit was deemed important to verifying archival data, and confirming areas of low archaeological potential.

A property visit of the Study Area confirmed its archaeological potential. Additional areas of low archaeological potential were also confirmed through the systematic property visit (pedestrian transects along length of Study Area).

1.3 Archaeological Context

1.3.1 Previously Known Archaeological Resources/Assessments

There are no known archaeological sites registered within a one kilometer radius of the Study Area (MTCS 2018) nor known archaeological resource assessments within 50 metres.

1.3.2 Current Environment – Existing Features

The Study Area consists of a five metre area on either side of an existing storm water drainage system. There are no existing structures or ruins within the Study Area boundaries.

1.3.3 Physiography, Bedrock and Topography

The underlying bedrock of the area is the Queenston formation (Chapman and Putnam 1973:4-5).

The Study Area lies in the physiographic region known as the Bruce Peninsula. The Bruce Peninsula region is part of the Niagara Escarpment and is generally a zone of scour. The greater part of the Bruce Peninsula has very shallow soils with much bare rock exposed. The surface of the rock is more irregular than the limestones in other parts of eastern and central Ontario. The dip of the rock strata is towards the west; the surface gradually rises from the water's edge on the Lake Huron side towards the escarpments on or near the Georgian Bay shore. The highest bluffs on the Georgian Bay side are well over 200 feet (60.96 m) in height (Putnam and Chapman 1973: 267-268).

The elevation of the terrain within the Study Area ranges from 180 to 190 meters above sea level (Map 2).

1.3.4 Prehistoric Shorelines

According to Goldthwait (1910), the shoreline of Glacial Lake Nipissing sits at an elevation of 190 to 192 metres. The Study Area has an elevation range of 180 to 190 metres, which indicates that the areas of higher elevation have the potential of sitting on the shoreline of prehistoric Lake Nipissing, although some of the Study Area would have been submerged at the time.

1.3.5 **Soils**

The soils of the Study Area are identified as the Elderslie group. They are described as a grey-brown Podzolic silty clay loam. They are comprised of lacustrine materials and have imperfect drainage, are essentially stone free, and have a topography of very gently to gently sloping (Agriculture Canada 1981).

1.3.6 Drainage

The Study Area is located approximately 180 metres to the west of Georgian Bay and approximately 478 metres north-northeast of the Pottawatomi River. The Study Area consists of part of a drainage basin. The 1862 map (Map 11) of the Town of Brooke indicates tributaries running through the Study Area, in some instances approximating the current route of the current drainage. It would appear that while some of the original route of the tributary exists, other parts of it have been modified to accommodate housing, roads, drainage issues, etc.

1.3.7 **Vegetation**

The vegetation within the Study Area consists of low brush and tall grasses with sections of mature deciduous and coniferous trees.

1.3.8 Dates of Fieldwork

The Stage 1 archaeological assessment (property inspection) was conducted on March 28th, 2018, under sunny skies and a high of 7 degrees Celsius.

As per the Ministry of Tourism, Culture and Sports' Standards and Guidelines (2011 Section 2.1, Standard 3) the fieldwork was conducted under the appropriate lighting and weather conditions.

1.3.9 Unusual Physical Features Affecting Fieldwork

There were no unusual physical features affecting fieldwork.

2.0 FIELD METHODOLOGY

2.1 Stage 1 (Background Research)

As part of the background research, an examination of the following was conducted:

- the Archaeological Site Registration Database (maintained by the Ontario Ministry of Tourism, Culture and Sport) was examined for the presence of known archaeological sites in the project area and within a radius of one kilometer of the project area;
- 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 map available;
- historic settlement maps such as the historic atlases;
- available archaeological management/master plans or archaeological potential mapping;
- commemorative plaques or monuments; and,
- any other avenues that assist in determining archaeological potential were examined.

The Study Area, based on archival documentation, is considered to exhibit archaeological potential (Map 14). The indices of potential include the proximity of early historic transportation roadways (Map 11 of Town of Brooke has roads); an early established Reserve and then Euro-Canadian settlement area; the presence of a waterway (altered to some degree); the nearby glacial Lake Nipissing shoreline; and the relatively undisturbed nature of the Study Area.

2.2 Stage 1 (Property Inspection)

Map 4 presents the concept plan for the Study Area, and Map 13 illustrates the images taken during the Stage 1 property visit (Images 1 - 29). Each of the six reaches (Figure 4) was subject to property inspection. The property inspection was conducted on March 28th, under cool temperatures, but according to the specified requirements under the Standards and Guidelines for Consulting Archaeologists.

A drive-by of the area (large) was conducted in conjunction with access to the property at areas where viewing from the roadside/sidewalks was possible. Photographic documentation was made of field observations.

Property inspection confirmed that approximately 56% of the Study Area still retains archaeological potential, while the other 44% was considered to have low or no archaeological potential based on slopes in excess of 20 degrees and/or deep and extensive development disturbance (Map 14). These areas are

deemed to have low archaeological potential, as per the Standards and Guidelines for Consulting Archaeologists (MTCS 2011). Approximately 20% of the Study Area consists of slopes in excess of 20 degrees, and approximately 24% have been subject to deep and extensive development disturbance in the form of roadway and buried utilities. The remaining 56% of the Study Area was confirmed, through the property visit, to exhibit archaeological potential (Map 14).

3.0 RESULTS

3.1 Stage 1 Archaeological Assessment

The Study Area, based on archival documentation, is considered to exhibit archaeological potential. The indices of potential include the proximity of early historic transportation roadways (Map 11 Town of Brooke has roads); an early established Reserve and then Euro-Canadian settlement area; the presence of a waterway (altered and reroute to some degree); the nearby glacial Lake Nipissing shoreline; and the relatively undisturbed nature of the Study Area.

Property inspection confirmed that approximately 56% of the Study Area still retains archaeological potential, while the other 44% was considered to have low or no archaeological potential based on slopes in excess of 20 degrees and/or deep and extensive development disturbance (Map 14). Reach 1 (located west of 6th Avenue West and north of 21st Street West, and crossing over 6th Avenue West - refer to Map 4) had been subject to previous development in the form of two 1500 mm culverts and large utility services on the east side of the culvert (John Slocombe, GM BluePlan 2018). The west side of the culvert retains archaeological potential. Reach 2 (located along the east side of 6th Avenue West, north of 21st Street West – refer to Map 4) includes the municipal sewer and water main under 6th Avenue West plus 2 – 1500 mm storm sewer culverts under the east boulevard, which has resulted in significant disturbance. The east side of the waterway retains archaeological potential. Reach 3 (located on the east side of 6th Avenue West, south of 21st Street West and extending diagonally from west to east to north of 20th Street West, and west of 5th Avenue West -refer to Map 4) includes the watercourse which has been dredged several times (ibid) as there is sediment build up in this area which blocks the flow. The majority of this Reach has remained undeveloped and retains archaeological potential. Reach 4 (located between 20th and 19th Street West, and east of 6th Avenue West and west of 4th Avenue West -Map 4) has concrete culvert and utilities disturbance at the north end of the reach, and towards the south, have areas that have slopes in excess of 20 degrees, identifying both of these as areas of low archaeological potential. The remaining area has not been identified for any possible development, other than the removal of deadfall from the watercourse (ibid). Reach 5 (located on the north part of 19th Street West) is disturbed through utility and roadway development. Reach 6 continues along 19th Street West heading eastward, and is also the subject of development disturbance.

Map 4 presents the concept plan for the Study Area. Map 13 illustrates the images taken during the Stage 1 archaeological assessment (Images 1 - 29).

3.2 Inventory of Documentary Records Made In Field

Documents made in the field include:

Daily record log and field notes – 1 two-sided page

- Photograph log 1 two-sided page
 Digital photographs 29 colour images
- Field map showing location and orientation of photos taken 1 page

4.0 ANALYSIS AND CONCLUSIONS

4.1 Determination of Archaeological Potential

The Stage 1 archival/desktop study determined that the Study Area exhibits archaeological potential (Map 14) based on its proximity to early historic transportation routes (roadway system in early Brooke); an area of both Indigenous and early Euro-Canadian settlement; and the presence of the glacial Lake Nipissing shoreline in the region.

Property inspection confirmed that approximately 56% of the Study Area still retains archaeological potential, while the other 44% was considered to have low or no archaeological potential based on slopes in excess of 20 degrees and/or deep and extensive development disturbance (Map 14).

Therefore, based on Section 1.3, Standard 1 of the MTCS 2011 Standards and Guidelines, a Stage 2 archaeological assessment is recommended for the areas of archaeological potential (56%) within the Study Area (Map 15), if there is any proposed development for these areas.

5.0 RECOMMENDATIONS

Based upon the background research of past and present conditions, and the property visit, the following is recommended:

- A Stage 2 archaeological assessment is recommended for approximately 56% of the Study Area (areas of archaeological potential), more specifically: 1) the west side of Reach 1 should be the subject of Stage 2 archaeological assessment if there is any proposed development, excluding routine maintenance of the existing culvert; 2) the west side of Reach 2 exhibit potential and will require Stage 2 archaeological assessment if this area is to be developed: 3) the water course in Reach 3 has been dredged several times. although the majority of the area on either side of the course has remained undeveloped. Should any development be proposed in this area, Stage 2 archaeological assessment is recommended. 4) Reach 4 is a mix of areas of both archeological potential and no potential. Those areas of archaeological potential are recommended for Stage 2 archaeological assessment should development be proposed within Reach 4. 5) There is no potential for Reach 5, and no further archaeological assessment is required in the area of Reach 5. 6) There is no archaeological potential for Reach 6 and no further archaeological assessment is recommended within the Reach 6 area.
- Compliance legislation must be adhered to in the event of discovery of deeply buried cultural material or features

As per Section 2.1.2 Standards 1, 2, and 5-9 of the MTCS 2011 Standards and Guidelines, it is recommended that areas of archaeological potential as identified on Map 15 be subject to a Stage 2 archaeological assessment. Based on the current condition of the land, the area cannot be ploughed. Stage 2 archaeological assessment should be conducted using a test pitting methodology conducted in five metre intervals across the areas of archaeological potential. Each test pit should be at least 30 cm in diameter and excavated a minimum of five cm into subsoil and examined for stratigraphy, cultural features, or evidence of fill. All soil shall be screened through mesh no greater than six mm, all artifacts should be collected according to their associated test pit, and all test pits backfilled unless instructed not to by the landowner/proponent. If test pits are found to be positive (artifacts or cultural features), test pitting should be intensified around the positive test pits with eight additional test pits excavated at 2.5 metre intervals around the positive test pit. If there are sufficient positive test pits located to recommend a Stage 3 archaeological assessment (and sufficient materials), no additional intensification is required. If there is some question as to whether the positive test pit(s) is sufficient for a recommendations of Stage 3 assessment, a minimum of one – one metre square test unit must be excavated over the positive test pit. All recovered archaeological materials shall be bagged and tagged according to provenience.

6.0 ADVICE ON COMPLIANCE WITH LEGISLATION

According to the MTCS 2011 Standards and Guidelines (Section 7.5.9) the following must be stated within this report:

This report is submitted to the Minister of Tourism, Culture and Sport 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 Ministry of Tourism, Culture and Sport, 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 Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be an 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 sec. 48 (1) of the *Ontario Heritage Act*.

The Cemeteries Act, R.S.O. 1990 c. C.4 and the Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.

7.0 BIBLIOGRAPHY AND SOURCES

Agriculture Canada

1981 Soils of Grey County, North Sheet, Ontario Soil Survey Report No. 17.

Belden, H. and Co.

1880 **Historical Atlas of the Counties Grey & Bruce Ontario**. Toronto; reprint edition, Keppel County 1854.

Chapman, L.J. and D.F. Putnam

1973 **The Physiography of Southern Ontario**. 2nd edition. University of Toronto Press, Toronto.

Chippewas of Nawash Education Department (CNED)

1980 The History of Cape Crocker. Self-Published, Owen Sound.

Croft, Melba Morris

2011 Memories of Brooke. Self-Published, Owen Sound.

Davidson, T. Arthur

1972 **A New History of the County of Grey**. The Grey County Historical Society, Owen Sound.

Department of Crown Lands

1862 Brooke (Grey Roots Archives)

Government of Ontario

1990a **The Ontario Heritage Act R.S.O. 1990.** Ontario Regulation 9/06, made under the Ontario Heritage Act. Criteria for Determining Cultural Heritage Value or Interest. Queen's Printer, Toronto.

1990b **The Planning Act**. R.S.O. 1990.

Goldthwait, J. W.

1910 An instrumental survey of the shore-lines of the extinct lakes Algonquin and Nipissing in southwestern Ontario. Department of Mines, Geological Survey Branch, Memoire, No. 10, Canada.

Hamilton, H.G. (publisher)

1857 Map of the County of Bruce Shewing the Lately Surveyed Townships in the Saugeen Indian Peninsula, Canada West.

Marsh, Edith Louise

1931 **A History of the County of Grey**. Fleming Publishing Company, Owen Sound, Ontario.

Ministry of Tourism, Culture and Sport

- 2011 **Standards and Guidelines for Consultant Archaeologists**. Ministry of Tourism, Culture and Sport.
- 2017 Archaeological Sites Database Files. Ministry of Tourism, Culture and Sport, Toronto. Provided through Pastport.

Rankin, Charles

- 1846 **Plan of the Town Reserve of Sydenham, February 1, 1846** (Grey Roots Archives).
- 1855 Map of the Counties of Grey and Bruce, Canada.

Schmalz, Peter S.

- 1977 **The History of the Saugeen Indians.** Ontario Historical Society Research Publication No. 5, Toronto.
- 1991 **The Ojibwa of Southern Ontario**. University of Toronto Press, Toronto.

Smith, William H.

- 1846 Smith's Canadian Gazetteer. H & W Rowsell and Wm. H. M Smith.
- 1865 **Gazetteer and Directory of the County of Grey for 1865-6.** Globe Steam Press, Toronto.

Additional Sources:

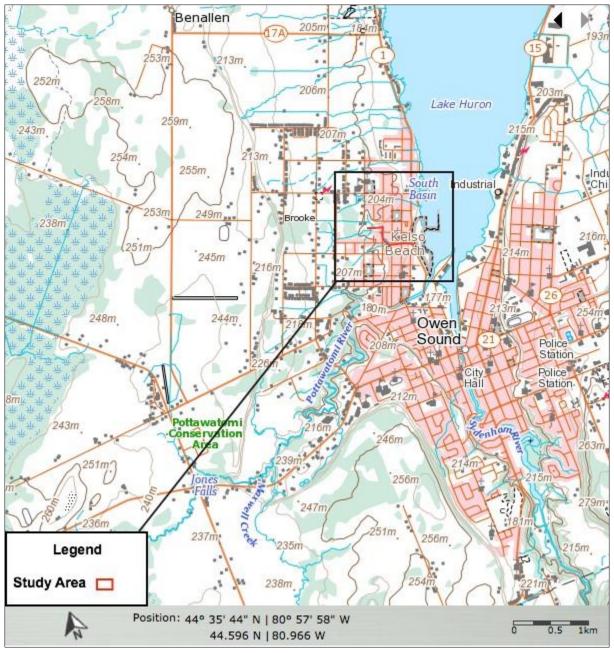
- 1. The Atlas of Canada, Map of the Area of the 9 August 1836 Treaty http://atlas.gc.ca/sites/english/maps/historical/indiantreaties/historicaltreaties
- Natural Resources Canada n.d. Toporama – Topographic Maps. Accessed September 28th, 2017. Online.
- 3. Grey County Interactive Maps n.d. Topographic Maps. Accessed January 12th, 2018
- Land Abstracts

 n.d. OnLand.ca. Accessed January 15th, 2018
 Grey County Books: 104, 111, 112, 115, 116, 119
- 5. Personal Correspondence: Andrea Nelson, GM BluePlan Engineering. Email January 10th 2018

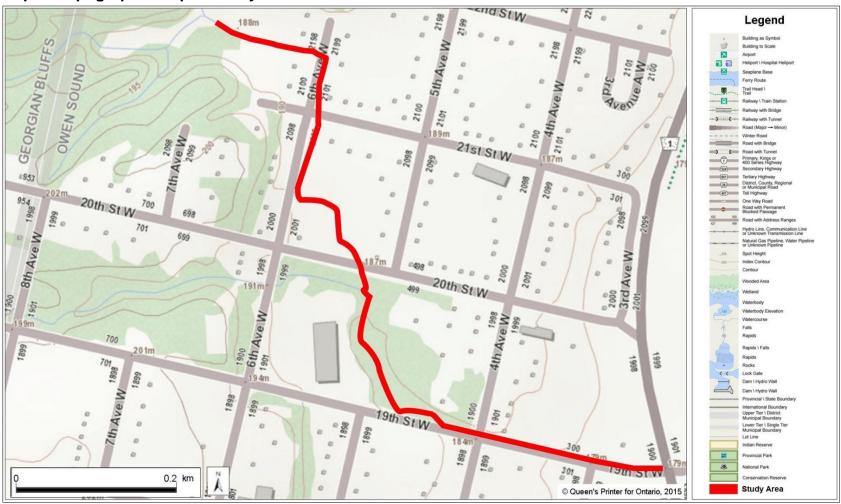
6. Personal Correspondence: Karen Noble, Archivist at Grey Roots Museum and Archives. Verbal communication January 18th, 2018

8.0 MAPS

Map 1: Regional Location of Study Area



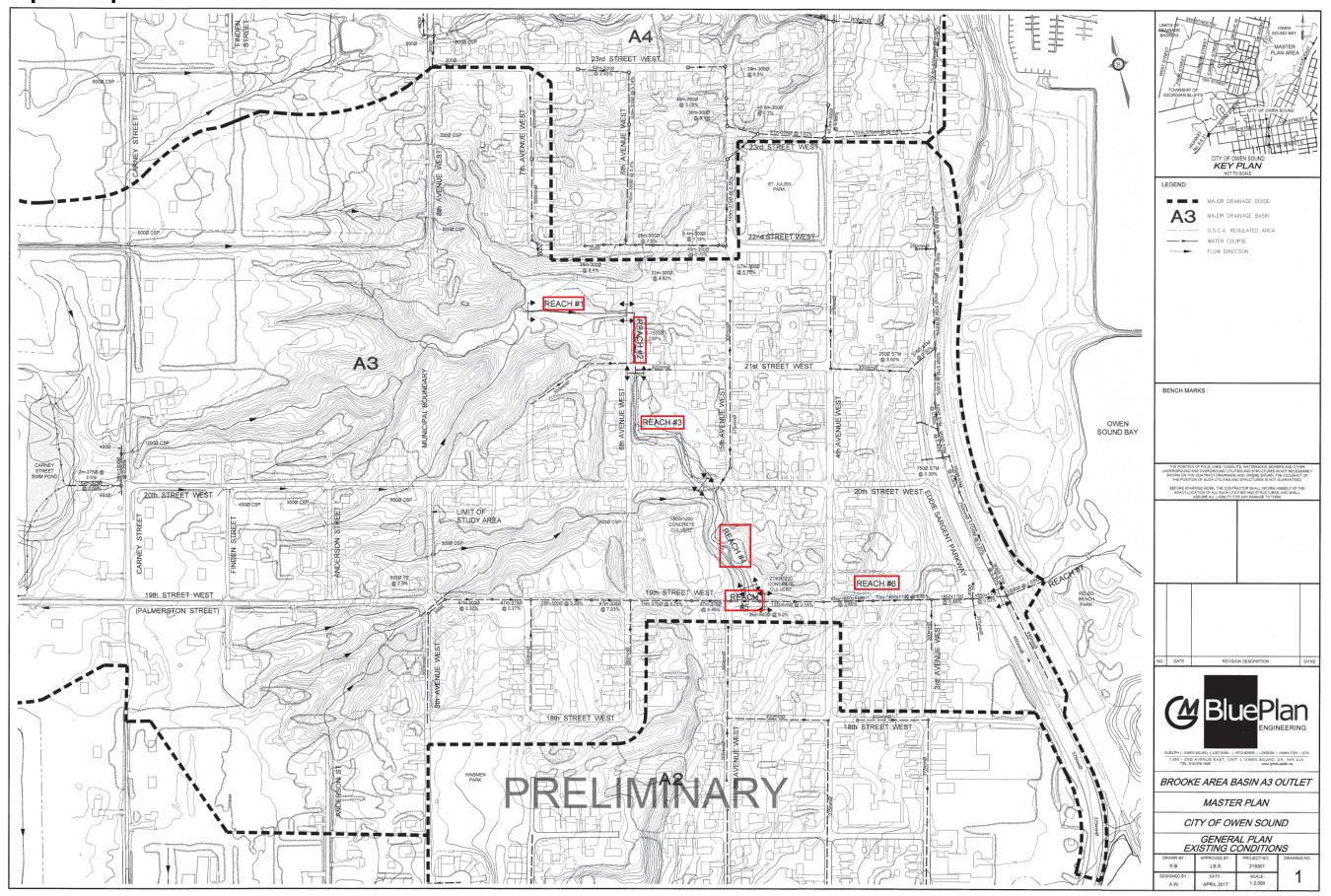
Map 2: Topographic Map of Study Area



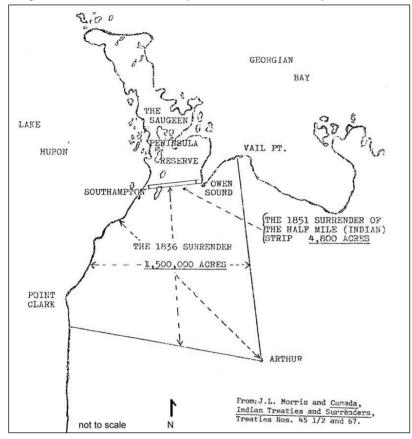
Map 3: Aerial Map of Study Area



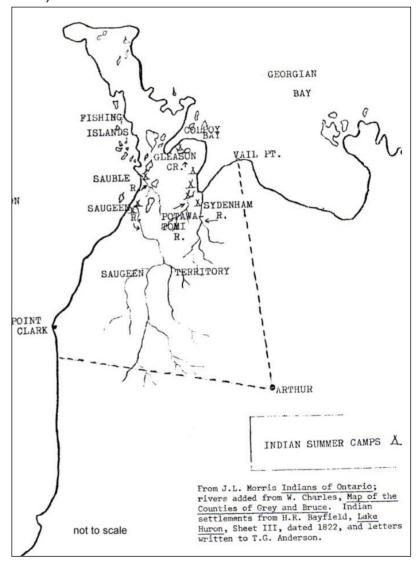
Map 4: Concept Plan

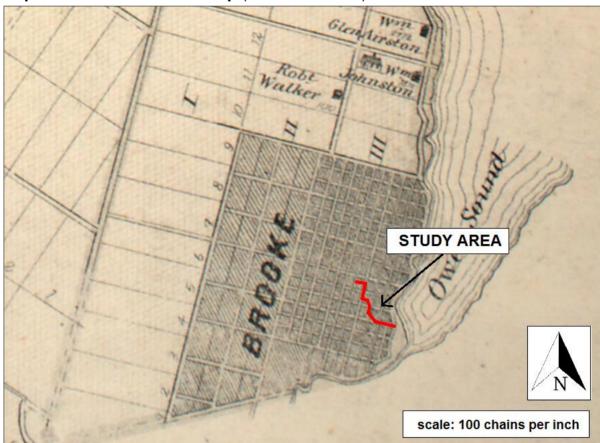


Map 5: 1836 Surrender (Schmalz 1977:233)



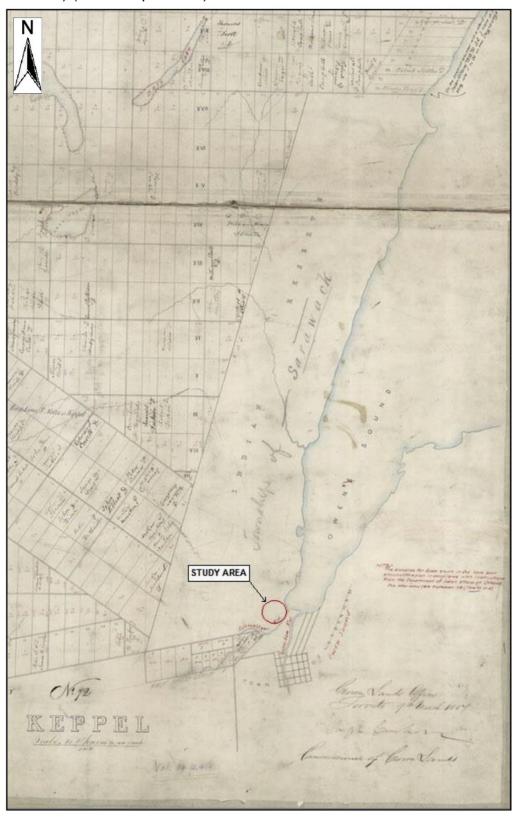
Map 6: Saugeen Lands Before Surrender (Schmalz 1977)



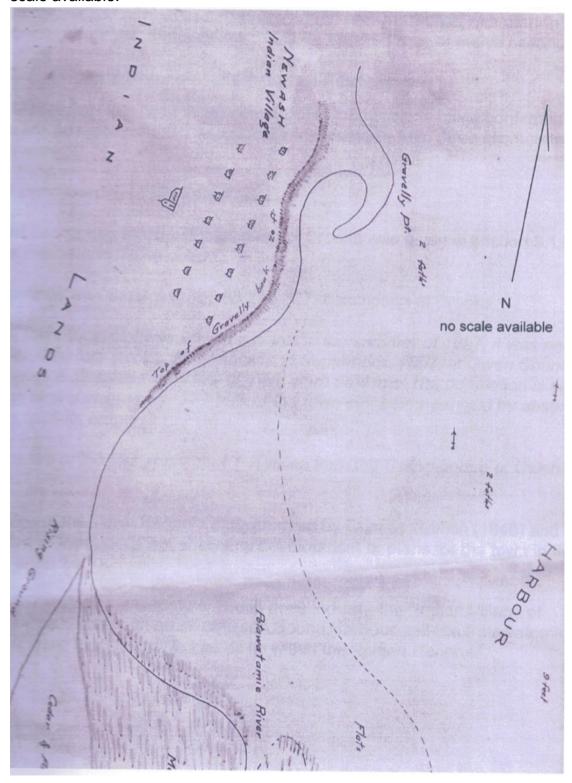


Map 7: 1880 Historic Atlas Map (H. Belden & Co.)

Map 8: 1854 Map of Keppel Township showing Sarawak as Reserve (Grey Roots Archives) (no scale provided)



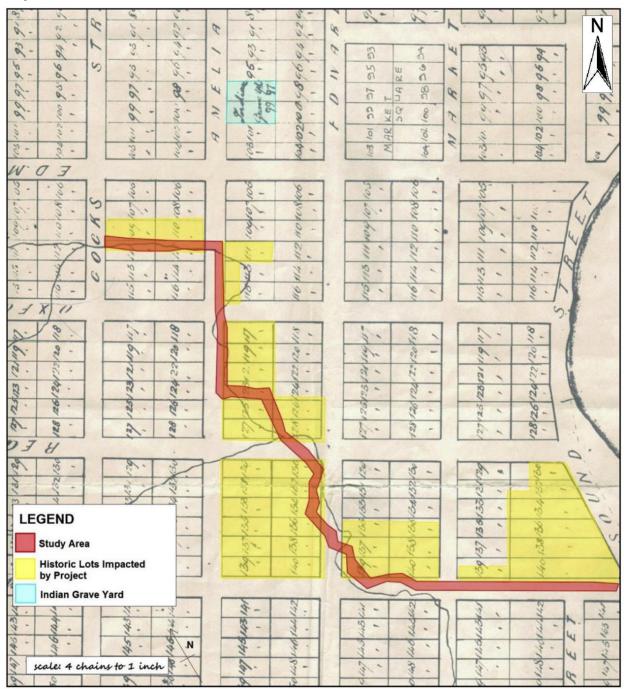
Map 9: Section of Plan of Sydenham Town Plot (Charles Rankin Feb. 1846). No scale available.

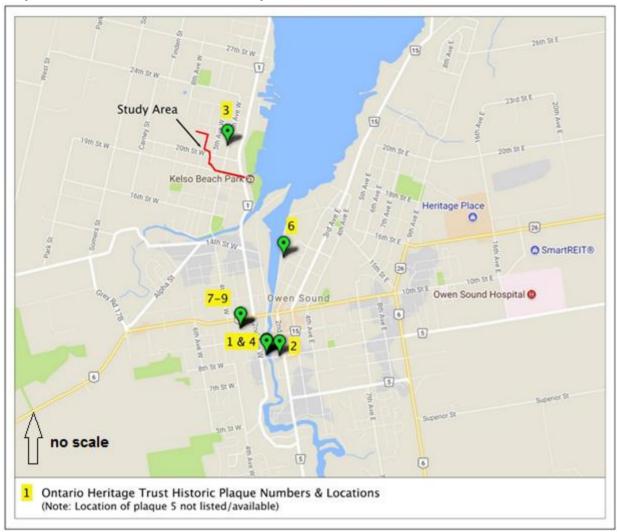


no scale available

Map 10: 1862 Map Section Showing "Indian" Village (Hamilton 1857)

Map 11: 1862 Town Plot of Brooke





Map 12: Locations of Historic Plaques in Owen Sound

Map 13: Location and Direction of Images



Map 14: Archaeological Potential



Roadway identifiers are skewed to east of actual roadways Study Area Areas Recommended for Stage 2 Test Pit Survey Areas with Slopes & Previous Disturbances (Do Not Require Test Pit Survey)

Map 15: Recommended Stage 2 Assessment Methodology

9.0 IMAGES

Image 1: Study Area – South End of 280 19th St. W. (Facing W)



Image 2: Study Area – South End of 280 19th St. W. (Facing W)



Image 3: Study Area – South End of 280 19th St. W. (Facing E)



Image 4: Study Area – South End of 280 19th St. W. (Facing W)



Image 5: Study Area – South End of 280 19th St. W. (Facing NE)



Image 6: Study Area – South End of 1909 4th Ave. W. (Facing NW)



Image 7: Study Area - South End of 1914 4th Ave. W. (Facing W)



Image 8: Study Area – SE Corner of 1914 4th Ave. W. (Facing E)



Image 9: Study Area - South End of 1914 4th Ave. W. (Facing W)



Image 10: Study Area - South End of 1914 4th Ave. W. (Facing W)



Image 11: Study Area - SE End of 550 19th St. W. (Facing N)



Image 12: Study Area - SE End of 550 19th St. W. (Facing W)



Image 13: Study Area Between 550 19th St. W. and 1914 4th Ave. W. (Facing S)



Image 14: Study Area Between 550 19th St. W. and 1914 4th Ave. W. (Facing N)



Image 15: Study Area Between 550 19th St. W. and 1914 4th Ave. W. (Facing S)



Image 16: Study Area - NE End of 550 19th St. W. (Facing N)



Image 17: Study Area - NE End of 550 19th St. W. (Facing S)



Image 18: Study Area - South End of 2006 5th Ave. W. (Facing W)



Image 19: Study Area - SW End of 2006 5th Ave. W. (Facing N)



Image 20: Study Area - South End of 585 21st St. W. (Facing E)



Image 21: Study Area – West Side of 585 21st St. W. (Facing N)



Image 22: Study Area – West Side of 585 21st St. W. (Facing S)



Image 23: Study Area – Culvert at NW Corner of 585 21st St. W. (Facing W)



Image 24: Study Area – West Side of 585 21st St. W. (Facing S)

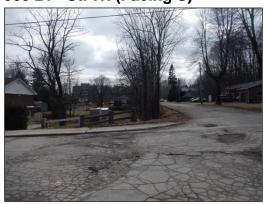


Image 25: Study Area – From 6th Ave. W. Dead-End (Facing S)

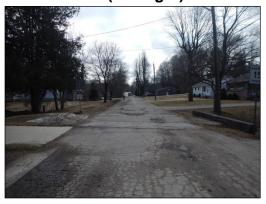


Image 26: Study Area - East End of 2164 6th Ave. W. (Facing W)



Image 27: Study Area - East End of 2164 6th Ave. W. (Facing SE)



Image 28: Study Area - East End of 2164 6th Ave. W. (Facing W)



Image 29: Study Area – SW End of 585 21st St. W. (Facing SE)



10.0 APPENDICES

Appendix A: Land Abstract

Instr. No Lot 110 Amelia	Instr. Type Street West	Date	Grantor	Grantee	Comments
425	B&S	3 June 1881	Walter Wilson and Wife	Nicholas P Horton	All \$400 and Other lands
426	Mort	3 June 1881	Nicholas P Horton and wife	Walter Wilson	All \$300 and Other Lands
	Patent	27 Aug 1881	The Crown	Walter Wilson	All
584	DM	15 Dec 1886	Beothin Wilson (?)	Nicholas P Horton	
1053	B&S	17 Aug 1889	Nicholas P Horton and wife	Grey and Bruce Canning Company	\$700
2301	Deed	29 Aug 1901	Grey and Bruce Canning Company	William Hickey	\$500
25670	Grant	5 Jan 1920	William Hickey	John Connolly	\$1000
66049R	Certificate	2 May 1951	Treasurer of Ontario	John M Connolly	
45679	Grant	7 July 1950	Austin m Scully, William P Telford Jr, Ex of James Connolly, Ethel Spindle, Della Skaal, Edward Purcell and wife. Maude Law and Mary Shell, Marguerite Q Swarts, Beatrice Willoughby, Fred McNichol, Margaret Reynolds, Laura MacKinnon, Joseph P Wilson, George Wilson and wife, Gertrude Keating	Matilda Ornsby	\$1800 and prems.
69221	Certificate	28 Feb 1961	Treasurer of Ontario	Matilda Ornsby (Estate)	

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
70686	Grant	21 June 1961	Clarence Orsnby, William Rathwell Admin of Matilda Ornsby	Frank Schill	\$3000
119318	Consent	2 Mar 1961	Department of National Revenue	Matilda Ornsby (Estate)	
121383	Certificate	8 Mar 1971	Treasurer of Ontario	Margaret Wilson (estate)	
121384	Certificate	8 Mar 1971	Treasurer of Ontario	Helen Wilson (Estate)	
128329	Deed	13 Mar 1972	Frank Schill	Frank Schill, Irene P Schill	\$2 joint tenants
297880	Deposit	26 Nov 1990			As in 128329
298197	Transfer	04 Dec 1990	Irene Pheobe Schihl (estate)	Evert Emmanuel Johanson	\$136, 000.00 as in 128329
334034	Transfer	05 Aug 1993	Evert Emmanuel Johanson	Karin Evris Mussen, Peter Brian Mussen as JT	\$2.00 As in NO 298197 & OL By his attorney- Karin Mussen Power of Attorney No. 334033
Lot 112 West Am	elia Street				·
425	B&S	3 June 1881	Walter Wilson and Wife	Nicholas P Horton	\$400. All and Other lands
426	Mort	3 June 1881	Nicholas P Horton and wife	Walter Wilson	\$300. All and Other Lands
	Patent	27 Aug 1881	The Crown	Walter Wilson	All & OL.
584	DM	15 Dec 1886	Beothin Wilson (?)	Nicholas P Horton	All & OL.
1053	B&S	17 Aug 1889	Nicholas P Horton and wife	Grey and Bruce Canning Company	\$700. All & OL.
2301	Deed	29 Aug 1901	Grey and Bruce Canning Company	William Hickey	\$500. All & OL.
3118	B&S	22 Sept 1906	William Hickey	Owen Sound Brick CO	\$400. All & OL.
26756	Grant	10 Jan 1921	Owen Sound Brick Co.	John Connolly	\$400. All & OL.

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
66049R	Certificate	2 May 1951	Treasurer of Ontario	John M Connolly	All & OL.
45679	Grant	7 July 1950	Austin m Scully, William P Telford Jr, Ex of James Connolly, Ethel Spindle, Della Skaal, Edward Purcell and wife. Maude Law and Mary Shell, Marguerite Q Swarts, Beatrice Willoughby, Fred McNichol, Margaret Reynolds, Laura MacKinnon, Joseph P Wilson, George Wilson and wife, Gertrude Keating	Matilda Ornsby	\$1,800 and prems. All & OL.
69221	Certificate	28 Feb 1961	Treasurer of Ontario	Matilda Ornsby (Estate)	All & OL.
70686	Grant	21 June 1961	Clarence Orsnby, William Rathwell Admin of Matilda Ornsby	Frank Schill	\$3,000. All & OL.
119317	Deed	8 Oct 1970	Frank Schill and wife	Douglas A Kellough, Ruth J Kellough	\$4,600. S pt 80 x 330 ft and other lands included, joint tenants, C of A consents
119318	Consent	2 Mar 1961	Department of National Revenue	Matilda Ornsby (Estate)	All & OL.
121383	Certificate	8 Mar 1971	Treasurer of Ontario	Margaret Wilson (estate)	All & OL.
121384	Certificate	8 Mar 1971	Treasurer of Ontario	Helen Wilson (Estate)	All & OL.
128329	Deed	13 March 1972	Frank Schill	Frank Schill, Irene P Schill	\$2. N pt. joint tenants
297880	Deposit	26 Nov 1990			As in 128329
298197	Transfer	04 Dec 1990	Irene Phoebe Schihl (estate)	Evert Emmanuel Johanson	\$136,000. as in 128329

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
334034	Transfer	05 Aug 1993	Evert Emmanuel Johanson	Karin Evris Mussen, Peter Brian Mussen as JT	\$2.00 As in No. 298197 & OL. By his attorney- Karin Mussen Power of Attorney No. 334033
109 Cocks Stre	et East				
425	B&S	3 June 1881	Walter Wilson and Wife	Nicholas P Horton	All \$400 and Other lands
426	Mort	3 June 1881	Nicholas P Horton and wife	Walter Wilson	All \$300 and Other Lands
	Patent	27 Aug 1881	The Crown	Walter Wilson	All
584	DM	15 Dec 1886	Beothin Wilson (?)	Nicholas P Horton	
1053	B&S	17 Aug 1889	Nicholas P Horton and wife	Grey and Bruce Canning Company	\$700
2301	Deed	29 Aug 1901	Grey and Bruce Canning Company	William Hickey	\$500
3118	B&S	22 Sept 1906	William Hickey	Owen Sound Brick CO	\$400
26786	Grant	10 Jan 1921	Owen Sound Brick Co.	John Connolly	\$400
66049R	Certificate	2 May 1951	Treasurer of Ontario	John M Connolly	
45679	Grant	7 July 1950	Austin m Scully, William P Telford Jr, Ex of James Connolly, Ethel Spindle, Della Skaal, Edward Purcell and wife. Maude Law and Mary Shell, Marguerite Q Swarts, Beatrice Willoughby, Fred McNichol, Margaret Reynolds, Laura MacKinnon, Joseph P Wilson, George Wilson and wife, Gertrude Keating	Matilda Ornsby	\$1800 and prems.

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
69221	Certificate	28 Feb 1961	Treasurer of Ontario	Matilda Ornsby (Estate)	
70686	Grant	21 June 1961	Clarence Orsnby, William Rathwell Admin of Matilda Ornsby	Frank Schill	\$3000
119318	Consent	2 Mar 1961	Department of National Revenue	Matilda Ornsby (Estate)	
121383	Certificate	8 Mar 1971	Treasurer of Ontario	Margaret Wilson (estate)	
121384	Certificate	8 Mar 1971	Treasurer of Ontario	Helen Wilson (Estate)	
128329	Deed	13 Mar 1972	Frank Schill	Frank Schill, Irene P Schill	\$2 joint tenants
297880	Deposit	26 Nov 1990			As in 128329
298197	Transfer	04 Dec 1990	Irene Pheobe Schihl (estate)	Evert Emmanuel Johanson	\$136, 000.00 as in 128329
334034	Transfer	05 Aug 1993	Evert Emmanuel Johanson	Karin Evris Mussen, Peter Brian Mussen as JT	\$2.00 As in NO 298197 & OL By his attorney- Karin Mussen Power of Attorney No. 334033
Lot 111 Cocks S					
425	B&S	3 June 1881	Walter Wilson and Wife	Nicholas P Horton	All \$400 and Other lands
426	Mort	3 June 1881	Nicholas P Horton and wife	Walter Wilson	All \$300 and Other Lands
	Patent	27 Aug 1881	The Crown	Walter Wilson	All & OL.
584	DM	15 Dec 1886	Bertha Wilson (?)	Nicholas P Horton	All & OL.
1053	B&S	17 Aug 1889	Nicholas P Horton and wife	Grey and Bruce Canning Company	\$700. All & OL.
2301	Deed	29 Aug 1901	Grey and Bruce Canning Company	William Hickey	\$500. All & OL.
3118	B&S	22 Sept 1906	William Hickey	Owen Sound Brick CO	\$400. All & OL.

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
26786	Grant	10 Jan 1921	Owen Sound Brick Co.	John Connolly	\$400. All & OL.
66049R	Certificate	2 May 1951	Treasurer of Ontario	John M Connolly	All & OL.
45679	Grant	7 July 1950	Austin m Scully, William P Telford Jr, Ex of James Connolly, Ethel Spindle, Della Skaal, Edward Purcell and wife. Maude Law and Mary Shell, Marguerite Q Swarts, Beatrice Willoughby, Fred McNichol, Margaret Reynolds, Laura MacKinnon, Joseph P Wilson, George Wilson and wife, Gertrude Keating	Matilda Ornsby	\$1800 and prems. All & OL.
69221	Certificate	28 Feb 1961	Treasurer of Ontario	Matilda Ornsby (Estate)	All & OL.
70686	Grant	21 June 1961	Clarence Orsnby, William Rathwell Admin of Matilda Ornsby	Frank Schill	\$3000. All & OL.
119317	Deed	8 Oct 1970	Frank Schill and wife	Douglas A Kellough, Ruth J Kellough	S pt 80 X 330 ft \$4600 and other lands included, joint tenants, C of A consents
119318	Consent	2 Mar 1961	Department of National Revenue	Matilda Ornsby (Estate)	All & OL.
121383	Certificate	8 Mar 1971	Treasurer of Ontario	Margaret Wilson (estate)	All & OL.
121384	Certificate	8 Mar 1971	Treasurer of Ontario	Helen Wilson (Estate)	All & OL.
128329	Deed	13 Mar 1972	Frank Schill	Frank Schill, Irene P Schill	North part. \$2 joint tenants
297880	Deposit	26 Nov 1990			As in 128329
298197	Transfer	04 Dec 1990	Irene Phoebe Schihl (estate)	Evert Emmanuel Johanson	\$136, 000.00 as in 128329

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
334034	Transfer	05 Aug 1993	Evert Emmanuel Johanson	Karin Evris Mussen, Peter Brian Mussen	\$2.00. Joint Tenants. As in No. 298197 & OL By his attorney-Karin Mussen Power of Attorney No. 334033
111 East Ameli	a Street				
	Patent	28 Mar 1857	The Crown	George Hindman	All and Other Lands
1935	Copy Patent	28 Mar 1857	The Crown	George Hindman	\$144 and other lands
1936	B&S	24 Dec 1888	George Hindman and wife	Charles E Barnhart	\$200 and other lands
2293	B&S	24 Aug 1901	Charles E Barnhart	Robert S Gambion	\$1500 and other lands
3272	B&S	10 Sept 1907	Robert S Gambion and wife	William Mitchell	\$125
20855	B&S	31 Aug 1911	William Mitchell and wife	Frederick Leslie	\$300
31754	Grant	30 April 1923	Frederick Leslie and wife	Annie Lewis	\$325
34837	Grant	4 Sept 1937	Annie Lewis	Viola B Lewis	\$200
37132	Grant	10 Nov 1942	Viola B Lewis	Benjamin and Vera Herbison	\$300 as joint tenants
40926	Grant	17 July 1947	Benjamin and Vera Herbison	Margaret Gordon	\$1,375
72424	Certificate	9 November 1961	Treasurer of Ontario	Margaret Gordon (Estate)	
74757	Grant	20 June 1963	Victoria & Grey Trust Co Admin of Margaret Gordon	Kenneth E Smith, Hilda L Smith	\$1025 as joint tenants
85582	Deed	19 Nov 1964	Kenneth E Smith, Hilda L Smith	Elsie McInnes	\$1,100
121147	Deed	22 Mar 1971	Elsie McInnes	Morris G Howell	\$2,500

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
121207	Consent	9 Nov 1961	Department of National Revenue	Margaret Gordon Estate	
131964	Deed	4 Aug 1972	Morris G Howell and wife	Kenneth R Morris, Gwendolyn A Morris	\$22,900.00 Joint tenants
219552	Grant	02 Aug 1983	Kenneth R Morris, Gwendolyn A Morris	Frederick R Davenport, Helen M Davenport as JT	\$2 &c All
226172	Grant	01 June 1984	Frederick R Davenport, Helen M Davenport	Bryan W McKay, Lisa M McKay as JT	All and Other Lands
296880	Transfer	26 Oct 1990	Bryan W McKay, Lisa M McKay	Frederic Charles Standing	\$150, 000.00 All
348118	Transfer	12 Aug 1994	Frederic Charles Standing	Kenneth Bruce Gardner	\$97, 500.00 All Re: Planning Act Statements
348119	Charge	12 Aug 1994	Kenneth Bruce Gardner	CIBC Mortgage Corporation	\$89, 943.75 As in No. 296880
Lot 113 East Ame	elia Street				
	Patent	28th Mar 1887	The Crown	George Hindman	All and Other Lands
1935	Certificate of Patent	28th Mar 1887	The Crown	George Hindman	All \$144 And Other Lands
1936	B&S	24 Dec 1888	George Hindman and wife	Charles E Barnhart	\$200 and Other Lands
2293	B&S	24 Aug 1901	Charles E Barnhart and wife	Robert S Gampion	All \$1500 and Other Lands
2659	B&S	9 April 1904	Robert Gampion and wife	John Worne	W 1/2 \$100
2666	B&S	9 April 1904	Robert Gampion and wife	John Worne	All \$1400 and Other Lands
2753	B&S	19 Sept 1904	John Worne and wife	Lucy A Kerr	All \$1435
37687	Grant	7 Nov 1942	Mary J (?????) ex. Of Lucy Kerr	Edward J Ard and Josephine Ard	All \$2000 as join tenants and Other Lands. Treasurer Consents
43624	Grant	22 Mar 1950	Josephine Ard	Home D Hurlbut Edith Hurlbut	All \$5000 and Lot 115 Joint tenants, Treasurer Consents

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
51916	Re DM	9 June 1956	Josephine Ard	Home D Hurlbut Edith Hurlbut	W pt. 115 feet \$1 and w pt. Lot 115
51917	Grant	28 May 1956	Homer D Hurlbut and Edith Hurlbut	William Eden, Margaret Eden	W pt. 115 feet \$100 and w pt. Lot 115 as joint tenants
56930	Grant	10 March 1958	William Eden, Margaret Eden	Murray George Cook	W pt 55 ft. \$150 and W pt. Lot 115
84237	Deed	16 July 1964	Homer D Hurlbut and Edith Hurlbut	Kenneth R Morris and Gwendolyn Morris	\$8500 do joint tenants
86417	Deed	18 Jan 1965	Murray G Cook and wife	Glen Woods, Lillian Woods	\$8800 Planning Board Consents
93561	Deed	6 July 1966	Glen Woods, Lillian Woods	George A McLeod, Kathleen N McCleod	\$14,000 and W pt Lot 115 Joint Tenants
124525	Notice of Lien	20 Aug 1971	Ruby K Showell	Corp City of Owen Sound	pt. 60 Feet and pt. Lot 115 west and adj. E 50 feet.
131939	Deed	17 Aug 1972	Kenneth R Morris, Gwendolyn Morris	David E Burke, Victoria L Burke	do joint tenants
166154	Deed	7 Sept 1976	David E Burke, Victoria L Burke	Sandra Peters	\$2 All Less west prt 115 ft and pt Lot 115
196305	Deed	19 Mar 1980	Sandra Peters, Larry Peters consents	William D Summers, Gwendolyn O Summers as joint tenants	\$2 All Less west pt 115 ft and pt Lot 115
204262	Deed	20 May 1981	William D Summers, Gwendolyn O Sumers	Leonard W Edwards, Mari-An Edwards as joint tenants	\$2 All Less west pt 115 ft and pt Lot 115
217820	Deed	25 May 1983	Leonard W Edwards, Mari- An Edwards	Paul L Turcott, Bonnie R Turcott as J.T.	\$2 As in 204262
300725	Transfer	28 Feb 1991	Ruby K Showell	John Hermann Eyeselein, Dana Lee Cheer as JT	\$72, 750. As in 56930
302037	Discharge	21 April 1991	Treasurer of Ontario		No. 124525
321581	Charge	18 Sept 1992	John Hermann Eyeselein, Dana Lee Eyeselein	CIBC Mortgage Corp	\$58, 000. As in No. 300725 & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
Lot 115 East Ameli	Patent	28 Mar 1887	The Crown	George Hindman	All and Other Lands
1935	Certificate of Patent	28 Mar 1887	The Crown	George Hindman	All \$144 And Other Lands
1936	B&S	24 Dec 1888	George Hindman and wife	Charles E Barnhart	All \$200 And Other Lands
2293	B&S	24 Aug 1901	Charles E Barnhart and wife	Robert S Gampion	All \$1500 and Other Lands
2659	B&S	9 April 1904	Robert Gampion and wife	John Worne	W 1/2 \$100
2666	B&S	7 April 1904	Robert Gampion and wife	John Worne	All \$1400 and Other Lands
2753	B&S	19 Sept 1904	John Worne and wife	Lucy A Kerr	All \$1435
37687	Grant	7 Nov 1942	Mary J (?????) ex. Of Lucy Kerr	Edward J Ard and Josephine Ard	All \$2000 as join tenants and Other Lands. Treasurer Consents
43624	Grant	22 Mar 1950	Josephine Ard	Home D Hurlbut Edith Hurlbut	All \$5000 and Lot 115 Joint tenants, Treasurer Consents
56930	Grant	16 Oct 1957	William Eden, Margaret Eden	Ruby K Showell	pt. 60 feet \$6500 and part Lot 113 W adj. E 50 ft. sub to m
58169	Grant	10 Mar 1958	William Eden, Margaret Eden	Murray George Cook	W part. 55 feet \$150 W pt Lot 113
84237	Deed	16 July 1964	Homer D Hurlbut and Edith Hurlbut	Kenneth R Morris and Gwendolyn Morris	\$8500 do do joint tenants
86417	Deed	18 Jan 1965	Murray G Cook and wife	Glen Woods, Lillian Woods	\$8800 Planning Board Consents
93561	Deed	6 July 1966	Glen Woods, Lillian Woods	George A McCleod, Kathleen N McCleod	\$14,000 and W pt Lot 115 Joint Tenants
124525	Notice of Lien	20 Aug 1971	Ruby K Showell	Corp City of Owen Sound	part. 60 Feet and pt. Lot 115 west and adj. E 50 feet.
131939	Deed	17 Aug 1972	Kenneth R Morris, Gwendolyn Morris	David E Burke, Victoria L Burke	\$10 do do joint tenants
166154	Deed	7 Sept 1976	David E Burke, Victoria L Burke	Sandra Peters	\$2 All Less west pt 115 ft and pt Lot 113

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
196305	Deed	19 Mar 1980	Sandra Peters, Larry Peters consents	William D Summers, Gwendolyn O Summers as joint tenants	\$2 All Less west pt 115 ft and pt Lot 113
204262	Deed	20 May 1981	William D Summers, Gwendolyn O Sumers	Leonard W Edwards, Mari-An Edwards as joint tenants	\$2 do do
217820	Deed	25 May 1983	Leonard W Edwards, Mari- An Edwards	Paul L Turcott, Bonnie R Turcott as J.T.	\$2 As in 204262
300725	Transfer	28 Feb 1991	Ruby K Showell	John Hermann Eyeselein, Dana Lee Cheer as JT	\$72, 750 As in 56930
302037	Discharge	22 April 1991	Treasurer of Ontario		No. 124525
321581	Charge	18 Sept 1992	John Hermann Eyeselein, Dana Lee Eyeselein	CIBC Mortgage Corp	\$58,000.00 As in No. 300725
Lot 117 Amelia St	treet East				
	Patent	23 Jan 1878	The Crown	William Frederick Wolfe	All 3 with Other Lands
1929	B&S	11 May 1898	William F Wolfe and wife	Walter J Hemming	\$400 and Other Lands
2746	B&S	27 Aug 1904	Walter J Hemming and wife	William Pedwell	\$600 and Other Lands
24041	Assignment	16 Oct 1916	William Pedwell	Alfred D Green Trustee	for (?)
24470	R of D	28 Oct 1917	Annie Pedwell	Alfred D Green Trustee	(illegible) and Other Lands
24471	B&S	7 Aug 1917	Alfred D Green Trust of William Pedwell (Trustee) Bank of Hamilton	Henry Still	\$3300 and Other Lands
35494	Grant	18 April 1939	Wilfrid J Abell John (?) S Wilson, E Henry Abell, Harold Abell, Henry B Abell, Reginald Abell, Ola Wilson	Ola Wilson	\$1

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
35576	L.C.D	7 June 1939	Wilfrid J Abell, Henry B Abell, Harold Abell Reginald Abell	Ola Wilson	\$1
36807	Grant	15 June 1942	Ola Wilson	Robert Menzies, Rosina Menzies	\$2150 as joint tenants
83231	Deed	14 May 1964	Robert W Menzies, Rosina J Menzies	Beverley R Howey	Pt 105 X 132 feet \$2000 and Part Lot 119
110636	Deed	28 May 1969	Robert W Menzies, Rosina J Menzies	William S Davies, Margaret C Davies	E pt 60 X 132 feet \$3600 joint tenants
See Deposit No. 110637 deposited 17th July 1969 re Wilson					
249628	Grant	13 Feb 1987	Beverley Howey	Beverley R Howey, Ruth Howey as JT	W. Part & OL
293829	Charge	02 Aug 1990	Beverley Howey, Ruth Howey	Confederation Trust Company 1088434	\$111, 500.00 As in 249628 & OL
313927	Charge	30 Mar 1992	Beverley Howey, Ruth Howey	Neil MacDonald	\$55,000.0 As In NO. 249628 & OL
332067	Charge	17 June 1993	Beverley Howey, Ruth Howey	Norman McKibbon	\$28,000.00 as in No. 249628
339714	Transfer	22 Dec 1993	Beverley Howey, Ruth Howey	Beverley Howey, Ruth Howey, Edward Howey	\$2.00 As in no. 249628 & OL
39715	Charge	22 Dec 1993	Beverley Howey, Ruth Howey, Edward Howey	Neil MacDonald	\$86, 500.00 As in NO. 249628 & OL
354341	Assignment	03 Feb 1995	Confederation Trust Co.	The Toronto Dominion Bank	Re: 293829 & OL
354342	Deposit	03 Feb 1995	See deposit NO 354342		Pt. & OL
354343	Transfer	03 Feb 1995	The Toronto Dominion Bank	Michael William Eyselein, Lisa Jayne Moore JT	\$114, 000. As in No. 249628 & OL
354344	Charge	03 Feb 1995	Michael William Eyselein, Lisa Jayne Moore	CIBC Mortgage Corp	\$65, 000. As in No. 339714
Lot 119 East Ameli	a Street				

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
	Patent	23 Jan 1878	The Crown	William Frederick Wolfe	All and Other Lands
1929	B&S	11 May 1898	William Frederick Wolfe	Walter J Hemming	\$400 and Other Lands
2746	B&S	27 Aug 1904	Walter J Hemming and wife	William Pedwell	\$600 and Other Lands
24041	Assignment	14 Oct 1916	William Pedwell	Alfred D Green Trustee	\$1 and prems for conditions benefit and other lands
24470	W of Lts	28 Oct 1917	Annie Pedwell	Alfred D Green Trustee	\$1 and prems and other lands
24471	B&S	7 Aug 1917	Alfred D Green Trust of William Pedwell (Trustee) Bank of Hamilton	Henry Still	\$3300
35494	Grant	18 April 1939	Wilfrid J Abell John (?) S Wilson, E Henry Abell, Harold Abell, Henry B Abell, Reginald Abell, Ola Wilson	Ola Wilson	\$1 Treasurer Consents
35576	L.C.D	7 June 1939	Wilfrid J Abell, Henry B Abell, Harold Abell Reginald Abell	Ola Wilson	\$1
83231	Deed	14 May 1964	Robert W Menzies, Rosina J Menzies	Beverley R Howey	Pt 105 X 132 feet \$2000 and Part Lot 119
110636	Deed	28 May 1969	Robert W Menzies, Rosina J Menzies	William S Davies, Margaret C Davies	E pt 60 X 132 feet \$3600 joint tenants
See Deposit No. 110637 deposited 17th July 1969 re Wilson					
249628	Grant	13 Feb 1987	Beverley Howey	Beverley R Howey, Ruth Howey as JT	W. Part & OL
293829	Charge	02 Aug 1990	Beverley Howey, Ruth Howey	Confederation Trust Company 1088434	\$111, 500.00 As in 249628 & OL
313927	Charge	30 Mar 1992	Beverley Howey, Ruth Howey	Neil MacDonald	\$55,000.0 As In NO. 249628 & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
332067	Charge	17 June 1993	Beverley Howey, Ruth Howey	Norman McKibbon	\$28,000.00 as in No. 249628
339714	Transfer	22 Dec 1993	Beverley Howey, Ruth Howey	Beverley Howey, Ruth Howey, Edward Howey	\$2.00 As in no. 249628 & OL
39715	Charge	22 Dec 1993	Beverley Howey, Ruth Howey, Edward Howey	Neil MacDonald	\$86, 500.00 As in NO. 249628 & OL
354341	Assignment	03 Feb 1995	Confederation Trust Co.	The Toronto Dominion Bank	Re: 293829 & OL
354342	Deposit	03 Feb 1995	See deposit NO 354342		Pt. & OL
354343	Transfer	03 Feb 1995	The Toronto Dominion Bank	Michael William Eyselein, Lisa Jayne Moore JT	\$114, 000. As in No. 249628 & OL
354344	Charge	03 Feb 1995	Michael William Eyselein, Lisa Jayne Moore	CIBC Mortgage Corp	\$65, 000. As in No. 339714
Lot 121 East Ameli					
	Patent	23 January 1878	The Crown	William Frederick Wolfe	All and Other Lands
1929	B&S	11 May 1898	William Frederick Wolfe	Walter J Hemming	\$400 and Other Lands
19810	B&S	18 Oct 1910	Walter J Hemming and wife	George W Gurnett	\$500 and Other Lands
25059	Grant	11 Aug 1914	George W Gurnett & wife	John Mitchell	\$300 " " "
28851	Grant	15 Dec 1923	John Mitchell & wife	John Burke	\$280 " " "
32118	Grant	4 July 1929	John Burke	Joseph William Eldred, Harold G Eldred	\$400 " " "
32121	Q.C.	5 Dec 1929	Joseph William Eldred and wife	Harold G Eldred	\$200 " " "
116098	Deed	4 May 1970	Harold G Eldred &wife	Beverly R Howey	NW pt \$800 and W pt. Lot 121
116099	Deed	4 May 1970	Harold G Eldred &wife	William G Davis Margaret Davis	NE pt. \$500 & E pt. Lot 121 Joint tenants

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
249628	Grant	13 Feb 1987	Beverley R Howey	Beverley R Howey Ruth Howey as JT	N.W. Part & OL
293829	Charge	02 Aug 1990	Beverley R Howey Ruth Howey	Confederation Trust Company 1088434	\$111, 500. As in 249628 & OL
313927	Charge	30 Mar 1992	Beverley R Howey Ruth Howey	Neil McDonald	\$55, 000. As in No. 249628 & OL
332067	Charge	17 June 1993	Beverley R Howey Ruth Howey	Norman McKibbon	\$28, 000.00 As in No. 249628
339714	Transfer	22 Dec 1993	Beverley Robert Howey Ruth Howey	Beverley Robert Howey Isabele Ruth Howey Edward Stewart Howey	\$2.00 As in No. 249628 & OL
339715	Charge	22 Dec 1993	Beverley Robert Howey Isabele Ruth Howey Edward Stewart Howey	Neil Sinclair MacDonald	\$86, 500. As in No. 249628 & OL
354341	Assignment	03 Feb 1995	Confederation Trust Co	The Toronto Dominion Bank	Re: 293829 & OL
354342	Deposit			See Deposit No 354342	Pt. & OL
354343	Transfer	03 Feb 1995	The Toronto Dominion Bank	Michael William Eyselein Lisa Jayne Moore JT	114, 000. As in No. 249628 & OL
354344	Charge	03 Feb 1995	Michael William Eyselein Lisa Jayne Moore	CIBC Mortgage Corp.	\$65, 000. As in No. 339714 & OL
	Patent	23 July 1878	The Crown	William Wolfe	All 3 Acres With Other Lands
1929	B&S	11 May 1898	William F Wolfe and wife	Walter J Hemming	\$400 " " "
19810	B&S	18 Oct 1910	Walter J Hemming and wife	George W Gurnett	\$500 " " "
25059	Grant	11 Aug 1914	George W Gurnett & wife	John Mitchell	\$300 " " "
28851	Grant	15 Dec 1923	John Mitchell & wife	John Burke	\$280 " " "

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
32118	Grant	4 July 1929	John Burke	Joseph William Eldred, Harold G Eldred	\$400 " " "
32121	Q.C.	5 Dec 1929	Joseph William Eldred and wife	Harold G Eldred	\$200 " " "
116098	Deed	4 May 1970	Harold G Eldred &wife	Beverly R Howey	NW pt \$800 and W pt. Lot 121
116099	Deed	4 May 1970	Harold G Eldred &wife	William G Davis Margaret Davis	NE pt. \$500 & E pt. Lot 121 Joint tenants
See Deposit 16R- 412 deposited 9 May 1974	Reference Plan & Other Lands				
147180	Deed	1 May 1974	Harold G Eldred and wife	William C Kivell Shirley A Kivell	Pt 2 16R-412 \$1 And other lands incld. And other land C od A consent Lien Clearance attached, joint tenants
249628	Grant	13 Feb 1987	Beverley R Howey	Beverley R Howey Ruth Howey as JT	N.W. Part & OL
252228	Grant	15 May 1987	William C Kivell Shirley A Kivell	James Robert Comeau JoAnne Marier Comeau as JT	Part 2 16R-412 & OL
258031	Mort	30 Oct 1987	James Robert Comeau JoAnne Marie Comeau	National Trust Co.	\$71,000. Part 2 16R-412 & OL
293829	Charge	02 Aug 1990	Beverley R Howey Ruth Howey	Confederation Trust Company 1088434	\$111, 500. As in 249628 & OL
313927	Charge	30 Mar 1992	Beverley R Howey Ruth Howey	Neil McDonald	\$55, 000. As in No. 249628 & OL
321901	Charge	25 Sept 1992	James Robert Comeau JoAnne Marie Comeau	National Trust Co.	\$40, 000.00 Part 2 16R-412 & OL
332067	Charge	17 June 1993	Beverley R Howey Ruth Howey	Norman McKibbon	\$28, 000.00 As in No. 249628
339714	Transfer	22 Dec 1993	Beverley Robert Howey Ruth Howey	Beverley Robert Howey Isabele Ruth Howey Edward Stewart Howey	\$2.00 As in No. 249628 & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
339715	Charge	22 Dec 1993	Beverley Robert Howey Isabele Ruth Howey Edward Stewart Howey	Neil Sinclair MacDonald	\$86, 500. As in No. 249628 & OL
354341	Assignment	03 Feb 1995	Confederation Trust Co	The Toronto Dominion Bank	Re: 293829 & OL
354342	Deposit			See Deposit No 354342	Pt. & OL
354343	Transfer	03 Feb 1995	The Toronto Dominion Bank	Michael William Eyselein Lisa Jayne Moore JT	114, 000. As in No. 249628 & OL
354344	Charge	03 Feb 1995	Michael William Eyselein Lisa Jayne Moore	CIBC Mortgage Corp.	\$65, 000. As in No. 339714 & OL
Lot 123 East Ameli Patent	a Street 23 July 1878	The Crown	William Fred Wolfe	All 3 Acres with Other Lands	
1929	B&S	11 May 1898	William F Wolfe and wife	Walter J Hemming	\$400 " " "
19810	B&S	18 Oct 1910	Walter J Hemming and wife	George W Gurnett	\$500 " " "
25059	Grant	11 Aug 1914	George W Gurnett & wife	John Mitchell	\$300 " " "
28851	Grant	15 Dec 1923	John Mitchell & wife	John Burke	\$280 " " "
32118	Grant	4 July 1929	John Burke	Joseph William Eldred, Harold G Eldred	\$400 " " "
32121	Q.C.	5 Dec 1929	Joseph William Eldred and wife	Harold G Eldred	\$200 " " "
116098	Deed	4 May 1970	Harold G Eldred & wife	Beverly R Howey	NW pt \$800 and W pt. Lot 121
116099	Deed	4 May 1970	Harold G Eldred & wife	William G Davis Margaret Davis	NE pt. \$500 & E pt. Lot 121 Joint tenants
See Deposit 16R- 412 deposited 9 May 1974	Reference Plan & Other Lands				

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
147180	Deed	1 May 1974	Harold G Eldred and wife	William C Kivell Shirley A Kivell	Pt 2 16R-412 \$1 And other lands incld. And other land C od A consent Lien Clearance attached, joint tenants
249628	Grant	13 Feb 1987	Beverley R Howey	Beverley R Howey Ruth Howey as JT	N.W. Part & OL
252228	Grant	15 May 1987	William C Kivell Shirley A Kivell	James Robert Comeau JoAnne Marier Comeau as JT	Part 2 16R-412 & OL
258031	Mort	30 Oct 1987	James Robert Comeau JoAnne Marie Comeau	National Trust Co.	\$71,000. Part 2 16R-412 & OL
293829	Charge	02 Aug 1990	Beverley R Howey Ruth Howey	Confederation Trust Company 1088434	\$111,500. As in 249628 & OL
313927	Charge	30 Mar 1992	Beverley R Howey Ruth Howey	Neil McDonald	\$55, 000. As in No. 249628 & OL
321901	Charge	25 Sept 1992	James Robert Comeau JoAnne Marie Comeau	National Trust Co.	\$40, 000.00 Part 2 16R-412 & OL
332067	Charge	17 June 1993	Beverley R Howey Ruth Howey	Norman McKibbon	\$28, 000.00 As in No. 249628
339714	Transfer	22 Dec 1993	Beverley Robert Howey Ruth Howey	Beverley Robert Howey Isabele Ruth Howey Edward Stewart Howey	\$2.00 As in No. 249628 & OL
339715	Charge	22 Dec 1993	Beverley Robert Howey Isabele Ruth Howey Edward Stewart Howey	Neil Sinclair MacDonald	\$86, 500. As in No. 249628 & OL
354341	Assignment	03 Feb 1995	Confederation Trust Co	The Toronto Dominion Bank	Re: 293829 & OL
354342	Deposit			See Deposit No 354342	Pt. & OL
354343	Transfer	03 Feb 1995	The Toronto Dominion Bank	Michael William Eyselein Lisa Jayne Moore JT	\$114,000. As in No. 249628 & OL
354344	Charge	03 Feb 1995	Michael William Eyselein Lisa Jayne Moore	CIBC Mortgage Corp.	\$65,000. As in No. 339714 & OL

Instr. No Lot 125 East Ameli	Instr. Type	Date	Grantor	Grantee	Comments
	Patent	23 July 1878	The Crown	William Fred Wolfe	All 3 Acres with Other Lands
1929	B&S	11 May 1898	William F Wolfe and wife	Walter J Hemming	\$400 " " "
19810	B&S	18 Oct 1910	Walter J Hemming and wife	George W Gurnett	\$500 " " "
25059	Grant	11 Aug 1914	George W Gurnett & wife	John Mitchell	\$300 " " "
28851	Grant	15 Dec 1923	John Mitchell & wife	John Burke	\$280 " " "
32118	Grant	4 July 1929	John Burke	Joseph William Eldred, Harold G Eldred	\$400 " " "
32121	Q.C.	5 Dec 1929	Joseph William Eldred and wife	Harold G Eldred	\$200 " " "
See Deposit 16R- 412 deposited 9 May 1974	Reference Plan & Other Lands				
147180	Deed	1 May 1974	Harold G Eldred and wife	William C Kivell Shirley A Kivell	Pt 2 16R-412 \$1 And other lands incld. And other land C od A consent Lien Clearance attached, joint tenants
252228	Grant	15 May 1987	William C Kivell Shirley A Kivell	James Robert Comeau JoAnne Marier Comeau as JT	Part 2 16R-412 & OL
258031	Mort	30 Oct 1987	James Robert Comeau JoAnne Marie Comeau	National Trust Co.	\$71,000. Part 2 16R-412 & OL
321901	Charge	25 Sept 1992	James Robert Comeau JoAnne Marie Comeau	National Trust Co.	\$40, 000.00 Part 2 16R-412 & OL
Lot 127 East Ameli	a Street				
	Patent	23 July 1878	The Crown	William Fred Wolfe	All 3 Acres with Other Lands
1929	B&S	11 May 1898	William F Wolfe and wife	Walter J Hemming	\$400 " " "

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
19810	B&S	18 Oct 1910	Walter J Hemming and wife	George W Gurnett	\$500 " " "
25059	Grant	11 Aug 1914	George W Gurnett & wife	John Mitchell	\$300 " " "
28851	Grant	15 Dec 1923	John Mitchell & wife	John Burke	\$280 " " "
32118	Grant	4 July 1929	John Burke	Joseph William Eldred, Harold G Eldred	\$400 " " "
32121	Q.C.	5 Dec 1929	Joseph William Eldred and wife	Harold G Eldred	\$200 " " "
See Deposit 16R- 412 deposited 9 May 1974	Reference Plan & Other Lands				
147180	Deed	1 May 1974	Harold G Eldred and wife	William C Kivell Shirley A Kivell	Pt 2 16R-412 \$1 And other lands incld. And other land C od A consent Lien Clearance attached, joint tenants
252228	Grant	15 May 1987	William C Kivell Shirley A Kivell	James Robert Comeau JoAnne Marier Comeau as JT	Part 2 16R-412 & OL
258031	Mort	30 Oct 1987	James Robert Comeau JoAnne Marie Comeau	National Trust Co.	\$71,000. Part 2 16R-412 & OL
321901	Charge	25 Sept 1992	James Robert Comeau JoAnne Marie Comeau	National Trust Co.	\$40, 000.00 Part 2 16R-412 & OL
Lot 129 East Ameli	a Street				
	Patent	9 July 1888	The Crown	William J Graham	All & Other Lands
35669R	Will	26-Mar-32	William J Graham	Henrietta S. Blade	All & Other Lands
40329R	Certificate	22-Apr-32	Treasurer of Ontario	William J Graham Estate	All & Other Lands
39928	Grant	28-May-46	Henrietta S. Blade	Harold F Graham	\$1/acre & Other Lands
162674	Deed	11-Mar-76	Harold F. Graham & wife	Marricou Developments Ltd.	\$10 All & Other Lands Lien Clearance
174055	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise in Trust (?)	\$2 All & Other Lands Lien Clearance

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
175366	Deposit	03-Oct-77		Harold F Graham	All & Other Lands
211948	Assignment of Rentals	30-Jul-82	Gilbert Grise In Trust	Credit Foncier	All & OL
212765	Agreement	20-Sep-82	Maurice Gartenberg	Credit Foncier	\$1. &c 174059 postponed to 173227, 211943 & 211948
213143	Notice	03-Oct-82	Canadian Imperial Bank of Commerce		All & OL Security Interest
213365	Agt. Post M.	20-Oct-82	Maurice Gartenberg	Societe Generale (Canada)	\$1 & prems 174059 postponed to 213338
213758	Assignment of Spaces	08-Nov-82	Robert Masters, In Trust	Societe Generale (Canada)	\$1 All & OL
219370	Agreement	27-Jul-83	Societe Generale (Canada)	Credit Foncier	\$1 & prems. 174057 postponed to 211948
228982	Grant	01-Oct-84	Gilbert Grise, In Trust	Guido Van Den Daele, In Trust	All & OL
233552	Assgnt of Rent	31-May-85	Guido Van Den Daele	The National Victoria & Grey Trust Co.	All &OL
242550	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All & OL
242553	Assignment of Leases & Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All &OL
243140	Re: Assgnt of Leases	25-Jun-86	Societe General (Canada)	Gilbert Grise	All &OL
243767	Re: A of Rentals	14-Jul-86	Credit Foncier	Gilbert Grise, In Trust	All &OL
244463	Re: A of Rents	06-Aug-86	National Trust Co.	Guido Van Den Daele	All &OL
429815	Charge	05-Dec-00	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$1, 650, 000.00 All &OL
518624	Charge	09-Mar-06	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$500, 00.00 All &OL
520893	Reassignment of Leases	27-Apr-06	National Trust Company	Regency towers (Owen Sound) Ltd.	Re: 242551, 242553 & 307323 & OL

Instr. No Lot 131 East Ameli	Instr. Type	Date	Grantor	Grantee	Comments
35669R	Patent	7 July 1888	The Crown	William Graham	All & Other Lands
40329R	Will	26-Mar-35	William J Graham	Henrietta S Blade	All & Other Lands
39928	Certificate	22-Apr-37	Treasurer of Ontario	William J Graham Estate	All & Other Lands
162674	Grant	25-May-46	Henrietta S Blade	Harold F Graham	\$1 acre All & Other Lands
174055	Deed	11-Mar-76	Harold F Graham and Wife	Marricou Developments Ltd.	\$10 All & Other Lands Lien Clearance
175366	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise, In Trust, to use	\$2 All & OL Lien Clearance
211948	Deposit	03-Oct-77		Harold F Graham	All and OL
212765	Assignment of Rentals	30-Jul-82	Gilbert Grise, In Trust	Credit Foncier	All & OL
213143	Agreement	20-Sep-82	Maurice Gartenberg	Credit Foncier	\$1. &c. 174059 postponed to 173227, 211943 & 211948
213365	Notice	08-Oct-82	Canadian Imperial Bank of Commerce		All & OL Security Interest
213258	Agt. Post. M	20-Oct-82	Maurice Gartenberg	Societe Generale (Canada)	\$1. & prems. 174059 postponed to 213338
219370	Assignment of Leases	08-Nov-82	Robert Masters. In Trust	Societe Generale (Canada)	\$1 All &OL
228982	Agreement	27-Jul-83	Societe Generale (Canada)	Credit Foncier	\$1. & prems. 174057 postponed to 211948
233552	Grant	01-Oct-84	Gilbert Grise, In Trust	Guido Van Den Daele In Trust	All &OL
242550	Assgnt of Rent	31-May-83	Guido Van Den Daele	The National Victoria and Grey Trust Co.	All &OL
242553	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All &OL
243140	Assgnt of Leases & Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All &OL
243767	Re: Assgnt of Leases	25-Jun-86	Societe Generale (Canada)	Gilbert Grise	All &OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
244463	Re: A of Rentals	14-Jul-86	Credit Foncier	Gilbert Grise	All & OL
429815	Re A of Rents	06-Aug-86	National Trust Co.	Guido Van Den Daele	All & OL
518624	Charge	05-Dec-00	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$1, 650, 000.00 All & OL
520893	Charge	09-Mar-06	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$500,000.00 All &OL
	Reassignment of Leases	27-Apr-06	National Trust Company	Regency Towers (Owen Sound) Ltd.	Re: 242551, 242553 & 307323
Lot 133 East Ameli	a Street				
	Patent	9 July 1888	The Crown	William Graham	All & Other Lands
35669R	Will	26-Feb-31	William J Graham	Henrietta S Blade	All & Other Lands
40325R	Certificate	22-Apr-32	Treasurer of Ontario	William J Graham estate	All & Other Lands
39928	Grant	28-May-46	Henrietta S Blade	Harold F Graham	\$1 acre All & Other Lands
162674	Deed	11-Mar-76	Harold F Graham and Wife	Marricou Developments Ltd.	\$10 All & Other Lands Lien Clearance
174055	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise In Trust to Uses	\$2 All & Other Lands
175366	Deposit	03-Oct-77		Harold F Graham	All & Other Lands
211948	Assignment of Rentals	30-Jul-82	Gilbert Grise, in Trust	Credit Foncier	All & OL
212765	Agreement	20-Sep-82	Maurice Gartenberg	Credit Foncier	\$1. &c. 17059 postponed to 173227, 211943 & 211948
213143	Notice	08-Oct-82	Canadian Imperial Bank of Commerce		All & OL Security Deposit
213365	Agt. Post. M	20-Oct-82	Maurice Gartenberg	Societe Generale (Canada)	\$1. & prems. 174059 postponed to 213338
213158	Assignment of Leases	03-Nov-82	Robert masters in Trust	Societe Generale	\$1 All & OL
219370	Agreement	27-Jul-83	Societe Generale (Canada)	Credit Foncier	\$1. & prems. 174057 postponed to 211948
228982	Grant	01-Oct-84	Gilbert Grise, In Trust	Guido Van Den Daele, In Trust	All & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
233552	Assgnt of Rent	31-May-85	Guido Van Den Daele	The National Victoria & Grey trust Co.	All & OL
242550	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All & OL
242553	Assgnt of Leases & Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All & OL
243140	Re: Assgnt of Leases	25-Jun-86	Societe Generale (Canada)	Gilbert Grise	All & OL
243767	Re: A of Rentals	14-Jul-86	Credit Foncier	Gilbert Grise In Trust	All & OL
244463	Re A of Rents	06-Aug-86	National Trust Co	Guido Van Den Daele	All & OL
429815	Charge	05-Dec-00	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$1, 650. 000.00 All & OL
518624	Charge	09-Mar-06	Regency towers (Owen Sound) Ltd.	Bank of Montreal	\$500, 000.00 All & OL
520893	Reassignment of Leases	27-Apr-06	National Trust Company	Regency Towers (Owen Sound) Ltd.	Re: 242551, 242553 & 307323
Lot 135 East Ame	ia Street				
	Patent	7 July 1888	The Crown	William Graham	All & other Lands
35669R	Will	26-Mar-32	William J Graham	Henrietta S. Blade	All & Other Lands
40325R	Certificate	22-Apr-38	Treasurer of Ontario	Re William Graham Estate	All & Other Lands
39928	Grant	28-May-46	Henrietta S Blade	Harold F Graham	\$1 acre All & Other Lands
162674	Deed	11-Mar-76	Harold F. Graham & wife	Marricou Developments Ltd.	\$10 All & other Lands Lien Clearance
174055	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise, in Trust to uses	\$2 All & Other Lands
175366	Deposit	03-Oct-77		Harold F Graham	All & Other Lands
211948	Assignment of rentals	30-Jul-82	Gilbert Grise in Trust	Credit Foncier	All & OL
212765	Agreement	20-Sep-82	Maurice Gartenberg	Credit Foncier	\$1. &c. 174059 postponed to 173227, 211943 & 211948

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
213143	Notice	08-Oct-82	Canadian Imperial Bank of Commerce		All & OL Security Interest
213365	Agt. Post. M.	20-Oct-82	Maurice Gartenberg	Societe Generale (Canada)	\$1. & prems 174059 postponed to 213338
213758	Assignment of Leases	08-Nov-82	Robert Masters In Trust	Societe Generale (Canada)	\$1 All & OL
219370	Agreement	27-Jul-83	Societe Generale (Canada)	Credit Foncier	\$1. & prems. 174057 postponed to 211948
228982	Grant	01-Oct-84	Gilbert Grise In Trust	Guido Van Den Daele In Trust	All & OL
233552	Assgnt. of Rent	31-May-85	Guido Van Den Daele	The National Victoria & Grey Trust Co.	All & OL
242550	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All & OL
242553	Assgnt of Leases and Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All & OL
243140	Re: Assgnt of Leases	25-Jun-86	Societe Generale (Canada)	Gilbert Grise	All & OL
243767	Re: A of Rentals	14-Jul-86	Credit Foncier	Gilbert Grise, in Trust	All & OL
244463	Re A of Rents	06-Aug-86	National Trust Co.	Guido Van Den Daele	All & OL
429815	Charge	05-Dec-00	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$1, 650, 000. 00 All & OL
518624	Charge	09-Mar-06	Regency towers (Owen Sound) Ltd.	Bank of Montreal	\$500,000.00 All & OL
520893	Reassignment of Leases	27-Apr-06	National Trust Co.	Regency towers (Owen Sound) Ltd.	Re: 242551, 242553 & 307323
Lot 137 East Ame	lia Street				
	Patent	7 July 1888	Crown	William J Graham	All & other Lands
35669R	Will	26-Mar-32	William J Graham	Henrietta Blade	All & Other Lands
40325R	Certificate	22-Apr-32	Treasurer of Ontario	Re Williams J Graham Estate	All & Other Lands
39928	Grant	28-May-46	Henrietta Blade	Harold F Graham	\$1 acre All & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
162674	Deed	11-Mar-76	Harold F. Graham & wife	Marricou Developments Ltd.	\$10 All & Other Lands Lien Clearance
174055	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise In trust to Uses	\$2 All & Other Lands Lien Clearance
175366	Deposit	03-Oct-77		Harold F Graham	All & Other Lands
211948	Assignment of Rentals	30-Jul-82	Gilbert Grise in Trust	Credit Foncier	All & OL
212765	Agreement	20-Sep-82	Maurice Gartenberg	Credit Foncier	\$1. &c. 174059 postponed to 173227, 211943 & 211948
213143	Notice	08-Oct-82	Canadian Imperial Bank of Commerce		All & OL Security Deposit
213365	Agt. Post. M.	20-Oct-82	Maurice Gartenberg	Societe Generale (Canada)	\$1 All & OL
213138	Assignment of Leases	08-Nov-82	Robert Masters In Trust	Societe Generale (Canada)	\$1 All & OL
219370	Agreement	27-Jul-83	Societe Generale (Canada)	Credit Foncier	\$1. & prems. 174057 postponed to 211948
228982	Grant	01-Oct-84	Gilbert Grise In Trust	Guido Van Den Daele In Trust	All & OL
233552	Assgnt of Rent	31-May-85	Guido Van Den Daele	The National Victoria and Grey Trust Co.	All & OL
242550	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All & OL
242553	Assgnt of Leases and Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All & OL
243140	Re: Assgnt of Leases	25-Jun-86	Societe Generale (Canada)	Gilbert Grise	All & OL
243767	Re: A of Rentals	14-Jul-86	Credit Foncier	Gilbert Grise, In Trust	All & OL
244463	Re A of Rents	06-Aug-86	National Trust Co	Guido Van Den Daele	All & OL
429815	Charge	05-Dec-00	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$1, 650, 000.00 All & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
518624	Charge	09-Mar-06	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$500,000.00 All & OL
520893	Reassignment of Leases	27-Apr-06	National Trust Company	Regency Towers (Owen Sound) Ltd.	Re: 242551, 242553 & 3073238
Lot 139 East Am					
	Patent	7 July 1888	The Crown	William J Graham	All & Other Lands
25669R	Will	26-Mar-32	William J Graham	Henrietta Blade	All & Other Lands
40329R	Certificate	22-Apr-32	Treasurer of Ontario	Re William J Graham Estate	All & Other Lands
34928	Grant	29-May-46	Henrietta S Blade	Harold F Graham	\$1 acre All & Other Lands
162674	Deed	11-Mar-76	Harold F Graham	Marricou Developments Ltd.	\$10 All & Other Lands Lien Clearance
174055	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise In Trust to Uses	\$2 All & Other Lands Lien Clearance
211948	Assignment of Rentals	30-Jul-82	Gilbert Grise In Trust	Credit Foncier	All & OL
212765	Agreement	20-Sep-82	Maurice Gartenberg	Credit Foncier	\$1. &c. 174059 postponed to 173227, 211943 & 211948
213143	Notice	03-Oct-82	Canadian Imperial Bank of Commerce		All & OL Security Deposit
213365	Agt. Post M.	20-Oct-82	Maurice Gartenberg	Societe Generale (Canada)	\$1. &prems. 174059 postponed to 213338
213758	Assignment of Leases	08-Nov-82	Robert Masters In Trust	Societe General (Canada)	\$1 All & OL
219370	Agreement	27-Jul-83	Societe Generale (Canada)	Credit Foncier	\$1. & Prems. 174057 postponed to 211948
228982	Grant	01-Oct-84	Gilbert Grise In Trust	Guido Van Den Daele In Trust	All & OL
233552	Assgnt of Rent	31-May-86	Guido Van Den Daele	The National Victoria and Grey Trust Co.	All & OL
242550	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
242553	Assgnt of Leases and Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All & OL
243140	Re: Assgnt of Leases	25-Jun-86	Societe Generale (Canada)	Gilbert Grise	All & OL
243767	Re: A of Rentals	14-Jul-86	Credit Foncier	Gilbert Grise, In Trust	All & OL
244463	Re A of Rentals	06-Aug-86	National Trust Co.	Guido Van Den Daele	All & OL
429815	Charge	05-Dec-00	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$1,650,000. 00 All & OL
518624	Charge	09-Mar-06	Regency Towers (Owen Sound Ltd.)	Bank of Montreal	\$500,000.00 All & OL
520893	Reassignment of Leases	27-Apr-06	National Trust Co	Regency Towers (Owen Sound) Ltd.	Re: 242551, 242553 & 307323
Lot 135 East Edwa					
	Patent	6 July 1888	The Crown	William J Graham	All & Other Lands
35669R	Will	26-Mar-32	William J Graham	Maria L Wiselands	All & Other Lands
40329R	Certificate	22-Apr-32	Treasurer of Ontario	Re William J Graham Estate	All & Other Lands
38410	Grant	24-Feb-45	A. Creighton Bradford Admin of Maria Wiselands and Johnathan S. Weslan et Wife	Jean S Walpole	\$3300. Prems All & OL Treasurer Record
45751	Grant	06-Mar-52	Jean S Walpole	Norman R Walpole	\$1 acre All & OL
92386	Deed	04-May-66	Norman R Walpole & wife	Morley D. B. Atton	\$12,200 All & OL
296292	Transfer	11-Oct-90	Estate of Morley Dwight Brice Atton, Dorothy Margaret Atton Executrix	Dorothy Margaret Atton	\$1 As in 92386 &OL
	Patent	6 July 1888	The Crown	William J Graham	All & Other Lands
35669R	Will	26-Mar-32	William J Graham	Maria L Wiselands	All & Other Lands
40329R	Certificate	22-Apr-32	Treasurer of Ontario	Re William J Graham Estate	All & Other Lands

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
38410	Grant	24-Feb-45	A. Creighton Bradford Admin of Maria Wiselands and Johnathan S. Weslan et Wife	Jean S Walpole	\$3300. Prems All & OL Treasurer Record
45751	Grant	06-Mar-52	Jean S Walpole	Norman R Walpole	\$1 acre All & OL
92386	Deed	04-May-66	Norman R Walpole & wife	Morley D. B. Atton	\$12,200 All & OL
296292	Transfer	11-Oct-90	Estate of Morley Dwight Brice Atton, Dorothy Margaret Atton Executrix	Dorothy Margaret Atton	\$1 As in 92386 &OL
	Patent	2 March 1888	The Crown	William J Graham	All & Other Lands
35669R	Will	26-Mar-32	William J Graham	Maria L Wiselands	All & OL
40325R	Certificate	22-Apr-32	Treasurer of Ontario	Re William J Graham estate	All & OL
38410	Grant	24-Feb-45	A. Creighton Bradford Admin of Maria Wiselands and Johnathan S. Weslan et Wife	Jean S Walpole	\$3300. Prems All & OL Treasurer Record
45751	Grant	06-Mar-52	Jean S Walpole	Norman R Walpole	\$1 acre All & OL
92386	Deed	04-May-66	Norman R Walpole & wife	Morley D. B. Atton	\$12,200 All & OL
296292	Transfer	11-Oct-90	Estate of Morley Dwight Brice Atton, Dorothy Margaret Atton Executrix	Dorothy Margaret Atton	\$1 As in 92386 &OL
Lot 137 East E	dward Street				
	Patent	2 March 1888	The Crown	William J Graham	All & Other Lands
35669R	Will	26 Mar 1932	William J Graham	Maria L Wiselands	All & OL
40325R	Certificate	22 April 1932	Treasurer of Ontario	Re William J Graham estate	All & OL
38410	Grant	24 Feb 1945	A. Creighton Bradford Admin of Maria Wiselands and Johnathan S. Weslan et Wife	Jean S Walpole	\$3300. Prems All & OL Treasurer Record
45751	Grant	6 Mar 1952	Jean S Walpole	Norman R Walpole	\$1 acre All & OL
92386	Deed	4 May 1966	Norman R Walpole & wife	Morley D. B. Atton	\$12,200 All & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
296292	Transfer	11 Oct 1990	Estate of Morley Dwight Brice Atton, Dorothy Margaret Atton Executrix	Dorothy Margaret Atton	\$1 As in 92386 &OL
Lot 139 East Edw	ard Street				
	Patent	2 March 1888	The Crown	William J Graham	All & Other Lands
35669R	Will	26-Mar-32	William J Graham	Maria L Wiselands	All & OL
40325R	Certificate	22-Apr-32	Treasurer of Ontario	Re William J Graham estate	All & OL
38410	Grant	24-Feb-45	A. Creighton Bradford Admin of Maria Wiselands and Johnathan S. Weslan et Wife	Jean S Walpole	\$3300. Prems All & OL Treasurer Record
45751	Grant	06-Mar-52	Jean S Walpole	Norman R Walpole	\$1 acre All & OL
92386	Deed	04-May-66	Norman R Walpole & wife	Morley D. B. Atton	\$12,200 All & OL
296292	Transfer	11-Oct-90	Estate of Morley Dwight Brice Atton, Dorothy Margaret Atton Executrix	Dorothy Margaret Atton	\$1 As in 92386 &OL
Lot 126 Edward S	treet West				
	Patent	23 Jan 1878	The Crown	William Frederick Wolfe	All 3 and Other lands
1929	B&S	11 May 1898	William F Wolfe and wife	Walter J Hemming	\$400 " " "
19810	B&S	18 Oct 1910	Walter J Hemming and wife	George W Gurnett	\$500 " " "
23703	B&S	12 June 1915	George W Gurnett & wife	Percy Minard	S 1/2 33 X 165 feet \$175
27044	Grant	16 April 1916	George W Gurnett & wife	Harry Peel	N 1/2 \$594
27045	Grant	2 May 1921	Harry Peel and wife	Percy Minard	N 1/2 \$340
28836	Grant	20 Nov 1923	Percy Minard and wife	Allan George	All \$687
35777	Tax Deed	23 Feb 1940	Mayor and Treasurer	Corp City of Owen Sound	\$7852.00

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
41531	Declaration	30 Jan 1948	James A Milne Treasurer Re: No 35777		And other lands, Declaration (?) re no. 35777
46494	Grant	13 Sept 1952	John A Brittain, Olive Brittain	William E Bowman	\$325
64141	Certificate	21 Sept 1959	Treasurer of Ontario	William E Bowman (estate)	
82822	Grant	15 April 1964	Anne M Bowman, Emma A Bowman Exec. Of William E Bowman	Robert St. Jacques, Carol St. Jacques	\$1300, joint tenants
98007	Deed	10 April 1967	Robert St. Jacques, Carols St. Jacques	Grey Bruce Developments Ltd	\$1500
101804	Deed	9 Jan 1968	Grey Bruce Development Ltd.	Stark-Janecek Ltd.	\$2000
123495	Deed	25 June 1971	Stark- Janecek Ltd.	Richard R Brown, Ethel A E Brown	\$200 joint tenants
180675	Deed	1 May 1978	Richard R Brown, Ethel A E Brown	Peter M Sorbara, Charlotte A Sorbara as JT	\$2 All
196114	Estate Tax Consent	26 Mar 1980	Deputy Minister of National Revenue	re Estate of William E Bowman	All
196178	Deed	14 Mar 1980	Charlotte A Sorbara	John D Matheson, Connie D Hewitt as JT	\$10
230615	Grant	21 Dec 1984	John D Matheson, Connie D Matheson (formerly Hewitt)	Connie D Matheson	All
233602	Grant	03 June 1985	Connie D Matheson	Douglas J Bishop, Nancy A Bishop JT	All
Lot 128 West Ed	ward Street				
	Patent	23 Jan 1878	The Crown	William Fred Wolfe	All 3 & Other Lands
1929	B&S	11 May 1898	William F Wolfe and wife	Walter Hemming	\$400 & Other Lands
3456	B&S	19 July 1909	Walter J Hemming and wife	Henry Miller	E pt. 99 ft. \$52

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
19810	B&S	18 Oct 1910	Walter J Hemming and wife	George W Gurnett	All Less E 99 ft. \$500 and other Lands
21155	B&S	26 Dec 1911	Henry Miller and wife	Stanley E Raven	E pt 99 ft. in depth \$385
25059	Grant	11 Aug 1914	George W Gurnett and wife	John Mitchell	Pt 66 X 66 feet \$300 and Other lands 99 ft. W for M.C.L (?)
25856	Grant	19 Mar 1920	Stanley E Raven	Bessie Lusltenburg	" " " " \$1450
28851	Grant	15 Dec 1923	John Mitchell and Wife	John Burke	Part 66 X 66 feet \$280 99 ft w (?) and other lands
32118	Grant	4 Jan 1929	John Burke	Joseph William Eldred Harold G Eldred	" " " " \$400 do. Do. Do.
32121	Q.C.	5 Dec 1929	Joseph William Eldred and wife	Harold G Eldred	" " " " \$200 do. Do. Do
81976	Certificate	13 Feb 1964	Treasurer of Ontario	Elizabeth B Breen (Estate)	E Pt 99 Ft (?)
82422	Grant	24 Nov 1964	Annie McMann William A Waltenburgh Exec of Elizabeth B Breen (?)	Melville H Walterburg Lorraine H Walterburg	" " " " \$5500 Joint tenants
86944	M of M	31 July 1964	Wellington Credit Corp Ltd.	York trust and Savings Corp	" " " \$2531
106739	Certificate	28 Nov 1968	Treasurer of Ontario	Melville H Waltenburgh (estate)	<i>u u u</i>
114333	Consent	26 Nov 1967	Dept. of National Revenue	Lorraine H Waltenburgh (Estate)	<i>u</i>
115445	Certificate	27 Nov 1970	Dept of National Revenue	Melville H Waltenburgh (Estate)	
116032	Certificate	11 May 1970	Treasurer of Ontario	Lorraine H Waltenburgh (Estate)	
118552	Deed	13 April 1970	Adam E Publuske Admin of Lorraine Waltenburgh Admin and Sustirare (?) Emma Carleton William Tovelofekis	Melbourne J Bauman Dorothy J Bauman	" " " " \$1 Joint Tenants

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
			(?) Edith Klagis by the public Institute		
See Deposit 16R- 412 deposited 9 May 1974	Reference Plan & Other Lands				
147180	Deed	1 May 1974	Harold G Eldred and Wife	William C Kivell Shirley A Kivell	Pt 3 16R-412 & Other Lands C of A consent joint tenants Lien clearance attached
252228	Grant	15 May 1987	William C Kivell Shirley A Kivell	James Robert Comeau JoAnne Marie Comeau as JT	Part 3 16R-412 & OL
258031	Mort	30 Oct 1987	James Robert Comeau JoAnne Marie Comeau	National Trust Co.	\$71,000. Part 3 16R-412 & OL
304846	Deposit	19 July 1991			Re: No. 118552
321901	Charge	25 Sept 1992	James Robert Comeau JoAnne Marie Comeau	National Trust Co.	\$40, 000.00 Part 3 16R-412 & OL
Lot 130 West Edwa	rd Street				
	Patent	7 July 1888	Crown	William J Graham	All & other Lands
35669R	Will	26-Mar-32	William J Graham	Henrietta Blade	All & Other Lands
40325R	Certificate	22-Apr-32	Treasurer of Ontario	Re Williams J Graham Estate	All & Other Lands
39928	Grant	28-May-46	Henrietta Blade	Harold F Graham	\$1 acre All & OL
162674	Deed	11-Mar-76	Harold F. Graham & wife	Marricou Developments Ltd.	\$10 All & Other Lands Lien Clearance
174055	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise In trust to Uses	\$2 All & Other Lands Lien Clearance
175366	Deposit	03-Oct-77		Harold F Graham	All & Other Lands
211948	Assignment of Rentals	30-Jul-82	Gilbert Grise in Trust	Credit Foncier	All & OL
212765	Agreement	20-Sep-82	Maurice Gartenberg	Credit Foncier	\$1. &c. 174059 postponed to 173227, 211943 & 211948
213143	Notice	08-Oct-82	Canadian Imperial Bank of Commerce		All & OL Security Deposit

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
213365	Agt. Post. M.	20-Oct-82	Maurice Gartenberg	Societe Generale (Canada)	\$1 All & OL
213138	Assignment of Leases	08-Nov-82	Robert Masters In Trust	Societe Generale (Canada)	\$1 All & OL
219370	Agreement	27-Jul-83	Societe Generale (Canada)	Credit Foncier	\$1. & prems. 174057 postponed to 211948
228982	Grant	01-Oct-84	Gilbert Grise In Trust	Guido Van Den Daele In Trust	All & OL
233552	Assgnt of Rent	31-May-85	Guido Van Den Daele	The National Victoria and Grey Trust Co.	All & OL
242550	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All & OL
242553	Assgnt of Leases and Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All & OL
243140	Re: Assgnt of Leases	25-Jun-86	Societe Generale (Canada)	Gilbert Grise	All & OL
243767	Re: A of Rentals	14-Jul-86	Credit Foncier	Gilbert Grise, In Trust	All & OL
244463	Re A of Rents	06-Aug-86	National Trust Co	Guido Van Den Daele	All & OL
429815	Charge	05-Dec-00	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$1, 650, 000.00 All & OL
518624	Charge	09-Mar-06	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$500,000.00 All & OL
520893	Reassignment of Leases	27-Apr-06	National Trust Company	Regency Towers (Owen Sound) Ltd.	Re: 242551, 242553 & 3073238
Lot 132 West Edwa					
	Patent	7 July 1888	Crown	William J Graham	All & other Lands
35669R	Will	26-Mar-32	William J Graham	Henrietta Blade	All & Other Lands
40325R	Certificate	22-Apr-32	Treasurer of Ontario	Re Williams J Graham Estate	All & Other Lands
39928	Grant	28-May-46	Henrietta Blade	Harold F Graham	\$1 acre All & OL
162674	Deed	11-Mar-76	Harold F. Graham & wife	Marricou Developments Ltd.	\$10 All & Other Lands Lien Clearance

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
174055	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise In trust to Uses	\$2 All & Other Lands Lien Clearance
175366	Deposit	03-Oct-77		Harold F Graham	All & Other Lands
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242550	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All & OL
242553	Assgnt of Leases and Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All & OL
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Lot 134 West E					
05000	Patent	7 July 1888	Crown	William J Graham	All & other Lands
35669R	Will	26-Mar-32	William J Graham	Henrietta Blade	All & Other Lands
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518624	Charge	09-Mar-06	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$500,000.00 All & OL
520893	Reassignment of Leases	27-Apr-06	National Trust Company	Regency Towers (Owen Sound) Ltd.	Re: 242551, 242553 & 3073238
Lot 136 West Ed	ward Street				
	Patent	7 July 1888	Crown	William J Graham	All & other Lands
35669R	Will	26-Mar-32	William J Graham	Henrietta Blade	All & Other Lands
40325R	Certificate	22-Apr-32	Treasurer of Ontario	Re Williams J Graham Estate	All & Other Lands
39928	Grant	28-May-46	Henrietta Blade	Harold F Graham	\$1 acre All & OL
162674	Deed	11-Mar-76	Harold F. Graham & wife	Marricou Developments Ltd.	\$10 All & Other Lands Lien Clearance
174055	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise In trust to Uses	\$2 All & Other Lands Lien Clearance
175366	Deposit	03-Oct-77		Harold F Graham	All & Other Lands
211948	Assignment of Rentals	30-Jul-82	Gilbert Grise in Trust	Credit Foncier	All & OL
212765	Agreement	20-Sep-82	Maurice Gartenberg	Credit Foncier	\$1. &c. 174059 postponed to 173227, 211943 & 211948
213143	Notice	08-Oct-82	Canadian Imperial Bank of Commerce		All & OL Security Deposit
213365	Agt. Post. M.	20-Oct-82	Maurice Gartenberg	Societe Generale (Canada)	\$1 All & OL
213138	Assignment of Leases	08-Nov-82	Robert Masters In Trust	Societe Generale (Canada)	\$1 All & OL
219370	Agreement	27-Jul-83	Societe Generale (Canada)	Credit Foncier	\$1. & prems. 174057 postponed to 211948

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
228982	Grant	01-Oct-84	Gilbert Grise In Trust	Guido Van Den Daele In Trust	All & OL
233552	Assgnt of Rent	31-May-85	Guido Van Den Daele	The National Victoria and Grey Trust Co.	All & OL
242550	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All & OL
242553	Assgnt of Leases and Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All & OL
243140	Re: Assgnt of Leases	25-Jun-86	Societe Generale (Canada)	Gilbert Grise	All & OL
243767	Re: A of Rentals	14-Jul-86	Credit Foncier	Gilbert Grise, In Trust	All & OL
244463	Re A of Rents	06-Aug-86	National Trust Co	Guido Van Den Daele	All & OL
429815	Charge	05-Dec-00	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$1, 650, 000.00 All & OL
518624	Charge	09-Mar-06	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$500,000.00 All & OL
520893	Reassignment of Leases	27-Apr-06	National Trust Company	Regency Towers (Owen Sound) Ltd.	Re: 242551, 242553 & 3073238
Lot 138 West Ed	ward Street				
	Patent	7 July 1888	Crown	William J Graham	All & other Lands
35669R	Will	26-Mar-32	William J Graham	Henrietta Blade	All & Other Lands
40325R	Certificate	22-Apr-32	Treasurer of Ontario	Re Williams J Graham Estate	All & Other Lands
39928	Grant	28-May-46	Henrietta Blade	Harold F Graham	\$1 acre All & OL
162674	Deed	11-Mar-76	Harold F. Graham & wife	Marricou Developments Ltd.	\$10 All & Other Lands Lien Clearance
174055	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise In trust to Uses	\$2 All & Other Lands Lien Clearance
175366	Deposit	03-Oct-77		Harold F Graham	All & Other Lands
211948	Assignment of Rentals	30-Jul-82	Gilbert Grise in Trust	Credit Foncier	All & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
212765	Agreement	20-Sep-82	Maurice Gartenberg	Credit Foncier	\$1. &c. 174059 postponed to 173227, 211943 & 211948
213143	Notice	08-Oct-82	Canadian Imperial Bank of Commerce		All & OL Security Deposit
213365	Agt. Post. M.	20-Oct-82	Maurice Gartenberg	Societe Generale (Canada)	\$1 All & OL
213138	Assignment of Leases	08-Nov-82	Robert Masters In Trust	Societe Generale (Canada)	\$1 All & OL
219370	Agreement	27-Jul-83	Societe Generale (Canada)	Credit Foncier	\$1. & prems. 174057 postponed to 211948
228982	Grant	01-Oct-84	Gilbert Grise In Trust	Guido Van Den Daele In Trust	All & OL
233552	Assgnt of Rent	31-May-85	Guido Van Den Daele	The National Victoria and Grey Trust Co.	All & OL
242550	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All & OL
242553	Assgnt of Leases and Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All & OL
243140	Re: Assgnt of Leases	25-Jun-86	Societe Generale (Canada)	Gilbert Grise	All & OL
243767	Re: A of Rentals	14-Jul-86	Credit Foncier	Gilbert Grise, In Trust	All & OL
244463	Re A of Rents	06-Aug-86	National Trust Co	Guido Van Den Daele	All & OL
429815	Charge	05-Dec-00	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$1, 650, 000.00 All & OL
518624	Charge	09-Mar-06	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$500,000.00 All & OL
520893	Reassignment of Leases	27-Apr-06	National Trust Company	Regency Towers (Owen Sound) Ltd.	Re: 242551, 242553 & 3073238
140 West Edward	Street				
	Patent	7 July 1888	Crown	William J Graham	All & other Lands
35669R	Will	26-Mar-32	William J Graham	Henrietta Blade	All & Other Lands

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
40325R	Certificate	22-Apr-32	Treasurer of Ontario	Re Williams J Graham Estate	All & Other Lands
39928	Grant	28-May-46	Henrietta Blade	Harold F Graham	\$1 acre All & OL
162674	Deed	11-Mar-76	Harold F. Graham & wife	Marricou Developments Ltd.	\$10 All & Other Lands Lien Clearance
174055	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise In trust to Uses	\$2 All & Other Lands Lien Clearance
175366	Deposit	03-Oct-77		Harold F Graham	All & Other Lands
211948	Assignment of Rentals	30-Jul-82	Gilbert Grise in Trust	Credit Foncier	All & OL
212765	Agreement	20-Sep-82	Maurice Gartenberg	Credit Foncier	\$1. &c. 174059 postponed to 173227, 211943 & 211948
213143	Notice	08-Oct-82	Canadian Imperial Bank of Commerce		All & OL Security Deposit
213365	Agt. Post. M.	20-Oct-82	Maurice Gartenberg	Societe Generale (Canada)	\$1 All & OL
213138	Assignment of Leases	08-Nov-82	Robert Masters In Trust	Societe Generale (Canada)	\$1 All & OL
219370	Agreement	27-Jul-83	Societe Generale (Canada)	Credit Foncier	\$1. & prems. 174057 postponed to 211948
228982	Grant	01-Oct-84	Gilbert Grise In Trust	Guido Van Den Daele In Trust	All & OL
233552	Assgnt of Rent	31-May-85	Guido Van Den Daele	The National Victoria and Grey Trust Co.	All & OL
242550	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All & OL
242553	Assgnt of Leases and Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All & OL
243140	Re: Assgnt of Leases	25-Jun-86	Societe Generale (Canada)	Gilbert Grise	All & OL
243767	Re: A of Rentals	14-Jul-86	Credit Foncier	Gilbert Grise, In Trust	All & OL
244463	Re A of Rents	06-Aug-86	National Trust Co	Guido Van Den Daele	All & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
429815	Charge	05-Dec-00	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$1, 650, 000.00 All & OL
518624	Charge	09-Mar-06	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$500,000.00 All & OL
520893	Reassignment of Leases	27-Apr-06	National Trust Company	Regency Towers (Owen Sound) Ltd.	Re: 242551, 242553 & 3073238
Lot 139 East Mark					
	Patent	7 July 1888	Crown	William J Graham	All & other Lands
35669R	Will	26-Mar-32	William J Graham	Henrietta Blade	All & Other Lands
40325R	Certificate	22-Apr-32	Treasurer of Ontario	Re Williams J Graham Estate	All & Other Lands
39928	Grant	28-May-46	Henrietta Blade	Harold F Graham	\$1 acre All & OL
162674	Deed	11-Mar-76	Harold F. Graham & wife	Marricou Developments Ltd.	\$10 All & Other Lands Lien Clearance
174055	Deed	13-Aug-77	Marricou Developments Ltd.	Gilbert Grise In trust to Uses	\$2 All & Other Lands Lien Clearance
175366	Deposit	03-Oct-77		Harold F Graham	All & Other Lands
211948	Assignment of Rentals	30-Jul-82	Gilbert Grise in Trust	Credit Foncier	All & OL
212765	Agreement	20-Sep-82	Maurice Gartenberg	Credit Foncier	\$1. &c. 174059 postponed to 173227, 211943 & 211948
213143	Notice	08-Oct-82	Canadian Imperial Bank of Commerce		All & OL Security Deposit
213365	Agt. Post. M.	20-Oct-82	Maurice Gartenberg	Societe Generale (Canada)	\$1 All & OL
213138	Assignment of Leases	08-Nov-82	Robert Masters In Trust	Societe Generale (Canada)	\$1 All & OL
219370	Agreement	27-Jul-83	Societe Generale (Canada)	Credit Foncier	\$1. & prems. 174057 postponed to 211948
228982	Grant	01-Oct-84	Gilbert Grise In Trust	Guido Van Den Daele In Trust	All & OL
233552	Assgnt of Rent	31-May-85	Guido Van Den Daele	The National Victoria and Grey Trust Co.	All & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
242550	Grant	02-Jun-86	Guido Van Den Daele	Regency Towers (Owen Sound) Ltd.	All & OL
242553	Assgnt of Leases and Rents	02-Jun-86	Regency Towers (Owen Sound) Ltd.	National Trust Co.	All & OL
243140	Re: Assgnt of Leases	25-Jun-86	Societe Generale (Canada)	Gilbert Grise	All & OL
243767	Re: A of Rentals	14-Jul-86	Credit Foncier	Gilbert Grise, In Trust	All & OL
244463	Re A of Rents	06-Aug-86	National Trust Co	Guido Van Den Daele	All & OL
429815	Charge	05-Dec-00	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$1, 650, 000.00 All & OL
518624	Charge	09-Mar-06	Regency Towers (Owen Sound) Ltd.	Bank of Montreal	\$500,000.00 All & OL
520893	Reassignment of Leases	27-Apr-06	National Trust Company	Regency Towers (Owen Sound) Ltd.	Re: 242551, 242553 & 3073238
Lot 136 West Mark	ket Street				
	Patent	21 May 1886	The Crown	James Douglas	All & Other Lands
685	B&S	27 Aug 1886	James Douglas and wife	Alexander Brass	\$470 & All Other Lands
38299	Tax Deed	17-Jan-45	Mayor and Treasurer	Corp City of Owen Sound	\$1104.63 & all Other Lands
39278	Tax Deed	10-Jun-46	Mayor and Treasurer	Corp City of Owen Sound	\$1104.63 & all Other Lands
39428	Grant	04-Oct-45	Corp City of Owen Sound	Hi Majesty King George VI	\$1 & c " "
72336	Grant	09-Nov-61	Central M & Housing Corp	Willis H Karrow	S part 44 feet \$4575
137396	Deed	19-Mar-73	Central Mortgage and Housing Corporation	Franklin G Graham Frances S. J. Graham (?)	\$4000 do, do Joint Tenants and Other Lands
137421	Deed	28-Mar-73	Franklin G Graham, Frances S. J Graham	Director Veterans Land Act	\$2 do, do plan attached

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
158640	Certificate	08-Oct-75	Minister of Revenue	Re Estate of Franklin G Graham	N pt 22 ft and Other Lands and Rt of way
Lot 138 West M	arket Street				
	Patent	6 July 1888	The Crown	William J Graham	All & Other Lands
35669R	Will	26-Mar-32	William J Graham	Maria L Wiselands	All & Other Lands
40329R	Certificate	22-Apr-32	Treasurer of Ontario	Re William J Graham Estate	All & Other Lands
38410	Grant	24-Feb-45	A. Creighton Bradford Admin of Maria Wiselands and Johnathan S. Weslan et Wife	Jean S Walpole	\$3300. Prems All & OL Treasurer Record
45751	Grant	06-Mar-52	Jean S Walpole	Norman R Walpole	\$1 acre All & OL
92386	Deed	04-May-66	Norman R Walpole & wife	Morley D. B. Atton	\$12,200 All & OL
296292	Transfer	11-Oct-90	Estate of Morley Dwight Brice Atton, Dorothy Margaret Atton Executrix	Dorothy Margaret Atton	\$1 As in 92386 &OL
Lot 140 West Ma	arket Street				
	Patent	6 July 1888	The Crown	William J Graham	All & Other Lands
35669R	Will	26-Mar-32	William J Graham	Maria L Wiselands	All & Other Lands
40329R	Certificate	22-Apr-32	Treasurer of Ontario	Re William J Graham Estate	All & Other Lands
38410	Grant	24-Feb-45	A. Creighton Bradford Admin of Maria Wiselands and Johnathan S. Weslan et Wife	Jean S Walpole	\$3300. Prems All & OL Treasurer Record
45751	Grant	06-Mar-52	Jean S Walpole	Norman R Walpole	\$1 acre All & OL
92386	Deed	04-May-66	Norman R Walpole & wife	Morley D. B. Atton	\$12,200 All & OL
296292	Transfer	11-Oct-90	Estate of Morley Dwight Brice Atton, Dorothy Margaret Atton Executrix	Dorothy Margaret Atton	\$1 As in 92386 &OL
Lot 130 West So					
	Patent	18 Sept 1885	The Crown	William F Wolfe	All & Other Lands
2189	B&S	03-Jul-01	William F Wolfe and Wife	William S, D Graham	All \$1475 & Other Lands
2307	B & S	12-Sep-01	William S F Graham and With	Owen Sound Planning Co Ltd	\$12750 And other Lands

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
19195	B&S	01-Jul-09	Owen Sound Planning Co Ltd.	William S G Graham	Part 33 X 90 Feet \$1 Pt Lot 132 (?)
25288	Grant	09-Jun-19	Owen Sound Planning Co Ltd.	Dominion Oil Co Ltd.	Right of Way on 12 ft. \$1 and Lot 132
12 Bankruptcy Department	Receiving Order	15-Oct-27	Dominion Oil Ltd. Visitor	Norman L Martin Trustee	" do
31129	Agent for Sale	10-Dec-27	Norman L Martin Trustee of Dominion Oil Ltd	Walter G Scott	\$37,000 do do do
31616	Grant	21-Nov-28	Norman L Martin Trustee of Dominion Oil Ltd.	Dominion Oil Co Ltd Corp. 1928	Pt 1 1/3 acres \$2 & c. Right of way, Lots 136, 134 and Pt 132 Approved by inspectors
63209	Grant	01-Apr-59	Reliance Petroleum Ltd.	Supertest Petroleum Corporation Limited	All \$1. C Less W. pt. 33 X 99 and Right of way- & Other Lands
102407	Deed	13-Feb-68	Supertest Petroleum Corporation limited	John F McArthur	All \$3100 Do Do To Do (?)
147062	Certificate	15-May-74	Treasurer of Ontario	William A D Graham (Estate)	W pt 33 X 99 feet & pt Lot 132
149488	Consent	27-Aug-74	Department of National Revenue	William A D Graham (Estate)	W pt 33 X 99 feet & pt Lot 132
149560	Q. G.	19-Aug-74	John F McArthur	Richard McArthur, Lynda McArthur	Pt 12 X 99 Feet \$1 G of A. Certificate Joint tenants
149561	Certificate	27-Aug-74	Treasurer of Ontario	William A. D. Graham (estate)	Pt. 33 X 99 feet and Part lot 132
149562	Deed	20-Aug-74	Edward D Graham and wife	Richard McArthur and Lynda McArthur	Do do Joint Tenants (illegible)
160093	Deed	12-Dec-75	John F McArthur	Noxa Investments Ltd.	E pt & Other Lands Lien Clearance plan attached
181478	Q.G.	29-May-78	John F McArthur	Richard McArthur Lynda McArthur as joint tenants	\$1 Pt. 12 X 99 ft., 21 ft E of N of (?) and pt. Lot 132 incld.
181500	Deed	12-May-78	Richard McArthur Lynda McArthur	David M Gray Heather R Gray as joint tenants	\$2 W pt. 75 X 99 ft. and pt. Lot 132 incld.

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
181501	M	12-May-78	David M Gray Heather R Gray	Victoria and Grey Trust Company	\$32,380 do
211600	Deed	15-Jul-82	David M Gray Heather R Gray	Douglas F Waller Ruby I Waller as J.T.	\$10.& c as in No. 181500
228653	Mort	20-Sep-84	Noxa Investments Ltd.	The Toronto- Dominion Bank	\$200,000. E Part & OL
232808	Grant	29-Apr-85	John F McArthur	Noxa Investments Ltd.	E pt. & OL with R of W
25310	Grant	06-Aug-85	Noxa Investments Ltd.	632063 Ontario Ltd.	E. Part & OL
Lot 132 West So					
	Patent	18 Sept 1885	The Crown	William F Wolfe	All & Other Lands
2189	B&S	03-Jul-01	William F Wolfe and Wife	William S, D Graham	All \$1475 & Other Lands
2307	B&S	12-Sep-01	William S F Graham and Wife	Owen Sound Planning Co Ltd	\$12750 And other Lands
25288	Grant	09-Jun-19	Owen Sound Planning Co Ltd.	Dominion Oil Co Ltd.	\$1 pt. 33 X 99 for right of way & Other Lands (illegible)
31129	Agent for Sale	10-Dec-27	Norman L Martin Trustee of Dominion Oil Ltd.	Walter G Scott	\$37,000.00 do do do
31616	Grant	21-Nov-28	Norman L Martin Trustee of Dominion Oil Ltd.	Dominion Oils Co Ltd Incorp 1928	Pt 1 1/3 acres \$2 &c tax asset copy \$2000 & right of way Lots 136, 132, and pt. 130 approved by Inspector
63209	Grant	01-Apr-59	Reliance Petroleum Ltd.	Supertest Petroleum Corporation Limited	All \$1 &c & Other Lands
102407	Deed	13-Feb-68	Supertest Petroleum Corporation limited	John F McArthur	\$3100 do do
160093	Deed	12-Dec-75	John F McArthur	Noxa Investments Ltd.	\$2 pt. All & Other lands Lien Clearance Plan Attached
228653	Mort	20-Sep-84	Noxa Investments Ltd.	The Toronto- Dominion Bank	\$200,000 Part and OL
232808	Grant	29-Apr-85	John F McArthur	Noxa Investments Ltd.	Part and OL with R of W
	Patent	18 Sept 1885	The Crown	William F Wolfe	All & Other Lands

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
2189	B&S	03-Jul-01	William F Wolfe and Wife	William S, D Graham	All \$1475 & Other Lands
2307	B&S	12-Sep-01	William S F Graham and With	Owen Sound Planning Co Ltd	\$12750 And other Lands
25288	Grant	09-Jun-19	Owen Sound Planning Co Ltd.	Dominion Oil Co Ltd.	\$1 & (illegible)
12 Bankruptcy	Receiving Order	15-Oct-27	Dominion Oil Ltd (Debtor)	Norman L Martin (Trustee)	Do do do
31129	Agent for Sale	10-Dec-27	Norman L Martin Trustee of Dominion Oil Ltd.	Walter G Scott	\$37,000.00 do do do
31616	Grant	21-Nov-28	Norman L Martin Trustee of Dominion Oil Ltd.	Dominion Oils Co Ltd Incorp 1928	Pt 1 1/3 acres \$2 &c tax asset copy \$2000 & right of way Lots 134, and pt. 130 approved by Inspector
63209	Grant	01-Apr-59	Reliance Petroleum Ltd.	Supertest Petroleum Corporation Limited	All \$1 &c & Other Lands
102407	Deed	13-Feb-68	Supertest Petroleum Corporation limited	John F McArthur	\$3100 do do
160093	Deed	12-Dec-75	John F McArthur	Noxa Investments Ltd.	\$2 pt. & Other lands Lien Clearance Plan Attached
228653	Mort	20-Sep-84	Noxa Investments Ltd.	The Toronto- Dominion Bank	\$200,000 Part and OL
232808	Grant	29-Apr-85	John F McArthur	Noxa Investments Ltd.	Part and OL with R of W
235310	Grant	06-Aug-85	Noxa Investments Ltd.	632063 Ontario Ltd.	W 33 feet & OL
Lot 134 West Soun	Patent	21 May 1886	The Crown	James Douglas	All & Other Lands
685	B & S	27 Aug 1886	James Douglas and Wife	Alexander Brass	All \$470 & Other Lands
38299	Tax Deed	17-Jan-45	Mayor and Treasurer	Corp of City Owen Sound	All \$1104.63 & Other Lands
39278	Tax Deed	10-Jan-46	Mayor and Treasurer	Corp Of City Owen Sound	All \$1104.63 & Other lands confirming No. 38299
39978	Grant	28-Feb-49	Corp of City Owen Sound	McManus Petroleum Ltd	All \$200 & Lot 140

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
43073	Grant	28-Feb-49	McManus Petroleum Ltd	Reliance Petroleum Ltd	All \$1.& c & other lands
63209	Grant	01-Apr-59	Reliance Petroleum Ltd	Supertest Petroleum Corporation Limited	All \$1.c & Other Lands
102407	Deed	13-Feb-68	Supertest Petroleum Corporation Limited	John F McArthur	W pt. 33 feet \$3100 & Other lands
151008	Deed	15-Apr-74	B.P. Canada Ltd formerly Supertest Petroleum Corporation Limited	William P McArthur In Trust	E pt. \$1 do do do Lien Clearance
160094	Deed	12-Dec-75	William P McArthur & wife	Noxa Investments Limited	\$2 All & Other Lands, Lien Clearance
228653	Mort	20-Sep-84	Noxa Investments Ltd.	The Toronto Dominion Bank	\$200,0 All & OL
232808	Grant	29-Apr-85	John F McArthur	Noxa Investments Ltd.	W part 33 feet & OL
235310	Grant	06-Aug-85	Noxa Investments Ltd.	632063 Ontario Ltd.	W 33 feet & OL
Lot 136 West Sour					
	Patent	18 Sept 1885	The Crown	William F Wolfe	All & Other Lands
2189	B&S	03-Jul-01	William F Wolfe and Wife	William S, D Graham	All \$1475 & Other Lands
2307	B&S	12-Sep-01	William S F Graham and With	Owen Sound Planning Co Ltd	\$12750 And other Lands
25288	Grant	09-Jun-19	Owen Sound Planning Co Ltd.	Dominion Oil Co Ltd.	\$1 & (illegible)
12 Bankruptcy	Receiving Order	15-Oct-27	Dominion Oil Ltd (Debtor)	Norman L Martin (Trustee)	Do do do
31129	Agent for Sale	10-Dec-27	Norman L Martin Trustee of Dominion Oil Ltd.	Walter G Scott	\$37,000.00 do do do
31616	Grant	21-Nov-28	Norman L Martin Trustee of Dominion Oil Ltd.	Dominion Oils Co Ltd Incorp 1928	Pt 1 1/3 acres \$2 &c tax asset copy \$2000 & right of way Lots 134, and pt. 130 approved by Inspector
63209	Grant	01-Apr-59	Reliance Petroleum Ltd.	Supertest Petroleum Corporation Limited	All \$1 &c & Other Lands
102407	Deed	13-Feb-68	Supertest Petroleum Corporation limited	John F McArthur	\$3100 do do

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
160093	Deed	12-Dec-75	John F McArthur	Noxa Investments Ltd.	\$2 pt. & Other lands Lien Clearance Plan Attached
228653	Mort	20-Sep-84	Noxa Investments Ltd.	The Toronto- Dominion Bank	\$200,000 Part and OL
232808	Grant	29-Apr-85	John F McArthur	Noxa Investments Ltd.	Part and OL with R of W
235310	Grant	06-Aug-85	Noxa Investments Ltd.	632063 Ontario Ltd.	Part & OL
Lot 138 West S	Sound Street				
	Patent	21 May 1886	The Crown	James Douglas	All & Other Lands
685	B & S	27 Aug 1886	James Douglas and Wife	Alexander Brass	All \$470 & Other Lands
38299	Tax Deed	17-Jan-45	Mayor and Treasurer	Corp of City Owen Sound	All \$1104.63 & Other Lands
39278	Tax Deed	10-Jan-46	Mayor and Treasurer	Corp Of City Owen Sound	All \$1104.63 & Other lands confirming No. 38299
39978	Grant	28-Feb-49	Corp of City Owen Sound	McManus Petroleum Ltd	All \$200 &Lot 140
43073	Grant	28-Feb-49	McManus Petroleum Ltd	Reliance Petroleum Ltd	All \$1.& c & other lands
63209	Grant	01-Apr-59	Reliance Petroleum Ltd	Supertest Petroleum Corporation Limited	All \$1.c & Other Lands
102407	Deed	13-Feb-68	Supertest Petroleum Corporation Limited	John F McArthur	W pt. 33 feet \$3100 & Other lands
151008	Deed	15-Apr-74	B.P. Canada Ltd formerly Supertest Petroleum Corporation Limited	William P McArthur In Trust	E pt. \$1 do do do Lien Clearance
160094	Deed	12-Dec-75	William P McArthur & wife	Noxa Investments Limited	\$2 All & Other Lands, Lien Clearance
228653	Mort	20-Sep-84	Noxa Investments Ltd.	The Toronto Dominion Bank	\$200,0 All & OL
232808	Grant	29-Apr-85	John F McArthur	Noxa Investments Ltd.	W part 33 feet & OL
235310	Grant	06-Aug-85	Noxa Investments Ltd.	632063 Ontario Ltd.	W 33 feet & OL

Instr. No	Instr. Type	Date	Grantor	Grantee	Comments
	Patent	21 May 1886	The Crown	James Douglas	All & Other Lands
685	B & S	27 Aug 1886	James Douglas and Wife	Alexander Brass	All \$470 & Other Lands
38299	Tax Deed	17-Jan-45	Mayor and Treasurer	Corp of City Owen Sound	All \$1104.63 & Other Lands
39278	Tax Deed	10-Jan-46	Mayor and Treasurer	Corp Of City Owen Sound	All \$1104.63 & Other lands confirming No. 38299
39978	Grant	28-Feb-49	Corp of City Owen Sound	McManus Petroleum Ltd	All \$200 &Lot 138
43073	Grant	28-Feb-49	McManus Petroleum Ltd	Reliance Petroleum Ltd	All \$1.& c & other lands
63209	Grant	01-Apr-59	Reliance Petroleum Ltd	Supertest Petroleum Corporation Limited	All \$1.c & Other Lands
102407	Deed	13-Feb-68	Supertest Petroleum Corporation Limited	John F McArthur	W pt. 33 feet \$3100 & Other lands
151008	Deed	15-Apr-74	B.P. Canada Ltd formerly Supertest Petroleum Corporation Limited	William P McArthur In Trust	E pt. \$1 do do do Lien Clearance
228653	Mort	20-Sep-84	Noxa Investments Ltd.	The Toronto Dominion Bank	\$200,0 All & OL
235310	Grant	06-Aug-85	Noxa Investments Ltd.	632063 Ontario Ltd.	W 33 feet & OL

Ministry of Tourism, Culture and Sport

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Mar 11, 2019

Scarlett Janusas (P027)
Scarlett Janusas Archaeology Inc.
PO BOX none Tobermory ON N0H 2R0

RE: Review and Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "STAGE 1 ARCHAEOLOGICAL ASSESSMENT FOR BROOKE AREA BASIN A3, LOTS 129, 131, 133, 135, 137, 139 EAST AMELIA STREET, 130 WEST EDWARD STREET, 135, 137, 139 EAST EDWARD STREET, 136, 138, 140 WEST MARKET STREET, PT LOT 139 EAST MARKET STREET AND LOTS 130, 132, 134, 136, 138, 140 WEST SOUND STREET, TOWN PLOT OF BROOKE, GEOGRAPHIC TOWNSHIP OF SARAWAK, CITY OF OWEN SOUND, GREY COUNTY, ONTARIO ORIGINAL REPORT ", Dated Feb 25, 2019, Filed with MTCS Toronto Office on Mar 11, 2019, MTCS Project Information Form Number P027-0331-2018, MTCS File Number 0008311

Dear Ms. Janusas:

This office has reviewed 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. This review has been carried out in order to determine whether the licensed professional consultant archaeologist has met the terms and conditions of their licence, that the licensee assessed the property and documented archaeological resources using a process that accords with the 2011 Standards and Guidelines for Consultant Archaeologists set by the ministry, and that the archaeological fieldwork and report recommendations are consistent with the conservation, protection and preservation of the cultural heritage of Ontario.

The report documents the assessment of the study area as depicted in Map 15: Recommended Stage 2 Assessment Methodology and Maps 16 through 19: Recommended Stage 2 Assessment Methodology for Reaches 1, 2, 3, 4, 5 and 6 of the above titled report and recommends the following:

Based upon the background research of past and present conditions, and the property visit, the following is recommended:

•A Stage 2 archaeological assessment is recommended for approximately 56% of the Study Area (areas of archaeological potential), more specifically: 1) the west side of Reach 1 should be the subject of Stage 2 archaeological assessment if there is any proposed development, excluding routine maintenance of the existing culvert; 2) the west side of Reach 2 exhibit potential and will require Stage 2 archaeological assessment if this area is to be developed; 3) the water course in Reach 3 has been dredged several times, although the majority of the area on either side of the course has remained undeveloped. Should any

development be proposed in this area, Stage 2 archaeological assessment is recommended. 4) Reach 4 is a mix of areas of both archeological potential and no potential. Those areas of archaeological potential are recommended for Stage 2 archaeological assessment should development be proposed within Reach 4. 5) There is no potential for Reach 5, and no further archaeological assessment is required in the area of Reach 5. 6) There is no archaeological potential for Reach 6 and no further archaeological assessment is recommended within the Reach 6 area.

•Compliance legislation must be adhered to in the event of discovery of deeply buried cultural material or features

As per Section 2.1.2 Standards 1, 2, and 5-9 of the MTCS 2011 Standards and Guidelines, it is recommended that areas of archaeological potential as identified on Map 15 be subject to a Stage 2 archaeological assessment. Based on the current condition of the land, the area cannot be ploughed. Stage 2 archaeological assessment should be conducted using a test pitting methodology conducted in five metre intervals across the areas of archaeological potential. Each test pit should be at least 30 cm in diameter and excavated a minimum of five cm into subsoil and examined for stratigraphy, cultural features, or evidence of fill. All soil shall be screened through mesh no greater than six mm, all artifacts should be collected according to their associated test pit, and all test pits backfilled unless instructed not to by the landowner/proponent. If test pits are found to be positive (artifacts or cultural features), test pitting should be intensified around the positive test pits with eight additional test pits excavated at 2.5 metre intervals around the positive test pit. If there are sufficient positive test pits located to recommend a Stage 3 archaeological assessment (and sufficient materials), no additional intensification is required. If there is some question as to whether the positive test pit(s) is sufficient for a recommendations of Stage 3 assessment, a minimum of one – one metre square test unit must be excavated over the positive test pit. All recovered archaeological materials shall be bagged and tagged according to provenience.

This archaeological assessment has been conducted under the 2011 Standards and Guidelines for Consultant Archaeologists (Ministry of Tourism, Culture and Sport 2011).

Based on the information contained in the report, the ministry is satisfied that the fieldwork and reporting for the archaeological assessment are consistent with the ministry's 2011 Standards and Guidelines for Consultant Archaeologists and the terms and conditions for archaeological licences. This report has been entered into the Ontario Public Register of Archaeological Reports. 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 any further information regarding this matter, please feel free to contact me.

Sincerely,

Sarah Roe Archaeology Review Officer

cc. Archaeology Licensing Officer
Peter Paquette, City of Owen Sound
Chris Webb, Engineering Services, City of Owen Sound

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.

CULTURAL HERITAGE EVALUATION REPORT: BROOKE AREA BASIN A3



Prepared for:

GM BluePlan Engineering Limited (GMBP) City of Owen Sound

Prepared by:

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April 26, 2018

SJAI©

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CULTURAL HERITAGE EVALUTION REPORT: BROOKE AREA BASIN A3

1.0 INTRODUCTION

1.1 Project Description

The proponent retained the services of Scarlett Janusas Archaeology Inc. (SJAI) to conduct a cultural heritage resource evaluation report for Brooke Area Basin A3 (Figure 1). The following is a description of the project (personal communication, Andrea Nelson 11/01/2018):

"In July, 2008, GM BluePlan Engineering Limited (GMBP), on behalf of the City of Owen Sound (City) and the Township of Georgian Bluffs (Township), completed a "Brooke Area Stormwater Management Study" (BAWSM Study), which investigated drainage issues within seven drainage areas that cross the common municipal border and outlet through the City to Georgian Bay. Brooke Area Basin A3 was identified as one of these drainage areas.

Brooke Area Basin A3 is generally bounded by West Street in the west, 23rd Street West in the north, the Eddie Sargent Parkway (ESP; Grey Road 1) in the east, and the 17th Street West and 18th Street West rights-of-way (ROW) in the south. The specific Study Area includes the outlet portion of the drainage system of Basin A3, which is located entirely within the City's boundaries; east of 8th Avenue West to the outlet at Kelso Beach.

The BASWM Study identified various deficiencies with drainage infrastructure within the City. The City has chosen to investigate in greater detail, by following a Master Plan approach, the outlet system for Brooke Area Basin A3 with the Study Area broken down into the following component reaches:

- i) Reach #1 Open Channel East of 8th Avenue West to 6th Avenue West
- ii) Reach #2 Culvert 6th Avenue West and 21st Street West
- iii) Reach #3 Open Channel / Culvert 21st Street West to 20th Street West
- iv) Reach #4 Open Channel 20th Street West to 19th Street West
- v) Reach #5 Culvert Inlet System 19th Street West near 5th Avenue West
- vi) Reach #6 Storm Sewer System 19th Street West, from Inlet System to ESP
- vii) Reach #7 Outlet System ESP to Kelso Beach"

This specific project applies only to Reaches 1 through 6, as illustrated in Figure 2.

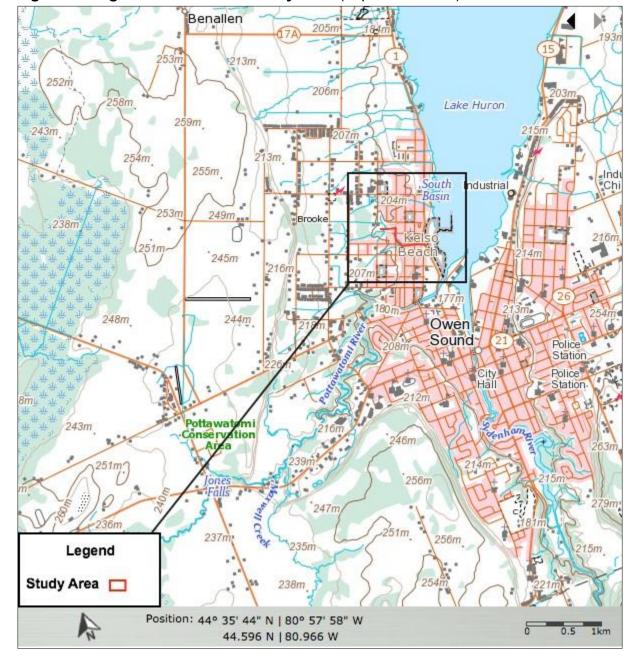


Figure 1: Regional Location of Study Area (Toporama 2017)

АЗ BENCHMARKS **Blue**Plan PRELIMINARY BROOKE AREA BASIN AS OUTLET MASTER PLAN CITY OF OWEN SOUND

Figure 2: Development Map Showing the Brooke A3 Basin



and St W 22 Legend 188m GEORGIAN BLUFFS 2198 Building to Scale A PJE 2101 × OWEN SOUND Heliport \ Hospital Helipo Ferry Route Trail Head \ Trail 21.01 2098 189m 21st St W Road with Tunnel Primary, Kings or 400 Series Highw 300 #953 District, County, Region or Municipal Road
Toll Highway 9548861 20th St W 2000 2001 8th Ave W 2000 3rd Ave W 1998 E498 1999 199m 6th Ave W 700 201m Rapids Rocks ((Lock Gate 9 4m Dam \ Hydro Wall 1899 19th St W Upper Tier \ District Municipal Boundary Lot Line 1901 1900 Indian Reserve Provincial Park 0.2 km Study Area © Queen's Printer for Ontario, 2015

Figure 3: Topographic Map of Study Area



1.2 Built Heritage and Cultural Heritage Landscape Planning Tools

1.2.1 Provincial Interests in Planning for Cultural Heritage

Ontario Regulation 09/06 was used to determine cultural heritage value or interest (*Ontario Heritage Act* 1974). This section of the act sets out criteria that would be used to designate a structure under Section 29 of the Act. The following criteria are considered for this purpose:

- 1. The property has design value or physical value because it,
 - i. is a rare, unique, representative or early example of a style, type, expression, material or construction method,
 - ii. displays a high degree of craftsmanship or artistic merit, or
 - iii. demonstrates a high degree of technical or scientific achievement.
- 2. The property has historical value or associative value because it,
 - i. has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community,
 - ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture, or
 - iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.
- 3. The property has contextual value because it,
 - i. is important in defining, maintaining or supporting the character of an area,
 - ii. is physically, functionally, visually or historically linked to its surroundings, or
 - iii. is a landmark. O. Reg. 9/06, s. 1 (2).

The *Planning Act* is the legislative framework for land use planning. One of the objectives of the Act is to identify matters of provincial interest in both provincial and municipal planning decisions. Section 2 of the *Planning Act* identified matters of provincial interest, including the conservation of significant features of architectural, cultural, historical, archaeological and/or scientific interest. Municipalities are tasked with regarding these matters of provincial interest as part of their duties under the *Planning Act*.

The Ontario Heritage Trust provides the Heritage Toolkit as a resource to provincial interests.

1.2.2 Provincial Policy Statement

The 2014 Provincial Policy Statement (PPS) provides "policy direction on matters of provincial interest related to land use planning and development". The PPS is issued under Section 3 of the *Planning Act*. It became effective April 30th, 2014.

"In respect of the exercise of any authority that affects a planning matter, Section 3 of the Planning Act requires that decisions affecting planning matters "shall be consistent with" policy statements issued under the Act" (Ministry of Municipal Affairs and Housing 2014:1).

Section 2.6, (2.6.1 to 2.6.5) states (ibid: 29):

- "2.6.1 Significant built heritage resources and significant cultural heritage landscapes shall be conserved.
- 2.6.2 Development and site alteration shall not be permitted on lands containing archaeological resources or areas of archeological potential unless significant archaeological resources have been conserved.
- 2.6.3 Planning authorities shall not permit development and site alteration on adjacent lands to protected heritage property except where the proposed development and site alteration has been evaluated and it has been demonstrated that the heritage attributes of the protected property will be conserved.
- 2.6.4 Planning authorities should consider and promote archaeological management plans and cultural plans in conserving cultural and archaeological resources.
- 2.6.5 Planning authorities shall consider the interests of Aboriginal communities in conserving cultural heritage and archaeological resources."

The 2014 PPS defines built heritage as (ibid: 38):

"a building, structure, monument, installation or any manufactured remnant that contributes to a property's cultural heritage value or interest identified by a community, including an Aboriginal community. Built heritage resources are generally located on property that has been designated under Parts IV or V of the Ontario Heritage Act, or included on local, provincial and/or federal registers".

The 2014 PPS defines cultural heritage landscapes as (ibid: 40):

"a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Aboriginal community. The area may involve features such as structures, spaces, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association. Examples may include, but are not limited to, heritage conservation districts named under the Ontario Heritage Act, villages, parks, gardens, battlefields, main streets and neighbourhoods, cemeteries, trailways, viewsheds, natural areas and industrial complexes of heritage significance; and areas

recognized by federal or international designation authorities (e.g. a National Historic Site or District designation or a UNESCO World Heritage Site)."

The 2014 PPS defines significance with regard to cultural heritage and archaeology, as (ibid: 49):

"...resources that have been determined to have cultural heritage value or interest for the important contribution they make to our understanding of the history of a place, an event, or a people."

Additional definitions are in the Provincial Policy Statement (PPS 2014).

1.2.3 Ministry of Tourism, Culture and Sport

The *Ontario Heritage Act* is administered by the Ministry of Tourism, Culture and Sport, and reviews heritage matters identified in environmental assessments. Part IV, Section 29 of the *Act*, address properties with cultural value or interest. A property can be designated thereby providing protection for heritage resources from inappropriate modification or demolition. Part IV, Section 27 (1.2) of the *Act* allows a municipality to list a property as having cultural value or interest, but the latter does not afford the property protection other than to identify the property as having cultural heritage value or interest.

Regulation 9/06 of the Act provides the framework for the determination of cultural heritage value or interest. For example, if the bridge is determined to have cultural heritage value or interest, the municipality can either designate the structure or list it.

In addition, the Province can choose to designate a structure if it deems it to be of provincial significance.

1.2.4 Municipal Class Environmental Assessments (MCEA)

The Ministry of Environment (MOE) implements the *Ontario Environmental Assessment Act*. Part 1, Section 1 (1) of the *Act* states:

"environment" means...(c) the social, economic and cultural conditions that influence the life of humans or a community, (d) any building, structure, machine or other device or thing made by humans".

The Municipal Class Environmental Assessment (MCEA) outlines a procedure whereby municipalities can comply with the requirements of the *Environmental Assessment Act*. It identifies potential positive and negative effects of projects such as road improvements, facility expansions or to facilitate a new service. The process includes an extensive evaluation of impacts on the natural and social environment. The Municipal Class EA applies to municipal infrastructure projects including roads, water and



wastewater projects. Since projects undertaken by municipalities can vary in their environmental impact, such projects are classified in terms of schedules.

- Schedule A generally includes normal or emergency operational and maintenance activities where the environmental effects of these activities are usually minimal, and therefore these projects are pre-approved.
- Schedule B generally includes improvements and minor expansions to existing facilities where there is the potential for some adverse environmental impacts and therefore, the municipality is required to proceed through a screening process including consultation with those who may be affected.
- Schedule C generally includes the construction of new facilities and major expansions to existing facilities, and these projects proceed through a five phased environmental assessment planning process.

The Class EA planning process is broken down into five phases:

- Phase 1: Identify the problem or opportunity.
- Phase 2: Identify alternative solutions.
- Phase 3: Examine alternative design concepts for the preferred solution.
- Phase 4: Prepare Environmental Study Report (ESR).
- Phase 5: Implementation (contract drawings and documents, construction and operation).

1.2.5 County of Grey Official Plan

The County of Grey's Official Plan has been amended in 1997, 1998, 1999, 2000 and most recently in 2012 (Grey County 2013).

Municipal Official Plans allow for the implementation of the *Provincial Policy Statement* (Section 2.2) under the *Municipal Act*.

Section 3 of the County of Grey Official Plan deals with the conservation of historic resources in the County.

"The County of Grey has a rich and diverse cultural heritage, which includes sites of archaeological value; buildings and structural remains of historical, architectural and contextual value; and rural, village and urban districts or landscapes of historic and scenic interests. The County recognizes the importance of its cultural heritage resources and in managing them in a responsible manner which perpetuates their use and benefit to the community."

Specifically, Section 3(2) states:



"Local municipalities will identify cultural heritage resources by establishing and maintaining a register of properties situated in the municipality that are of cultural heritage value or interest. Local municipalities will include on their register, all properties designated under Part IV, V or VI of the Heritage Act and including but not limited to:

- (a) properties that have heritage conservation easements or covenants registered against title
- (b) cultural heritage resources of interest to the County
- (c) cultural heritage resources identified in provincial or federal inventories
- (d) additional cultural heritage resources that the council of the local municipalities believe to be of cultural heritage value or interest
- (e) areas of archaeological potential and archaeological and historical resources identified by the Province"

1.2.5 City of Owen Sound Study

At this current time, the project is not part of a Municipal Class EA, but rather the City of Owen Sound is conducting due diligence by having a cultural heritage assessment evaluation conducted in advance of any infrastructure upgrading for the area.

2.0 ASSESSMENT METHODOLOGY

A field visit was conducted of the Study Area and adjacent properties on February 22, 2018 under sunny skies with a high of -3 degrees C.

A photographic record was maintained of the Study Area, the surrounding landscape, and any properties located within, or adjacent to, the Study Area. Three forms were completed on site: 1) photographic log; 2) Canadian Inventory of Historic Building form; and, 3) Inventory for Roadscapes and Cultural Landscapes form. The product of these field notes and field forms assisted in the evaluation process of the cultural and built heritage of the area.

If a property is to be designated under Section 29 of the *Ontario Heritage Act*, it must have cultural heritage value or interest as presented in Table 1 below.

Table 1: Criteria Identifying Cultural Heritage Value or Interest

.	
Criteria	Description
Design or Physical Value	Is a rare, unique, representative or early example of a style, type, expression, material or construction method
	Displays a high degree of craftsmanship or artistic merit
	Demonstrates a high degree of technical or scientific achievement.
Historical or Associative Value	Has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community
	Yields, or has the potential to yield, information that contributes to an understanding of a community or culture
	Demonstrates or reflects the work of an architect, artist, builder, designer or theorist who is significant to a community
Contextual Value	Is important in defining, maintaining, or supporting the character of an area
	Is physically, functionally, visually or historically linked to its surroundings
	Is a landmark

3.0 HISTORIC BACKGROUND

3.1 Township History

The following is from the Stage 1 archaeological assessment report prepared by Scarlett Janusas Archaeology Inc. (2018), who conducted the archaeological assessment for the Brooke Basin A3 under project information number P027-0331-2018.

"The Chippewas of Saugeen First Nation and the Chippewas of Nawash First Nation share the same traditional territories in southwestern Ontario. They were a part of the ancient Three Fires Confederacy of Ojibway, Odawa, and Pottawatomi. Prior to 1650, these groups inhabited the lands bordering on Lake Huron. Around 1650 conflict with the Iroquois forced them to move westward. After the defeat of the Iroquois, some of the Ojibway settled in the Saugeen Territory. The Ojibwa retained all territories won during the battles with the Iroquois until they surrendered them to the Crown more than a century later.

Throughout the 18th century the Saugeen Territory was inhabited by several generations of Ojibway whose immediate territory was threatened neither by war nor by European settlers. Some of these Ojibwa were the Wahbadicks, the Newashes, the Wahwahnoses, and the Metegwob who fished, trapped and hunted along the many rivers, streams and lakes of their lands (Schmalz 1991:2-9). It should also be noted that there were many "foreign" Indians from the United States that settled within the territory as well.

The Saugeen Ojibway Nation (SON) traditional territories cover the watersheds bounded by the Maitland River and the Nottawasaga River (east of Collingwood on Georgian Bay). The area includes all the Bruce Peninsula (which was once known as the Saugeen Peninsula), all of Grey and Bruce Counties, and parts of Huron, Dufferin, Wellington and Simcoe Counties.

To accommodate British and European immigration, officers of the Crown began their quest to secure Aboriginal lands toward the end of the 18th century. Large portions of the Mississauga Tract along the northern shores of Lake Ontario had been obtained in 1792, and the bulk of the Huron Tract including present day Grey County in 1825. On August 9, 1836, after negotiations on Manitoulin Island between the chiefs of the Saugeen Ojibway and the Government of Upper Canada led by Sir Francis Bond Head, the Crown gained title to approximately 1.5 million acres (607,028.5 hectares) of Indigenous land along the shores of Lake Huron (Schmalz 1977:233). The "Saugeen Tract Agreement" as it was called, was registered as Crown Treaty #45 ½ and included all of present day Grey County (Maps 5 - 8). That was surrendered to the Crown through Crown Treaty # 72 dated October 12, 1854. Both treaties allowed for the presence of five reservations on the Peninsula, including: Saugeen, Chief's Point, Colpoy's Bay (Oxenden), Newash and Cape Croker (Davidson 1972:13).



The Newash (now known as Nawash) reservation remained until the "Peter Jones Treaty" of 1857. The following is an excerpt from the History of Cape Croker (Self Published 1980: 5) and explains the events leading up to the signing of the treaty:

'John Telfur, a land agent and surveyor Charles Rankin P. L., came to Nawash, October 1840, they informed the Indians that the land upon which they now resided was to be surrendered and sold for their benefit. This was followed by the signing of the "Peter Jones Treaty".

One surprising feature noted in the treaty was that it was signed at Toronto on February 9th 1857. How the Red delegation reached that city in the middle winter, with the nearest railway connection then at Collingwood is not known to this writer. It appears strange too that Chief Nawash who was the acknowledged leader of the band, had apparently no part in the transaction. It is possible that the chief by that time was too aged or infirm to travel far. He is known to have agreed to the transfer and to have later taken part in the migration.

In the spring of 1857 soon after the treaty was signed, Lord Burgh who had followed Oliphant as superintendent of Indian Affairs, organized the survey of the Nawash lands. The village was laid out in town lots and given the name of "Town of Brookeholm" in honour of Burg's kinsman Major Brooke of Sarawak. The neighbouring lands were surveyed into the townships of Sarawak and Keppel."

. . .

"The County of Grey was created by lands negotiated in the Treaty of 1818 and contained one million five hundred and ninety two thousand acres (644,259.54 hectares). The price of the first treaty was "for the yearly payment for ever of twelve hundred pounds currency in goods at Montreal prices" (Marsh 1931). Due to the expansion of settlers in the new County of Grey, it too was expanded with the Sauking Treaty signed in 1836 (Marsh 1931).

The "sound of water" now known as "Owen Sound" was not officially surveyed until 1815. It has been postulated that Samuel de Champlain as well as many early fur traders mapped out the shoreline, however they did not venture into the shoals to create an accurate depiction of the area. Therefore, it was in 1815 that Captain William Fitzwilliam Owen arrived to officially survey the region. Captain Owen changed the original name of Mer Douce (meaning 'Sweetwater Sea'), given to the large bay by Champlain, to Manitoulin Lake (Thomas 2015). It wasn't until 1825 that the modern name of Georgian Bay was given to the area in honour of King George III. The earliest record showing when the name "Owen Sound" was first used is in Lieutenant Bayfield's survey of 1819, in honour of Captain William Fitzwilliam Owen (Thomas 2015).

The township of Sarawak is nestled between the townships of Sydenham, Keppel and Derby in the County of Grey. The land was originally owned by the Nawash Native tribe and was occupied as a reserve until the Jones Treaty of 1857. It is a known fact that the



reserve land was the desired land to start the townplot of Sydenham, which would later be called Owen Sound. Due to the land already being occupied, it was not surveyed and assigned lots and concessions until after the Jones Treaty was signed in 1857."

3.1.1 The Town of Brooke

For almost twenty-five years the Sarawak Reserve remained alongside the growing Township of Sydenham. In the spring of 1857, after the Jones Treaty was signed the land was surveyed and the town plot of Brooke was established. The Town plot of Brooke was named after Lord Burgh's kinsmen James Brooke in honour of his exploits in Sarawak, which is fitting as it lies in Sarawak Township (Marsh 1931). The Jones Treaty was a tumultuous exchange of land. The Nawash did not want to leave their land and were forced to move to Cape Croker once the treaty had been signed. Underhanded treatment of the Nawash by the local Indian Affairs Department included not allowing the Natives to build saw or grist mills, sell their timbers to white men; or even trade with their European neighbours. This likely caused monetary issues for the reserve, forcing them to sell their lands. There was much contestation at the auction for Sarawak lands. The Natives who attempted to purchase back their land legally were denied, and the neighbours who had good relationships with the Nawash did not wish to occupy or purchase the land upon seeing this (Marsh 1931, Davidson 1972, Croft 2011). Because of this the Town of Brooke was very slow to start.

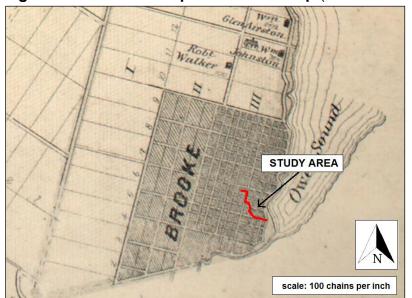


Figure 4: 1880 Township of Sarawak Map (Belden & Co)

+ 9 0 D g 0 0 3 600 0 33 5 96 0-95 7 95 35 9 7 -850 200 6 8-F 6 6 38 16 D . 0 66 0 1 XE SQ 00 00 94 1 0 -102 101 10, B 20 -3 \$ 100 W-0 8. 01. 21. --4 110 O 112 0 13 3 0 - 16 10 . 1X 11 6/1 3/--12 -- 2 4 -121 128 --126 3 25 126 . -19 128 28 16 128 -0 es/ 130 -32 3 -30 LEGEND 13 30 Study Area 137 Historic Lots Impacted (based on modern parcels) Indian Grave Yard Lots Adjacent to Study Area 4 143 -. 143 . -146 N -. W scale: 4 chains to 1 inch 82-31-128

Figure 5: Section of 1862 Map of the Town Plot of Brooke

3.2 Specific Lot History

The Land Registry Index, and Canadian/Ontario Census records were used for the specific lot histories, as the Collectors/Assessment Rolls for the Township of Sarawak were destroyed during fires (Davidson 1972:321-322; and personal correspondence, Archivist Karen Noble, Grey Roots Archives).

3.2.1 Study Area Lots

1. #2164 6th Ave West (Lot 109 East Cocks Street, 110 West Amelia Street, Part Lot 112 West Amelia Street and Part Lot 111 East Cocks Street, Town Plot of Brooke, Sarawak Township)

Lots 109 and 111 East Cocks Street, and Lots 110 and 112 West Amelia Street, Town Plot of Brooke, were purchased from Walter Wilson and his wife by Nicholas Horton for \$400.00 on June 3, 1881. Nicholas Horton and his wife mortgaged their properties under Walter Wilson for \$300.00 on the same day. On August 27, 1881, the Crown issued the patent for the lands to Walter Wilson for the four lots in their entirety (1 acre / 0.40 hectares). Walter Wilson then discharged the mortgage to Nicholas Horton on December 15, 1886. Three years later, on August 17, 1889, Nicholas Horton sold the land to Grev and Bruce Canning Company for \$700.00. The Grey Bruce Canning Company sold the land to William Hickey for \$500.00 on August 29, 1901. William Hickey then sold the land to the Owen Sound Brick Company for \$400.00 on September 22, 1906. The Owen Sound Brick Company remained the sole land owner for 15 years and sold their land to John Connolly on January 10, 1921 for \$400.00. On July 7, 1950, Austin M. Scully, William P. Telford Jr., Ex. of James Connolly, Ethel Spindle, Della Skaal, Edward Purcell and his wife. Maude Law and Mary Shell, Marguerite Q. Swarts, Beatrice Willoughby, Fred McNichol, Margaret Reynolds, Laura MacKinnon, Joseph P. Wilson, George Wilson and his wife, Gertrude Keating sold the land to Matilda Ornsby for \$1,800.00. Clarence Orsnby and William Rathwell (Admin. of Matilda Ornsby estate) later sold the land to Frank Schill for \$3,000.00 on June 21, 1961. On March 13, 1972, Frank placed his wife, Irene, on the title. Irene Schill then sold the land to Evert Johanson on December 4, 1990, for \$136,000.00.

2. #2133 6th Avenue West (Lot 111 Amelia Street East, Town Plot of Brooke, Sarawak Township)

Lots 113 and 115 East Amelia Street, Town Plot of Brooke, were sold to George Hindman by the Crown on March 28, 1887, for \$144.00. The lots (both 0.25 acres / 0.20 hectares in size) were sold that same year by George Hindman and his wife to Charles Barnhart for \$200.00 on December 24, 1888. Charles Barnhart and his wife then sold the land to Robert Gambion for \$1,500.00 on August 24, 1901. Robert Gambion and his wife sold the same land to William Mitchell on September 10, 1907, no price given. William Mitchell and his wife later sold the land to Frederick Leslie on August 31, 1911, again no price is given. Frederick Leslie and his wife granted the land to Annie Lewis on April 30, 1923 at no cost. Annie Lewis granted the land to Viola Lewis on September 4,

1937 at no charge as well. Viola Lewis then sold the land to Benjamin and Vera Herbison for \$300.00, on November 10, 1942. Benjamin and Vera granted the land to Margaret Gordon at no cost on July 17, 1947. On June 20, 1963, Victoria & Grey Trust Company, administers of Margaret Gordon's estate, sold the land to Kenneth and Hilda Smith for \$1,025.00. Kenneth and Hilda Smith deeded the land to Elsie McInnes at no cost on November 19, 1964. Elsie McInnes then deeded the land to Morris Howell for no charge on March 22, 1971. Morris Howell and his wife sold the land to Kenneth and Gwendolyn Morris for \$22,900.00 on August 4, 1972. Kenneth and Gwendolyn granted the land to Frederick and Helen Davenport for no charge on August 2, 1983. Frederick and Helen Davenport later granted the land to Bryan and Lisa McKay on June 1, 1984, no price listed. Bryan and Lisa McKay transferred the land to Frederic Standing for \$150,000.00 on October 26, 1990. Frederick Standing then transferred the land to Kenneth Gardner for \$97,500.00, on August 12, 1994. Lastly, Kenneth Gardner mortgaged the land with CIBC for \$89,943.75 on August 12, 1994.

3. #590 21st Street West (Part Lot 113 and 115 East Amelia Street, Town Plot of Brooke, Sarawak Township)

Lots 113 and 115 East Amelia Street, Town Plot of Brooke, were sold to George Hindman by the Crown on March 28, 1887 for \$144.00. The lots (0.50 acres / 0.20 hectares each) were sold that same year by George Hindman and his wife to Charles Barnhart for \$200.00 on December 24, 1888. Charles Barnhart and his wife then sold the same lands to Robert Gambion for \$1,500.00 on August 24, 1901. Robert Gambion and his wife split the land into two parts and sold both parts to John Worne on April 9, 1904, for \$100 (west half) and \$1,400 for the remaining lands. On September 19, 1904 John Worne and his wife sold the land to Lucy Kerr for \$1,435.00. A Mary J., executor of Lucy Kerr's estate sold the land on November 7, 1942, to Edward and Josephine Ard for \$2,000.00. Josephine Ard sold the land to Homer and Edith Hurlbut for \$5,000.00 on March 22, 1950. A discharge of mortgage was also entered between Josephine Ard and Homer and Edith Hurlbut; it was entered on June 9, 1956 for the west part (115 feet / 35.05 m). Homer and Edith Hurlbut later sold the west part to William and Margaret Eden for \$100.00, on May 28, 1956. William and Margaret Eden sold a smaller parcel of the west part (55 feet / 16.76 m) to Murray George Cook for \$100.00 on March 10, 1958. Homer and Edith Hurlbut sold their land to Kenneth and Gwendolyn Morris for \$8,500.00 on July 16, 1964. Murray Cook then sold his land to Glen and Lillian Woods for \$8.800.00 on January 18, 1965. Glen and Lillian Woods sold their land to George McLeod for \$14,000.00 on July 6, 1966. Kenneth and Gwendolyn sold their portion of the land to David and Victoria Burke as joint tenants on August 17, 1972, no price given. On September 7, 1976, David and Victoria Burke sold the land to Sandra Peters for \$2.00. Four years later on March 19, 1980, Sandra Peters deeded the land to William and Gwendolyn Summers. The following year William and Gwendolyn Summers deeded the lands to Leonard and Mari-An Edwards on May 20, 1981. Leonard and Mari-An Edwards sold their land to Paul and Bonnie Turcott on May 25, 1983. After this it is unclear how, but a Ruby Showell was in control of the lands by February 28, 1991, and later sold them to John and Dana Eyeselein for \$72,750.00. John and Dana Eyeselein mortgaged their land through CIBC on September 18, 1992 for \$58,000.00.



4. #585 21st Street West (Part Lot 117 East Amelia Street; Lots 119, 121 and 123 East Amelia Street, Town Plot of Brooke, Sarawak Township)

Lots 121 and 123 East Amelia Street have been discussed above. Lots 117 and 119 East Amelia Street, Town Plot of Brooke, were patented by the Crown to William Frederick Wolfe on January 23, 1878. The lots (0.50 acres / 0.20 hectares) were sold to Walter J. Hemming for \$400.00 each on May 11, 1898. Walter Hemming and his wife sold the lots to William Pedwell for \$600.00 on August 27, 1904. William and Annie Pedwell then transferred the land to Alfred Green in trust in 1917. Through his access to the land Alfred Green sold it to Henry Still for \$3,300.00 on August 7, 1917, on behalf of William and Annie Pedwell. A grant was issued on the lands between Wilfrid J. Abell, John S. Wilson, E. Henry Abell, Harold Abell, Henry B. Abell, Reginald Abell, and Ola Wilson, to give the land to Ola Wilson on April 18, 1939. Ola Wilson then sold the land to Robert and Rosina Menzies for \$2,150.00 on June 15, 1942. Robert and Rosina Menzies sold a 105 foot by 132 foot (32.00 m by 40.23 m) parcel of the land to Beverley Howey on May 14, 1964, for \$2,000.00. Five years later Robert and Rosina Menzies sold the remaining part of the lot (60 feet by 132 feet / 18.09 m by 40.23 m) to William and Margaret Davies for \$3,600.00 on May 28, 1969. Beverley Howey granted the land to include his wife Ruth Howey as owner of the northwest part of the lot on February 13, 1987. Beverley and Ruth Howey charged the land to Confederation Trust Company for \$111,500.00 on August 2, 1990, as well as to Neil McDonald for \$55,000.00, on March 30, 1992, and a third time to Norman McKibbon for \$28,000.00 on June 17, 1993. A fourth charge on the land was made on December 22, 1993 to Neil McDonald for \$86,500.00, as well as a transfer in land title to include Edward Stewart on the deed. On February 3, 1995, the charge to Confederation Trust Company was assigned to the Toronto Dominion Bank. The Toronto Dominion Bank transferred the land to Michael and Lisa Eyselein for \$114,000.00 on February 3, 1995, who then mortgaged the land through CIBC for \$65,000.00 on the same day.

5. #563 21st Street West (Part Lot 121 East Amelia Street and Lot 123 East Amelia Street, Town Plot of Brooke, Sarawak Township)

Lot 123 East Amelia Town Plot of Brooke was discussed above. Lot 121 East Amelia Street, Town Plot of Brooke, follows the same land sales as Lots 123, 125 and 127 East Amelia Street until 1970. On May 4, 1970, Harold Eldred and his wife sold the northwest part of the lot to Beverley Howey for \$800.00. On the same day Harold Eldred and his wife also sold the northeast part of the lot to William G. Davis and Margaret Davis for \$500.00. Beverley Howey granted the land to include his wife Ruth Howey as owner of the northwest part of the lot on February 13, 1987. Beverley and Ruth Howey charged the land to Confederation Trust Company for \$111,500.00 on August 2, 1990, as well as to Neil McDonald for \$55,000.00, on March 30, 1992, and a third time to Norman McKibbon for \$28,000.00 on June 17, 1993. A fourth charge on the land was made on December 22, 1993, to Neil McDonald for \$86,500.00 as well as a transfer in land title to include Edward Stewart on the deed. On February 3, 1995 the charge to Confederation Trust Company was assigned to the Toronto Dominion Bank. The Toronto



Dominion Bank transferred the land to Michael and Lisa Eyselein for \$114,000.00 on February 3, 1995, who then mortgaged the land through CIBC for \$65,000.00 on the same day.

6. #596 20th Street West (Part Lots 123, 125 and 127 East Amelia Street, Town Plot of Brooke, Sarawak Township)

According to the 'Abstract Land Index', William F. Wolfe was issued the patent by the Crown on July 23, 1878, for all three acres (1.21 hectares) of Lots 123, 125 and 127 and other lands, Town Plot of Brooke, no price given. William Wolfe was a dry goods merchant born in Germany and married to Mary Ann. On May 11, 1898 William Wolfe and his wife sold these lands to Walter J. Hemming for \$400. Walter Hemming and his wife sold the land to George W. Gurnett for \$500.00 on October 18, 1910. George Gurnett and his wife later granted the lots to John Mitchell for \$300.00 on August 11, 1914. John Mitchell and his wife granted the land to John Burke for \$280.00 on December 15, 1923. John Burke then granted the land to Joseph and Harold Eldred for \$400.00 on July 4, 1929. A quit claim was issued between Joseph Eldred and his wife to Harold Eldred for \$200.00 on December 5, 1929. Harold Eldred and his wife later deeded the northwest part of Lot 123, and the west part of Lot 121 to Beverly R. Howey on May 4, 1970, for \$800.00. Harold Eldred and his wife also deeded the northeast part of Lot 123, and the east part of Lot 121 to William G. Davis and his wife Margaret on May 4, 1970 as joint tenants, for \$500.00.

Harold Eldred and his wife deeded their portion of Lots 123, 125 and 127 to William and Shirley Kivell, as Part 2 of registered plan 16R-412 on May 1, 1974, for \$1.00. On February 13, 1987, Beverly Howey granted the northwest part of Lot 123 and other lands to herself and Ruth Howey as joint tenants, no price given. William and Shirley Kivell granted Part 2 of registered plan 16R-412 for Lots 123, 125 and 127 to James R. Comeau and his wife JoAnne as joint tenants on May 15, 1987, no price given. William and JoAnne Comeau then mortgaged Part 2 of registered plan 16R-412 and other lands to National Trust Co. for \$71,000.00 on October 30, 1987. Beverly and Ruth Howey charged the Confederation Trust Company \$111,500.00 for the northwest part of Lot 123 and other lands on August 2, 1990. Beverly and Ruth Howey charged Neil McDonald \$55,000.00 for the same lands on March 30, 1992. James and Marie Comeau charged the National Trust Co. \$40,000.00 for Part 2 of registered plan 16R-412 for Lots 123, 125 and 127 on September 25, 1992. Later, Beverly and Ruth Howey charged Norman McKibbon \$28,000.00 for the northwest part of Lot 123 and other lands on June 17, 1993.

Beverly and Ruth Howey then mortgaged their property on Lot 123 with themselves and Edward S. Howey for \$2.00 on December 22, 1993. Beverly, Ruth and Edward Howey later charged Neil S. McDonald \$86,500.00 for the same lands on December 22, 1993. The Confederation Trust Co. assigned the mortgage for the northwest part of Lot 123 and other lands to the Toronto Dominion Bank on February 3, 1995. The Toronto Dominion Bank then transferred the same property to Michael William and Eyselein L. J. Moore on February 3, 1995 for \$114,000.00. Michael William and Eyselein Moore then



charged the northwest part of the lot and other lands to CIBC Mortgage Corp. for \$65,000.00 on the same day.

7. #560 20th Street West (Part Lot 123 Amelia Street East; Lot 125 and 127 East Amelia Street; Part Lot 128 West Edward Street, Town Plot of Brooke, Sarawak Township)

Part Lot 123, and Lots 125 and 127 East Amelia Street, Town Plot of Brooke, will be discussed in this section, as Lot 128 West Edward Street was discussed above. Lots 123, 125 and 127 East Amelia Street were all purchased by William F. Wolfe from the Crown on July 23, 1878. The lands total 0.75 acres (0.30 hectares). William F. Wolfe and his wife sold all three lots to Walter Hemming for \$400.00 on May 11, 1898. Walter Hemming and his wife held the lands for over a decade before selling them all to George Gurnett for \$500.00, on October 18, 1910. On August 11, 1914, George Gurnett and his wife sold the lands to John Mitchell for \$300.00. John Mitchell sold the lands to John Burke for \$280.00, on December 15, 1923. John Burke held the land for six years before selling it to Joseph and Harold Eldred at the cost of \$400.00 on January 4, 1929. A quit claim was issued between Joseph Eldred and his wife to Harold Eldred for \$200.00 on December 5, 1929. Harold Eldred and his wife sold their land to William and Shirley Kivell as Part 3 of registered plan 16R-412 on May 1, 1974, no price given. William and Shirley Kivell granted the land of Part 3 16R-4112 to James and JoAnne Comeau on May 15, 1987. James and JoAnne Comeau mortgaged their property with National Trust Co. for \$71, 000.00 on October 30, 1987. On September 25, 1992 James and JoAnne charged National Trust Co. for an additional \$40,000.00.

8. #2020 5th Avenue West (Lot 126 West Edward Street, Town Plot of Brooke, Sarawak Township)

Lot 126 West Edward Street, Town Plot of Brooke, was given to William F. Wolfe by the Crown in its entirety (0.25 acres / 0.10 hectares) on January 23, 1878. William Wolfe and his wife sold the land to Walter Hemming on May 11, 1898, for \$400.00. Walter Hemming and his wife sold the land to George Gurnett for \$500.00 on October 18, 1910. Gurnett then split the lot into two parts, selling the south half (33 feet by 165 feet / 10.06 m by 50.29 m) to Percy Minard for \$175.00 on June 15, 1915, and the north half to Harry Peel for \$594.00 on April 16, 1916. On May 2, 1921, Harry Peel and his wife sold the north half of the lot to Percy Minard for \$340.00. Percy Minard later sold the land to Allan George for \$687.00 on November 20, 1923. A Tax Deed was issued on February 23, by the Mayor and Treasurer to the Corporation of the City of Owen Sound for \$7,852.00. After this the land lay stagnant for 12 years when it was sold by John and Olive Brittain to William Bowman. The Land was sold after William Bowman's death by his executors Emma and Anne Bowman to Robert and Carol St. Jacques for \$1,300.00 on April 15, 1964. Robert and Carol St. Jacques deeded the land to Grev Bruce Development Limited for \$1,500.00 on April 10, 1967. On January 9, 1968, Grey Bruce Development Limited sold the land to Stark-Janecek Limited for \$2,000.00 who held the land until 1971. On May 1, 1971, Stark-Janecek sold the land to Richard and Ethel Brown for \$200.00 as joint tenants. Richard and Ethel deeded the land to Peter and



Charlotte Sorbara for \$2.00 on May 1, 1978. Two years later, on March 26, 1980, Charlotte Sorbara sold the land to John and Connie Matheson for \$10.00. John and Connie Matheson changed the land title to be listed under Connie Matheson on December 21, 1984, and on June 3, 1985 Connie Matheson sold the land to Douglas and Nancy Bishop, no price was given.

9. #2006 5th Ave West (Part Lot 128 West Edward Street, Town Plot of Brooke, Sarawak Township)

Lot 128 East Edward Street, Town Plot of Brooke belonged to William Wolfe who was issued the patent by the Crown on January 23, 1878, for the entirety of the lot (0.25 acres / 0.10 hectares). William F. Wolfe was a dry goods merchant born in Germany and married a Mary Ann. He and his wife held the Lot until May 11, 1898 when they sold it to Walter J. Hemming for \$400.00. Walter Hemming and his wife sold off the east part of the lot (99 feet / 30.17 m) to Henry Miller on July 19, 1909 for \$52.00. On October 18, 1910. Walter Heming and his wife sold the remaining land to George Gurnett for \$500.00. Henry Miller sold his east 99 feet (30.17 m) to Stanley Raven on December 26, 1911, for \$385.00. On August 11, 1914 George Gurnett and his wife further divided the lot by granting 66 feet (20.12 m) by 66 feet (20.12 m) to John Mitchell for \$300.00. Stanley Raven sold his part of the land for \$1,450.00 to Bessie Lusltenburg on March 19, 1920. A John Burke bought John Mitchell's portion of the land for \$280.00 on December 15, 1923. John Burke held that land for six years before selling it to Joseph and Harold Eldred at the cost of \$400.00 on January 4, 1929. A quit claim was issued between Joseph Eldred and his wife to Harold Eldred for \$200.00 on December 5. 1929. On November 24, 1964, Annie McMann and Walter Waltenburg (executors of the estate of Elizabeth Breen) sold the land to Melville and Lorraine Waltenburg for \$5,500.00. It is unclear through the Land Abstracts at what point Elizabeth Breen became a land holder to this particular parcel. On April 13, 1970 Adam Publske (Admin. of Lorraine Waltenburg) with Emma Carleton, William Tovelofeski and Edith Klagis of the public institute deeded the land to Melbourne and Dorothy Bauman. Harold Eldred and his wife sold their land to William and Shirley Kivell as Part 3 of registered plan 16R-412 on May 1, 1974, no price given. William and Shirley Kivell granted the land of Part 3 16R-412 to James and JoAnne Comeau on May 15, 1987. James and JoAnne Comeau mortgaged their property with National Trust Co. for \$71,000.00 on October 30, 1987. On September 25, 1992, James and JoAnne charged National Trust Co. for an additional \$40,000.00.

10. #550 19th Street West (Lots 129, 131, 133, 135, 137, 139 East Amelia Street and Lots 130, 132, 134, 136, 138, 140 West Edward Street, Town Plot of Brooke, Sarawak Township)

According to the 'Abstract Land Index' Lots 129, 131, 133,135, 137, and 139 East Amelia Street and Lots 130, 132, 134, 136, 138 and 140 West Edward Street, Town Plot of Brooke, were sold as a single property (1.75 acres / 0.71 hectares). The Crown patent was issued to William J. Graham on July 7, 1888. In the 1881 census records William J. Graham is listed as an Inland Revenue Collector, married to Louisa M.



Graham and father to a Louisa, William, Henrietta and Harold Graham. It is unclear on the historical maps whether or not a structure was built by William J. Graham, however he was the sole owner until at least 1932.

In 1932, the property was willed to his daughter Henrietta S. Blade. She retained the lands until 1946, when she granted them to her brother Harold F. Graham. Harold Graham sold the land to Marricou Development in 1976 and since 1986 the lands have been under the ownership of Regency Towers Owen Sound. Although the trustees of the land have changed, Regency Towers remains the owner with Trustees coming and going since 1976.

11. #1914 4th Avenue West (Lots 135, 137, 139 East Edward Street and Lots 136, 138, 140 West Market Street, Town Plot of Brooke, Sarawak Township)

According to the 'Abstract Land Index', Lots 135, 137, and 139 East Edward Street and Lots 136, 138, and 140 West Market Street, Town Plot of Brooke (1.5 acres / 0.61 hectares) were purchased, as a single block, by William J. Graham from the Crown on July 6, 1888, no price given. He remained the sole owner until March 26, 1932 when he and his wife sold the 1.5 acre (0.61 hectare) property to Maria L. Wiselands. From 1932 to 1945 Maria L. Wiselands owned the land. On February 24, 1945 she sold the property to Jean S. Walpole for \$3,300.00. On March 6, 1952, Ms. Walpole granted the property to Norman R. Walpole and his wife. They remained the sole owners until the May 1966 when they sold it to Morley D.B. Atton for \$12,200.00. On October 11, 1990 it was willed to Dorothy M. Atton, who was also the executor of his will.

12. #1909 4th Avenue West (Part Lot 139 East Market Street, Town Plot of Brooke, Sarawak Township)

The patent for Part Lot 139 East Market Street, Town Plot of Brooke, was issued to James Douglas (0.25 acres / 0.10 hectares) on May 21, 1886. According to the 1881 Census James Douglas was a tailor born in Scotland, married to Ellen Douglas and father to James, John, Ellen, Robert, Bella, Anne, Lizzie and William. He held the land until August 27, 1886 when he sold it to Alexander Brass for \$440.00. Alexander Brass retained the property until his passing.

On January 17, 1945 the Mayor and Treasurer of the Corporation of the City of Owen Sound purchased the property for \$1,104.63, due to unpaid taxes. A second Tax Deed was issued June 10, 1946 for the same amount. It would seem that the land remained unoccupied until March 19, 1973, when a Deed was issued by Central M. Housing Corporation to Franklin G. Graham and Frances Graham who paid \$4,000.00 for the property. On March 28, 1973, the Grahams deeded the land to The Director, Veteran's Land Act for \$2.00.

The land was severed on October 8, 1975 when the Minister of Revenue passed a certificate to the estate of Franklin G. Graham for the north part of the lot, some 22 feet (6.71 meters) for a right-of-way.



13. #280 19th Street (Lots 130, 132, 134, 136, 138 and 140 West Sound Street, Town Plot of Brooke, Sarawak Township)

The Crown patent for Lots 130, 132, 134, and 136, West Sound Street, Town Plot of Brooke, were issued to William F. Wolfe on September 18, 1885. According to Census records William F. Wolfe was a dry goods merchant born in Germany and married to Mary Ann. He and his wife owned the property until July 3, 1901 when they sold each lot to William Graham for \$1,475.00. William Graham sold the land later that same year to the Owen Sound Planning Company Limited for \$12,750.00.

On June 9, 1919 the Owen Sound Planning Company Ltd. sold the lands to the Dominion Oil Company. They retained ownership of the lands until October 15, 1927 when they declared bankruptcy. On December 10th of that same year the land was listed for sale under "Agent for Sale" Norman L. Martin (Trustee for Dominion Oil Ltd.). It was sold to Walter G. Scott in the amount of \$37,000.00. On November 21, 1928 a grant was issued by Norman L. Martin (Trustee of Dominion Oil) to the Dominion Oils Company Ltd. Inc. for part 1.75 acres (0.40 hectares) tax asset copy \$2,000 and rightof-ways for Lots 134, 136 and Part Lot 130 (approved by the inspector). The Dominion Oils Company Ltd. Inc. owned the lots until April 1, 1959 when Reliance Petroleum Limited sold the land to Supertest Petroleum Corporation Limited. Supertest Petroleum owned the land until February 13, 1968 when John F. McArthur purchased them for \$3,100.00 per lot. John F. McArthur sold the lots to Noxa Investments Limited on December 12, 1975. In September of 1984 Noxa Investments Ltd. mortgaged the property through the Toronto Dominion Bank for \$200,000.00. The last transaction within the Land Registry Index was for a grant issued on April 29, 1985 by John F. McArthur to Noxa Investments Ltd., for part and other lands.

The Crown patent for Lots 138 and 140 West Sound Street, Town of Brooke was granted to James Douglas on May 21, 1886. Douglas then sold the lots to Alexander Brass on August 27, 1886, no price given. Alexander Brass retained the lots until his passing.

On January 17, 1945, the Mayor and Treasurer of the Corporation of the City of Owen Sound purchased the property for \$1,104.63, due to unpaid taxes. A second Tax Deed was issued on June 10, 1946 for the same amount. On February 28, 1949 the Corporation of the City of Owen Sound sold the land to McManus Petroleum Limited for \$200.00. That same day McManus Petroleum Ltd. granted all the lands to Reliance Petroleum Limited. Reliance Petroleum Ltd. held the lands for ten years and on April 1, 1959 sold them to Supertest Petroleum. Supertest Petroleum owned the land until February 13, 1968 when John F. McArthur purchased them for \$3,100.00 per lot. John F. McArthur later sold the lands to Noxa Investments Limited on December 12, 1975. On the September 20, 1984 Noxa Investments Ltd. mortgaged the property through the Toronto Dominion Bank for \$200,000 (part and other lands). The last transaction was a grant issued on April 29, 1985 from John F. McArthur to Noxa Investments Ltd. for part and other lands.



3.2.2 Adjacent Lots

14. #2195 8th Avenue West (Lots 106, 108, 110, 112, 114, 116 West Cocks Street, and Lots 105, 107, 109, 111, 113, 115 East Albert Street, Town Plot of Brooke, Sarawak Township)

According to the Land Abstracts, Walter Wilson and his wife sold these lands to Nicholas P. Horton for \$400.00, on June 3, 1881. On the same day Nicholas P. Horton and his wife mortgaged the same lands to Walter Wilson for \$300.00. Walter Wilson was then issued the patent by the Crown on August 29, 1878, for all of the lots, no price given. On December 15, 1886, Bertha Wilson mortgaged these lots to Nicholas P. Horton, no price given. Nicholas P. Horton and his wife later sold the lands to James A. Hicks for \$400.00 on July 25, 1902. All of Lot 105 Albert Street (and other lands) was then deeded by Mary C. Riddell and John S. Mitchell Brownlee (Executors of the estate of [illegible]...Riddell) to Ernest Breen for \$600.00 on March 14, 1924. Following this transaction, all of the lots were granted to Harry F. Watson, by James A. Hicks and his wife, for \$2,500.00.

On March 31, 1948, Lot 105 Albert Street (and other lands) was granted by Gordon Breen, Administer of Ernest Breen, Willison Breen, Gordon Breen and Stanley Breen, to Margaret R. Breen for \$1.00 and premiums with the Treasurers' consent. A quit claim was applied to these lands by Annie M. Cole (executor of James Cole and Margaret M. Breen), to Margaret M. Breen on August 17, 1948 for \$1.00. On October 29, 1951, Harry F. Watson then granted all of the lands for Lots 106, 108, 110, 112, 114, and 116 Cocks Street West, and Lots 105, 107, 109, 111, 113, and 115 Albert Street East, to The Director of The Veterans' Land Act for \$3,500.00. Finally, on November 25, 1981, all of these lands were deeded to Percy A. Straight for \$1.00 by The Director of The Veterans' Land Act.

15. #2130 6th Avenue West (Part Lots 111 and 113 East Cocks Street, and Part Lots 112 and 114 West Amelia Street, Town Plot of Brooke, Sarawak Township)

Part Lots 111 and 113 East Cocks Street, and Part Lots 112 and 114 West Amelia Street, Town Plot of Brooke, were purchased from Walter Wilson and his wife by Nicholas P. Horton for \$400.00 on June 3, 1881. Nicholas Horton and his wife mortgaged these properties under Walter Wilson for \$300.00 on the same day. On August 27, 1881, the Crown issued the patent for the lands to Walter Wilson for the four lots. Bertha Wilson then discharged the mortgage for the lands to Nicholas Horton on December 15, 1886. Three years later Nicholas Horton sold the land to the Grey Bruce Canning Company for \$700.00, on August 17, 1889. The Grey Bruce Canning Company then sold the land to William Hickey for \$500.00 on August 29, 1901. William Hickey then sold the land to the Owen Sound Brick Company for \$400.00 on September 22, 1906. The Owen Sound Brick Company remained the sole land owner for 15 years and sold their land to John Connolly on January 10, 1921 for \$400.00. On July 7, 1950, Austin M. Scully, William P. Telford Jr., Executors of James Connolly, Ethel Spindle, Della Skaal, Edward Purcell and his wife. Maude Law and Mary Shell, Marguerite Q.



Swarts, Beatrice Willoughby, Fred McNichol, Margaret Reynolds, Laura MacKinnon, Joseph P. Wilson, George Wilson and his wife, Gertrude Keating sold the land to Matilda Ornsby for \$1,800.00.

Clarence Orsnby and William Rathwell (Admin. of Matilda Ornsby estate) later sold the north parts of Lots 114 West Amelia Street and 113 East Cocks Street, as well as the south portions of 112 West Amelia Street and 111 East Cocks Street and other lands, to Frank Schill for \$3,000.00, on June 21, 1961. These lands were then deeded by Frank Schill and his wife to Douglas A. Kellough and Ruth J. Kellough for \$4,600.00 as joint tenants on October 8, 1970.

16. #2110 6th Avenue West (Part Lot 113 and Lot 115 East Cocks Street and Part Lot 114 and Lot 116 West Amelia Street, Town Plot of Brooke, Sarawak Township)

Part Lot 113 and Lot 115 East Cocks Street and Part Lot 114 and Lot 116 West Amelia Street, Town Plot of Brooke, were purchased from Walter Wilson and his wife by Nicholas P. Horton for \$400.00 on June 3, 1881. Nicholas Horton and his wife mortgaged these properties under Walter Wilson for \$300.00 on the same day. On August 27, 1881, the Crown issued the patent for the lands to Walter Wilson for the four lots. Bertha Wilson then discharged the mortgage for the lands to Nicholas Horton on December 15, 1886. Three years later Nicholas Horton sold the land to the Grey Bruce Canning Company for \$700.00, on August 17, 1889. Lot 113, 115 and 114 were sold by The Grey Bruce Canning Company to William Hickey for \$500.00 on August 29, 1901. He held onto Lot 116 West Amelia Street though until January 5, 1920 when he sold it to John Connolly, no price given. Hickey sold the other three lots to the Owen Sound Brick Company for \$400.00 on September 22, 1906. The Owen Sound Brick Company remained the sole land owner for 15 years before selling their land to John Connolly on January 10, 1921 for \$400.00. On July 7, 1950, Austin M. Scully, William P. Telford Jr., Executors of James Connolly, Ethel Spindle, Della Skaal, Edward Purcell and his wife. Maude Law and Mary Shell, Marguerite Q. Swarts, Beatrice Willoughby, Fred McNichol, Margaret Reynolds, Laura MacKinnon, Joseph P. Wilson, George Wilson and his wife, Gertrude Keating sold all four lots and 'other lands' to Matilda Ornsby for \$1,800.00. On June 28 1956, Matilda Ornsby sold the south part of Lots 113 and 114, as well as Lots 115 and 116 to James and Doreen White. On March 29, 1957 the Whites sold this parcel of lots to Charles and Shirley Thornley.

17. #2163 6th Avenue West (Lot 109 East Amelia Street, Town Plot of Brooke, Sarawak Township)

The Crown patent for Lot 109 East Amelia Street, Town Plot of Brooke, was issued to George Hindman on March 28, 1857. On December 24, 1888 he sold the lot and 'other lands' to Charles E. Barnhart for \$200.00. Charles Barnhart retained the property until August 24, 1901 when he sold it to Robert S. Campion for \$1,500.00. Campion then sold the lots to John Throne in 1905. John Throne and his wife sold the properties to John C. Vance in April of 1909. John C. Vance died sometime prior to December 11, 1924, though his property did not get transferred until 1927, when Isabella Cameron



received the lot. In 1934, Isabella Cameron sold the lot to John M. Noble for \$500.00. John Nobel retained the lot until 1942, when Mary E. Lee paid \$1,200.00 for the property. On June 25, 1951, Mary E. Lee granted the property to Charles and Bertha Leonard, though a 'banker's lien' which was put on the property as it was not paid in full. The Leonard's then proceeded to take a mortgage out on the property from Mary E. Lee. There seems to have been some issues surrounding this sale as the property appears to have been returned to the estate of Mary E. Lee after the Supreme Court of Ontario got involved with the property in 1954. It was not until 1978 that the executors of Mary E. Lee's will were able to transfer the property. The property was deeded to Elsie L. McInnis for \$2.00. On July 8, 1980, Elsie L. McInnis sold the properties to Robert and Victoria Boeckner (as joint tenants) for \$23,000.00. Two years later they transferred the deed to Mary MacPherson and Kevin Schawrtz for \$2.00. Kevin Schwartz granted the property back to Mary MacPherson on January 4, 1984. On May 2, 1986, Mary MacPherson granted the property to Leslie Wood and Joy Doy, who the following year granted it to Michael and Ruth Nash (as joint tenants). They owned the property for the following ten years before selling it to Sandra Boyd and Norris Chegahno for \$105,000.00. In 2003, Chegahno and Boyd took out a mortgage on the property for \$87,138.00. The following year they took out another mortgage on the property with Citifinancial Canada Inc.

18. #2040 5th Avenue West (Lot 124 West Edward Street, Town Plot of Brooke, Sarawak Township)

Lot 124 West Edward Street, Town Plot of Brooke, was part of a parcel of lots that were patented by the Crown to William Frederick Wolfe on January 23, 1878. William F. Wolfe sold the lots (among others) to Walter J. Hemming for \$400.00 on May 11, 1898. Walter Hemming and his wife sold the lots to George W. Gurnett for \$500.00 in October of 1910. Six years later in April of 1916, George Gurnett and his wife sold the property to Harry Peel for a profit of \$94.00. On May 2, 1921, Harry Peel sold the property to Percy Minard who two years later sold the property to Allan George. A tax deed was issued on February 23, 1940 by the Corporation of the City of Owen Sound. The City only held the property for six years, when they sold it to John and Olive Brittain on September 18, 1946. The Brittain's sold the lot to Albert and Victoria Hurst for \$5,700.00, on May 25, 1954. Four years later the Hurst's sold the lot to Thomas and Amelia Grundy. In May of 1961, after Thomas Grundy's death, Amelia sold the property to Hans and Marga Woelein.

19. #2090 6th Avenue West (Part Lots 117, 119 East Cocks Street and Part Lots 118, 120 and 122 West Amelia Street, Town Plot of Brooke, Sarawak Township)

The Crown patent for Lots 117 and 119 East Cocks Street, Town Plot of Brooke, was issued to Richard Staples on February 25, 1889, along with Lots 118, 120 and 122 West Amelia Street. These lots were part of a larger parcel of land issued to Richard Staples that included Lots 124 and 126, West Amelia Street, among others.



Lots 117 and 119 appear to have been purchased by Richard Staple prior to being sold on December 1, 1885 (# 928) to Andrew White. White then sold the lots back to Richard Staples on March 13, 1889. Richard and his wife sold the parcel of lots in July 1892 to Thomas W. Hamlin for \$3,000.00. On December 19, 1902, Thomas Hamlin sold Lots 117, 118, 120, 122, and the north part of Lot 119, to Thomas J. Ross for \$4,000.00. On December 28, 1925, Thomas Ross sold the lots to James L. Burrows. Edith M. Burrows then deeded these five lots to herself and Marjorie Burrows on September 4, 1964, as joint tenants. After the death of Edith Burrows (sometime prior to 1968) the property came under the sole ownership of Marjorie A. Madill (formerly Burrows). The four lots underwent subdivision under Registered Plans 16R-490 (Lots 117 and 119) and 16R-590 (Lots 120 and 122) sometime during the 1970s, while Lot 118 remained in its entirety. Marjorie sold Part 1 of 16R-490 to the City of Owen Sound on October 1, 1974. Part of 2 16R-490 she transferred over to herself and Thomas Madill (as joint tenants) on August 28, 1979. That same day she transferred the western portion of Lots 120 and 122 West Amelia Street (Less Pt. 2 16R-590) to herself and Thomas. She also deeded Lot 118 to herself and Thomas. On August 8, 2000, they sold Part 2 of 16R-490 as well as Lot 120 and Lot 122 less Parts 1 and 2 of 16R-590, and Lot 118 to Velma and Ronald Smart for \$54,666.67. The following year on August 13, 2001, Velma and Ronald Smart took out a mortgage on the property for \$50,000.00.

20. #2064 6th Avenue West (Part Lot 120 and Part Lot 122 West Amelia Street; RP 16R590 Part 2, Town Plot of Brooke, Sarawak Township)

The Crown patent to Lots 120 and 122 West Amelia Street, Town Plot of Brooke, was issued to Richard Staples on February 26, 1889. The lots were part of a larger parcel of lots issued to Richard Staples that included Lots 118, 124 and 126 West Amelia Street. among others. Richard and his wife sold the parcel of lots in July 1892 to Thomas W. Hamlin for \$3,000.00. On December 19, 1902, Thomas Hamlin sold the lots to Thomas J. Ross for \$4000.00. On December 28, 1925, Thomas Ross sold the lots to James L. Burrows. Edith M. Burrows later deeded the two lots to herself and Marjorie Burrows on September 4, 1964, as joint tenants. After the death of Edith Burrows (sometime prior to 1968) the property came under the sole ownership of Marjorie A. Madill (formerly Burrows). By 1975, the two lots had been subdivided into three parts. Parts 1 and 2 were part of RP 16R-590, while the third part of the parcel included the western half of the two lots which became part of #2090 6th Avenue West. Marjorie Madill (formerly Burrows) sold Part 2 to Isabel McKinnon, who later transferred the property to Gary and Bonnie Buck on December 4, 1975, for \$2.00. The Bucks deeded the property to Douglas and Betty Lou Carter for \$2.00 on September 19, 1978. Three years later on May 19, 1981, the Carters transferred the property to Burton and Laura Fisher for \$2.00. In 1988, the Fishers took out a mortgage from the National Trust Co. on the two lots for \$31,000.00.



21. #2044 6th Avenue West (Southwest Part Lot 122 West Amelia Street; RP 16R590 Part 1, Town Plot of Brooke, Sarawak Township)

The Crown patent to Lot 122 West Amelia Street, Town Plot of Brooke, was issued to Richard Staples on February 26, 1889. The lot was part of a larger parcel of lands issued to Richard Staples that included Lots 118, 120, 124, and 126 West Amelia Street among others. Richard and his wife sold the parcel of lots in July 1892 to Thomas W. Hamlin for \$3,000.00. On December 19, 1902, Thomas Hamlin sold the same lots to Thomas J. Ross for \$4,000.00. On December 28, 1925, Thomas Ross then sold the lots to James L. Burrows. Edith M. Burrows then deeded the lots (including Lot 120) to herself and Marjorie Burrows on September 4, 1964, as joint tenants. After the death of Edith Burrows (sometime prior to 1968) the property came under the sole ownership of Marjorie A. Madill (formerly Burrows). By 1975, the two lots had been subdivided into three parts. Parts 1 and 2 were part of RP 16R-590, while the third part of the parcel included the western half of the two lots which became part of #2090 6th Avenue West. Part 1 which became #2044 6th Avenue west was sold by Marjorie Madill to James McKinnon. In 1976, James McKinnon transferred the deed for Part 1 to Richard and Margaret Cole (as joint tenants) for \$2.00. They retained the property until 1992 when on October 1st the property was transferred to the sole ownership of Margaret Cole. The following June, in 1993, Margaret Cole sold the property to Jacques Rosaire and Joseph Mallette for \$84,800.00. Three years later, on July 31, 1996, they sold the property to Elgin and Enid Cameron for \$85,000.00. The estate of Elgin Cameron sold the property to John Cameron on August 24, 2005, who took out a mortgage on the property for \$118,000.00, from the Bank of Nova Scotia.

22. #2024 6th Avenue West (North Part Lot 124 West Amelia Street, Town Plot of Brooke, Sarawak Township)

The Crown patent to Lot 124 West Amelia Street, Town Plot of Brooke, was issued to Richard Staples on February 26, 1889. The lot was part of a larger parcel of lands issued to Richard Staples that included Lots 118, 120, 124 and 126 West Amelia Street among others. Richard and his wife sold the parcel of lots in July 1892 to Thomas W. Hamlin for \$3,000.00. On December 19, 1902, Thomas Hamlin sold the lots to Thomas J. Ross for \$4,000.00. On December 28, 1925, Thomas Ross sold the same lots to James L. Burrows. Edith M. Burrows later granted Lot 126 to James A. White for \$65.00 on August 13, 1946. She then sold Lot 124 to James and Edna Burrows in 1949. Lot 124 remained whole until the 1960s when the lot was subdivided into two portions. James and Edna Burrows sold the north half of the lot to Thomas and Ruth Taylor for \$900.00. The Taylor's further subdivided the north part of the lot, and in July of 1970 sold the northeast portion (33 x 100 feet / 10.06 x 30.48 m) to George and Lilian Jefferson for \$3,500.00. The Jefferson's sold the northeast portion of the lots to Nancy L. Abela on July 7, 1971, for \$4,250.00. In 1972, Nancy Abela sold the northeast portion of the lot to Michael B. Brown and Marion Brown for \$10,500.00. Two years later, on January 18, 1974, the parcel was deeded to Alfred J. Moyer for \$2.00. In 1991, the estate of Alfred James Moyer transferred the lot to James Alfred Moyer for \$1.00. He then sold the property to Peter Bell in 1995 for \$12,000.00. On June 30, 2003, Peter



Bell transferred ownership of the northeast portion of Lot 124 to the Grey-Bruce Habitat for Humanity for \$1.00.

23. #2020 6th Avenue West (South Part Lot 124 and Part Lot 126 West Amelia Street RP 16R3491 Part 2 & 3, Town Plot of Brooke, Sarawak Township)

The Crown patents to Lots 124 and 126 West Amelia Street, Town Plot of Brooke, were issued to Richard Staples on February 26, 1889. The lots were part of a larger parcel of land issued to Richard Staples that included Lots 118, 120, and 122 West Amelia Street among others. Richard and his wife later sold the parcel of lots in July 1892 to Thomas W. Hamlin for \$3,000.00. On December 19, 1902, Thomas Hamlin sold the lots to Thomas J. Ross for \$4,000.00. On December 28, 1925, Thomas Ross sold the lots to James L. Burrows. Edith M. Burrows then granted Lot 126 to James A. White for \$65.00 on August 13, 1946. She then sold Lot 124 to James and Edna Burrows in 1949. Lot 124 remained whole until the 1960s when the lot was divided into four portions. The southeast portion of the lot, which is part of the present #2020 6th Avenue West parcel, was sold by Edna Burrows to Velma Smart and James E. Burrows on October 2, 1969. The east half of Lot 124 (33 x 100 feet / 10.06 x 30.48 m) was deeded to Smart Glass Services as part of a lien clearance on July 14, 1975, after the death of James E. Burrows. They sold the lands to Reginald Moore on June 29, 1976. Reginald Moore then transferred the deed to Margaret M. O'Leary for \$2.00 on November 12, 1980. It appears that two mortgages were taken out by Margaret, the first to Reginald Moore and the second to Beavery Sally Credit Union Ltd. By December 1982, the property returned to Reginal Moore, likely due to an unpaid mortgage. In July of 1987, Moore granted the property to Catherin Lois Morrison, who then granted it to Mary Joan Garvie that December.

Lot 126 followed a different trajectory of sales than Lot 124 after Edith Burrows sold it in 1946 to James A. White. In June 1965, James A. White and his wife sold the lot to William J. Mitchel for \$90.00. Thomas J. Mitchell, the administrator of William J. Mitchell's will, granted the property to Sarah Anne Robins for \$2,100.00 plus premiums in 1955. On May 8, 1957, Sarah Robbins granted the property to William and Eveline Gray for \$2,000.00. In 1965, the Gray's sold the property to Duke and Florence Mills. They held onto the property for the next twenty years before selling in to Vernon and Donna Ferguson on November 25, 1985. Two years later, the Ferguson's sold the property to Mary and Ervin Garvie.

After the Garvie's purchased both sections of what would become #2020 6th Avenue West not long before Registered Plan 16-3491 was issued. These two lots were split into three parts. Part 1 became #2016 6th Avenue West, while Parts 2 and 3 became #2020 6th Avenue West. Parts 2 and 3 were later sold by Mary Joan Garvie to Michael Charles Nash on August 28, 1989 for \$38,000.00. Nash then transferred the property to Grant and Patricia Olmstead for \$110,000.00 in November of 1989. On September 29, 1995, the Olmsted's sold Parts 2 and 3 to Thomas Hill and Tammy McNabb for \$88,000.00. Hill and McNabb took out a mortgage on the property that same day. Three years later in 1998, Thomas Hill transferred the property to Tammy McNabb (nee Hill)



under sole ownership. She then sold the property to Roger and Shirley McNabb for \$78,000.00, on May 18, 2001.

24. #2016 6th Avenue West (Part Lot 126 West Amelia Street RP 16R3491 Part 1, Town Plot of Brooke, Sarawak Township)

The Crown patent to Lot 126 West Amelia Street, Town Plot of Brooke, was issued to Richard Staples on February 26, 1889. The lot was part of a larger parcel of lands issued to Richard Staples that included Lots 118, 120, 122 and 124 West Amelia Street among others. Richard and his wife sold the parcel of lots in July 1892 to Thomas W. Hamlin for \$3,000.00. On December 19, 1902, Thomas Hamlin sold the same lots to Thomas Ross for \$4,000.00. On December 28, 1925, Thomas Ross sold the lots to James L. Burrows. Edith M. Burrows later granted the lots to James A. White for \$65.00 on August 13, 1946. In June of the following year, James A. White and his wife sold the lot to William J. Mitchel for \$90.00. Thomas J. Mitchell, the administrator of William J. Mitchell's will, granted the property to Sarah Anne Robins for \$2,100.00 plus premiums in 1955. On May 8, 1957, Sarah Robbins granted the property to William and Eveline Gray for \$2,000.00. In 1965, the Gray's sold the property to Duke and Florence Mills, who held the property for the next twenty years before selling it to Vernon and Donna Ferguson on November 25, 1985. Two years later the Ferguson's sold the property to Mary and Ervin Garvie. On August 22, 1988, a Registered Plan was issued (16R-3491). Mary and Ervin Garvie retained Part 1 under Plan 16R-3491 until Feb 1, 1993. They then sold it to Bradley D. Brown and Krista S. Kraemer for \$63,000.00. Krista and Bradley Brown then transferred Part 1 to Eric and Marlene Henry in December of 2002 for \$56,000.00. That same year the Henry's took out a mortgage with the Royal Bank of Canada for \$20,728.00.

25. #1895 5th Avenue West (Part Lot 141 East Edward Street) (Vacant lot on the corner of 5th Avenue West and 19th Street West, Town Plot of Brooke, Sarawak Township)

The Crown patent for Lot 141 (and three other lots within the Study Area), Town Plot of Brooke, was issued to Robert Crawford on July 21, 1885. Robert Crawford sold the parcel of lots to James C. Stephens in August of 1885 (#647). Stephens then sold this parcel in November of 1985 to Frances M. Robinson. On August 25, 1886, Frances and William Robinson sold Lot 141 and other lands to George F. Plain for \$500.00. He had taken out a mortgage on the property two years prior (in 1884). In 1892, the property returned to William Robinson in an "R of E of R". In 1893, William Robinson sold this lot and "other lands" to the Bank of Hamilton. The following year the bank sold the property to Jacob D. Speers. On July 29, 1894, Jacob D. Speers and his wife sold the parcel of lots to Alice J. Hemming for \$1,050.00. These lands remained in her possession until the death of her husband sometime prior to 1917. After the death of her husband Alice deeded the lots to Jean A. Wilcox for \$3,650.00, in March of 1917. Jean A. Wilcox then granted the lands to Thomas Levine on February 17, 1921. Thomas and his wife later sold the property to Samuel Marshall in 1925 for \$7,000.00. Samuel Marshall and his wife then granted the property to Jess, Annie and Lillie Witherspoon (as joint tenants) in



1932. In 1959, Lillie Witherspoon sold the west 120 feet (36.58 m) of Lot 142 East Market Street and part of Lot 141 to Keith and Joyce Galbraith. Two orders were filed by the County Court of the County of Grey against the estate of Lillie J. Witherspoon in 1970 for "all and other lands". In 1970, the remaining portion of Lot 141 and 'other lands' were deeded to Lloyd Brannick from the estate of Lillie Witherspoon for \$10.00. Lloyd and his wife sold the lands to the Director of the Veterans Land Act for \$240.00 in August of 1971. The portion of Lot 141 East Edward Street seems to have been split from the adjacent lots at this time into its own parcel (Reference Plan 16R-1443). The east half of the lot became part of parcel that contained the original Lots of 140 and 142 West Market Street, while the south half of the lot became its own parcel. Part 1 (16R-1443), was sold by the Smith's to Harvey E. McCurdy in May 1985. In 1994, Harvey E. McCurdy sold Parts 1, 2, and 3 to Gordon and Patricia Breen (as joint tenants).

26. #1880 4th Avenue West (East Part Lot 141 and 143 East Edward Street and Lot 142 and Part Lot 144 West Market Street, Town Plot of Brooke, Sarawak Township)

The Crown patent for Lots 141 and 143 East Edward Street and Lots 140 and 142 West Market Street, Town Plot of Brooke, were issued to Robert Crawford on July 21, 1885. Between August 1885 and 1886, Crawford and his wife sold the lots to James C. Stephens. Which had been sold by Stephens to Frances M. Robinson in November of 1885. Frances and William Robinson then sold the lots to George F. Pain for \$500.00. George F. Pain took out a number of different mortgages, to different mortgagees over the next three years. In 1982, an "R of E of R" was issued between George F. Pain and William Robinson, and Robinson regained ownership of the properties. In 1893, William Robinson sold these lots to The Bank of Hamilton. The following year the bank sold the property to Jacob D. Speers. On July 29, 1894, Jacob D. Speers and his wife sold the parcel of lots to Alice J. Hemming for \$1,050.00. Alice and her husband Walter then severed and sold the south "4 feet" (1.22 m) of Lot 144 to Richard J. Layton in 1906. The land remained within her possession until the death of her husband when she sold the remaining property to Jean A. Wilcox for \$3,650.00 in March of 1917. Jean A. Wilcox later granted the lands to Thomas Levine on February 17, 1921. Thomas and his wife sold the property to Samuel Marshall in 1925 for \$7,000.00. Samuel Marshall and his wife then granted the property to Jess, Annie and Lillie Witherspoon (as joint tenants) in 1932. The western portions of both Lots 141 and 143 East Edward Street were sold to Keith and Jovce Galbraith in 1959. Two orders were filed by the County Court of the County of Grey against Lillie J. Witherspoon in 1970 for "all and other lands". In 1970, the property was deeded to Lloyd Brannick from the estate of Lillie Witherspoon for \$10.00, which likely included the portions of the four lots making up #1880 4th Avenue West. Lloyd and his wife sold the lands to the Director of the Veterans Land Act for \$200.00 in August of 1971. In 1988, the Director of the Veterans' Land Act granted the property back to Lloyd Brannick and his wife as joint tenants. In April of the same year they granted the lands to the Grey Bruce Community Health Corporation. The property remains in the hands of the Grey Bruce Community Health Corporation, although the mortgagees have changed from the Maritime Life Assurance Co. to The Toronto Dominion Bank.



27. #1889 4th Avenue West (Plan 96 Lot 8, 9 and 10 East Market Street, Town Plot of Brooke, Sarawak Township)

There are no Crown patents issued for the Plan 96 lots within the Land Registry documents. According to the original Town Plot of Brooke, Plan 96 consists of a parcel of lots that include Lots 141-151 (odd numbers only) of East Market Street, and Lots 142-150 (even numbers only) of West Simpson Street. The Plan was registered by Jacob D. Speers on November 23, 1889. The first of the three lots that make up #1889 4th Avenue West, was sold by J.D. Speers to William Keefer for \$200.00 in 1889. It consisted of Lot 10 and 'other lands'. J.D. Speers then sold Lot 9 to Peter Ballard on November 12, 1892, for \$26.00 and then Lot 8 and 'other lands' to Eliza Harvey on July 27, 1895 for \$120.00. Peter Ballard and his wife sold Lot 9 to Richard McMillan for \$12.00 in September of 1897, who then sold the property to Sarah A. Gilder. Sarah also gained ownership of Lot 10 in July 1903 when Keefer sold that property to her. Sarah and her husband, John, retained ownership of the both Lots 9 and 10 until Feb 2, 1903, when they sold both lots (and other lands) to Duncan M. McKinnon for \$850.00. In 1913, the land was sold to James Howey. On November 24, 1941, Edward S. Howey, the son of James Howey, granted the two lots to himself for \$1.00 plus premiums. Five years later, in September of 1946, Edward S. Howey and his wife granted the lots and 'other lands' to Frederick W. Thornley for \$900.00. In 1956, Frederick W. Thornley granted the land to Frances Stovell for \$1.00. Both Lots 9 and 10 were then sold to James and Leona Johnston (as joint tenants) in 1960 for \$6,500.00. Eight years later, on October 9, 1968, James and Leona Johnston sold the two lots to Frederick and Dianne Pearce for \$9,500.00. A mortgage was taken out by the Pearce's with the Investors Group Trust Co. Ltd., for \$64,000.00. The deed for all of the lots was then transferred to Dianne Pearce in April 2002.

Lot 8 East Market Street was sold to Eliza Harvey by Jacob Speers in 1895. She then sold the land to Robert Harvey for \$1.00 plus premiums, in July 1906. A gap of over 70 years exists before the next entry in the Land Registry. This is a By-law (No. 1980-31) which was issued by the City of Owen Sound on February 1, 1985. It authorized a deed of Conveyance of Part 1 for RP 16R-1650 and 'other lands'. On February 13, 1985, The City of Owen Sound grants the Property of Frederic and Dianne Pearce (as joint tenants). A mortgage was taken out by the Pearce's with the Investors Group Trust Co. Ltd. for \$64,000.00. The deed for all the lots was then transferred to Dianne Pearce in April 2002.

28. #377 19th Street West (Plan 96 West Parts Lot 8, 9 and 10 West Price Street, Town Plot of Brooke, Sarawak Township)

There are no Crown patents issued for Plan 96 lots within the Land Registry documents. According to the original Town Plot of Brooke, Plan 96 consists of a parcel of lots that includes Lots 141-151 (odd numbers only) of East Market Street, and Lots 142-150 (even numbers only) of West Simpson Street. The Plan was registered by Jacob D. Speers on November 23, 1889. Lot 8 West Price Street and 'other lands' was sold to Eliza Harvey by Jacob Speers on February 1, 1895. She then sold the land to William Harvey for \$1,200.00, in February of 1906. A gap of over 70 years exists before the next



entry in the Land Registry. This is a By-law (No. 1980-31) which was issued by the City of Owen Sound on February 1, 1985. It authorized a deed of Conveyance of Parts 2 and 3 16R-1650 and 'other lands'. On July 8, 1985, the City of Owen Sound then sold Part 2 to Lorne and Jean Benyon (as joint tenants). They later sold the property (in 1991) to Nancy P. Cruickshank for \$71,000.00. Nancy then sold the property to Harold A. Lendon in May 1993. On November 5, 1998 Harold Lendon transferred the deed to joint ownership with Mary C. L. Hawkins.

Lot 9 West Price Avenue was sold by Jacob D. Speers to Thomas Johnson on September 29, 1890 for \$100.00. On April 2, 1891, Thomas Johnson and his wife sold the lot to Francis G. Woolwich who then sold the property to James Hicks in June of that year for \$350.00. On July 17, 1894, James Hicks sold the property to Andrew McMillian, who five years later, in February 1899, sold the west part of the lot and 'other lands' to Sarah A. Gilder. Lot 10 West Price Street was sold by Jacob D. Speers to William Keefer along with Lot 10 East Market Street on November 21, 1889. Prior to this time the lot had been sold by Speers to Elijah E. Scott in October of 1891, along with Lot 9. Elijah filed a guit claim on the lot in July of 1903, giving over title of the property to William Keefer. Keefer sold Lot 10 to Sarah A. Gilder in July of 1903. Sarah Gilder and her husband sold the two lots to Duncan McKinnon in 1903. In 1913, McKinnon sold the lot and 'other lands' to James Howey. On November 24, 1941 Edward S. Howey, the son of James Howey, granted the two lots to himself for \$1.00 plus premiums. On June 24, 1943, Edward S. Howey and his wife granted the lots and 'other lands' to Anne Mitchell for \$1.00. Two quit claims were filed against the property by the Howeys', and by Harold E. Johnston and his wife in 1950. On September 12, 1950, Anne Mitchell sold the western 31.59 feet (9.63 m) on the southern limit (#44386) and the western 33.1 feet (10.09 m) on the northern limit, and part of Lot 9 to Nelson and Florence Osborne. The following year, in 1951, they sold the portion of land noted in #44386 to Edna LeClare. In 1952, Edna LeClare sold her sections of Lots 8 and 9 to Arthur and Mary Thompson. In 1954, the Thompson's sold their portion (#44386) and part of Lot 10 to Verdon and Dorothy Gibson. That December the Gibson's granted the lots to Donald and Joyce Eagles. Donald and Joyce Eagles then sold their portions of Lots 9 and 10 to Ivan Boyle for \$4,000.00 in August of 1955. In 1957, Ivan and his wife sold the property to Beatrice Billings, and in 1975, Beatrice Billings deeded the property to Douglas and Helen Carson for \$2.00. Four years later, in 1979, the Carson's deeded the property to Robert and Jean Beynon, who sold the property in 1991 to Nancy P. Cruickshank for \$71,000.00. Nancy later sold the property to Harold A. Lendon in May 1993. On November 5, 1998, Harold Lendon transferred the deed to joint ownership with Mary C. L. Hawkins.

29. #375 19th Street West (Plan 96 East Parts Lot 8, 9 and 10 West Price Street/ RP 16R-1650 Part 3, Town Plot of Brooke, Sarawak Township)

Lot 8 West Price Street, Town Plot of Brooke, and 'other lands' were sold to Eliza Harvey by Jacob Speers on February 1, 1895. She then sold the land to William Harvey for \$1,200.00 in February of 1906. A gap of over 70 years exists before the next entry in the Land Registry. This is a By-law (No. 1980-31) which was issued by the City of Owen



Sound on February 1, 1985. It authorized a deed of Conveyance of Parts 2 (west) and 3 (east) RP 16R-1650 and 'other lands'. On July 2, 1987, the City of Owen Sound sold Part 3 to Beatrice Duncan.

Lot 9 West Price Avenue was sold by Jacob D. Speers to Thomas Johnson on September 29, 1890 for \$100.00. On April 2, 1891, Thomas Johnson and his wife sold the lot to Francis G. Woolwich who then sold the property to James Hicks in June of that year for \$350.00. On July 17, 1894, James Hicks sold the property to Andrew McMillian, who five years later in February 1899, sold the west part of the lot and 'other lands' to Sarah A. Gilder.

Lot 10 West Price Street was sold by Jacob D. Speers to William Keefer along with Lot 10 East Market Street on November 21, 1889. Prior to this the lot had been sold by Speers to Elijah E. Scott in October of 1891, along with Lot 9. Elijah filed a quit claim on the lot in July of 1903, giving over title of the property to William Keefer. Keefer then sold Lot 10 to Sarah A. Gilder in July of 1903. Sarah Gilder and her husband later sold the two lots to Duncan McKinnon in 1903. In 1913, McKinnon sold the lot and 'other lands' to James Howey. On November 24, 1941, Edward S. Howey, the son of James Howey, granted the two lots to himself for \$1.00 plus premiums. On June 24, 1943, Edward S. Howey and his wife granted the lots and 'other lands' to Anne Mitchell for \$1.00. Two quit claims were filed against the property by the Howeys', and by Harold E. Johnston and his wife in 1950. Anne Mitchell then sold the east part of the lot to Donald and Beatrice Duncan on March 6, 1964 for \$3,060.00.

In 1995 Beatrice Duncan transferred Part 3 of Lot 8 as well as the eastern portions of Lots 9 and 10 to Mark and Tammy Feltis (as joint tenants) at a price of \$65,000.00. Three years later, in August of 1998, the Feltis' sold the property to Robby Gole and Kimberly Dobbs (as joint tenants). This parcel was then sold to Roxanne Dobbs for \$94,000.00 on August 26, 2005. That same day Roxanne Dobbs took out a mortgage on the property with the Scotia Mortgage Corporation.

30. #1898 3rd Avenue West (Plan 96 Lot 10 West Simpson Street, Town Plot of Brooke, Sarawak Township)

There are no Crown patents issued for Plan 96 lots within the Land Registry documents. According to the original Town Plot of Brooke, Plan 96 consists of a parcel of lots that includes Lots 141-151 (odd numbers only) of East Market Street, and Lots 142-150 (even numbers only) of West Simpson Street. The Plan was registered by Jacob D. Speers on November 23, 1889. Lot 10 West Simpson Street was later sold by Jacob D. Speers to Elizabeth E. Scott for \$1.00 on June 8, 1894. Elizabeth took out a mortgage on the property in June of 1894 and seems to have been unable to pay it off as in 1899 the property was owned by John M. Kilbourn. On June 25, 1918, John Kilbourn granted the property to The Kilbourn Co., and in 1932 the Kilbourn Co. granted it to the Kilbourn Co. Ltd., and then again in February of 1946, to The Kilbourn Realty Co. Ltd. On June 7, 1947, they sold the property to Marcella Hansler for \$100.00. The following year, in December 1948, Marcella Hansler sold the property to Cecil and James England for



\$750.00. In 1954, Cecil and James England and their wives sold the property to William and Muriel Henderson for \$800.00. In 1971, they deeded the property to Garry MacLean for \$10,000.00. Garry MacLean retained the property until May 11, 2001, at which time he transferred it to Eldon and Linda McMillan for \$60,000.00.

31. #1893 3rd Avenue West (Plan 97 Lot 10 & 11 [Originally Lot 141 East Simpson Street], Town Plot of Brooke, Sarawak Township)

There is no Crown patent issued for these lots within the Land Registry Index. The two lots were sold by Jacob D. Speers and his wife to Thomas F. Johnson in 1891 and are part of Subdivision Plan 97. Plan 97 is comprised of Lots 141-151 (odd numbers only) on Simpson Street East. All together (including Lot 9) these lands were sold for the price of \$375.00. William E. Todd later sold the lots to Peter E. McDonald and his wife for \$575.00 on September 6, 1901. How he received the properties is not indicated within the registry. There appears to have been some legal issues with this lot as a quit claim was filed in November of 1927, by the Grey & Bruce T.S. Co., to William E. Todd. John A. McDonald, the administrator of Peter McDonald et ux., sold the lots to James P. Harvey in April of 1926 for \$600.00. In 1941, a Grant was issued from Edward S. Harvey, Ellen Johnston and E. Joyce Harvey to James P. Harvey for "\$1.00 & prems & other lands, Treasurer Consent". Ten years later. E.S Harvey, S.J. Harvey et ux., sold the lands (including Lot 11) to Felix Eggiman for \$1,000.00. On January 6, 1984, the Estate of Felix Eggiman granted the property to William R. Leonard who then sold the property to Wyeburne R. Nicholls and Shirley Prowse (as joint tenants). The following year they sold the property to Robert E. Prowse and Marta L. Prowse (as joint tenants). In May of 1987, Robert and Marta Prowse granted the lands to Bessie Myrtle Binns. On June 29, 1988 she sold the property to Kathryn Holness and Gregory Amer (also as joint tenants). They took out a mortgage on the property in May of 2004 for \$81,500.00 (#484914).

32. #100 19th Street West (Water Front OPP, Lot 118-157 West Ragland Street) – KELSO BEACH

The area of Kelso Beach, which pertains to lands found adjacent to the Study Area, was purchased in two different transactions. The first was a Patent issued by the Crown on June 21, 1894 to the Grand Trunk Rail Company, for 37 acres (14.97 hectares) at the cost of \$400.00. On September 25, 1896 the Grand Trunk Rail Company sold 7 acres (2.83 hectares) of the land to James G. Boyd for \$1.00. James Boyd and his wife later sold the 7 acres (2.83 hectares) to John Harrison for \$850.00 on the October 6, 1897. John Harrison and his wife used their 7 acres (2.83 hectares) to start Harrison and Sons Co. Limited on March 30, 1899. On October 28, 1950, John Harrison and Sons Co. Limited was acquired by the Grey Bruce S. Company and the land was granted to the Corporation of the City of Owen Sound for \$250,000.00. The City of Owen Sound sold 120 feet (36.58 m) north and 73.14 feet (22.29 m) south to Georg Clark Construction, who then sold the land to the Bell Telephone Company of Canada. The remaining lot was held by the Grand Trunk Rail Company, called the Canadian National Railway Co.



by the 1960s, until 1972 when it was parcelled off and sold to the City of Owen Sound as part of registered plan 16R-5760. It was labelled as Part 3 of the plan.

The second portion of the Kelso Beach lands had a patent issued by the Crown to John Harrison on July 27, 1900 for 2 ½ acres (1.01 hectares), at the cost of \$72.48. John Harrison also used this portion of land for his company, John Harrison and Sons Co. Limited. On March 10, 1949, part of the land was granted to Liddell String Ltd. For \$300.00. The John Harrison and Sons Co. Limited sold their remaining parcel to the Corporation of the City of Owen Sound on October 28, 1950, for \$2,500.00. The portion of the land owned by Liddell String Ltd. had a vesting order placed on it by Ivor Wagner and the Supreme Court of Ontario for a default on the mortgage payments between Liddell String Ltd. and the DuPont Company of Canada. The vesting order was settled and the lands were given to Ivor Wagner. This occurred between the years 1954 and 1956. Ivor Wagner and his wife then sold their parcel to Arthur Harrison for \$22,000.00 on July 26, 1959. A registered plan was placed on the entire property on December 14, 1990, titled plan 16R-4724. The lands then began to be parcelled off with others in registered plans 16R-4724, Sections 1 through 11. The owner of the lands exchanged hands many times between 1990 and 2006. The main shareholders of the lands were the City of Owen Sound and the Owen Sound Branch 6 Legion.

Today Kelso Beach is a built-up recreational area. The Master Plan for Kelso Beach provides a brief background as to how the park developed, however, those involved with the establishment of the park were not the owners of the land but rather worked for the City of Owen Sound and the Owen Sound Legion Branch number 6. The following is taken from the masterplan (NALAL 2010:3):

"The shores of the bay have been filled over the years to make the land more usable for shipping and industrial purposes (e.g. wharfs, grain elevators) and to create Kelso Beach Park. The 'clean up' of the waterfront to create a beach was reportedly initiated and organized by Henry Kelso, a municipal employee at the time. For many years Kelso Beach Park was a flat, low and fairly open park, notoriously wet (soggy) with a small sandy beach, washrooms/change rooms and a picnic shelter.

In 1976, the Summerfolk Music and Crafts Festival was first held at Kelso Beach. The music festival was the catalyst for the redevelopment of the park in 1982-83. Designed by landscape architects Gotfryd and Findlay and constructed by Harold Sutherland Construction, the new design included parking, a large amphitheatre, playing fields, plantings, playgrounds and walkways."

33. #485 20th Street West (Part Lots 129, 131, 133 East Edward Street; RP 16R2551 Part 1, Town Plot of Brooke, Sarawak Township)

The Crown patent for these three lots was issued to William J. Graham in July of 1888. The lands remained in his possession until his death sometime prior to March of 1932. He willed the properties to William A. D. Graham. After William A. D. Graham's death (prior to May of 1972), the property was deeded from Edward D. Graham to the Director



of the Veterans Land Act for \$1.00. In 1982, the Director of the Veterans Land Act deeded the properties to Kathleen D. Graham for \$1.00. On the same day, Ms. Graham sold the lands to Norman and Amber Gibbons (as joint tenants) for \$2.00. On April 12, 1985, Parts 1 and 2 (all lands) and other lands, became part of the Registered Plan (16R-2551). Joint tenants, Amber and Norman Gibbons, then granted Part 1 of the lots to Amber Gibbons in the spring of 1985. Amber M. Gibbons later sold Part 1 to Renaud and Laurie Francoeur in April of 1986. In June of 1989, another registered plan was issued for Part 2 of 16R-2551 (16R-3842) and other lands. Renaud and Laurie Francoeur took out a mortgage on Part 1 (#485 20th Street West) from Canada Trustco Mortgage Co. for \$95,000.00 on May 6, 1994.

4.0 ARCHAEOLOGICAL ASSESSMENT

A Stage 1 archaeological assessment was conducted by Scarlett Janusas Archaeology Inc. (P027-0331-2018) in 2018. The results determined that archaeological potential exists for both "Native and Euro-Canadian" archaeological resources in the Study Area. This assessment included a recommendation for a Stage 2 archaeological assessment of all areas deemed to retain archaeological potential.

There are no registered archaeological sites located within one kilometre of the Study Area (MTCS PastPortal 2018). The soils of the area are Elderslie Silty Clay Loam., There is a single plaque located within 1 km of the Study Area. It is dedicated to "The Newash Indian Village 1842". The Study Area consists of a man-made storm water drainage ditch that may have followed a natural tributary, however, it is unknown whether it was originally associated with one of the natural creeks or rivers of the area. The elevation of the terrain within the Study Area ranges from 180 to 190 metres above sea level, and gradually slopes down to the shores of Kelso Beach.

The Stage 2 archaeological assessment has yet to be completed. Recommendations of the Stage 1 archaeological assessment are:

- A Stage 2 archaeological assessment is recommended for approximately 56% of the Study Area (areas of archaeological potential), more specifically: 1) the west side of Reach 1 should be the subject of Stage 2 archaeological assessment if there is any proposed development, excluding routine maintenance of the existing culvert; 2) the west side of Reach 2 exhibit potential and will require Stage 2 archaeological assessment if this area is to be developed; 3) the water course in Reach 3 has been dredged several times, although the majority of the area on either side of the course has remained undeveloped. Should any development be proposed in this area, Stage 2 archaeological assessment is recommended. 4) Reach 4 is a mix of areas of both archeological potential and no potential. Those areas of archaeological potential are recommended for Stage 2 archaeological assessment should development be proposed within Reach 4. 5) There is no potential for Reach 5, and no further archaeological assessment is required in the area of Reach 5. 6) There is no archaeological potential for Reach 6 and no further archaeological assessment is recommended within the Reach 6 area.
- Compliance legislation must be adhered to in the event of discovery of deeply buried cultural material or features

As per Section 2.1.2 Standards 1, 2, and 5-9 of the MTCS 2011 Standards and Guidelines, it is recommended that areas of archaeological potential as identified on Map 15 be subject to a Stage 2 archaeological assessment. Based on the current condition of the land, the area cannot be ploughed. Stage 2 archaeological assessment should be conducted using a test pitting methodology conducted in five metre intervals across the areas of archaeological potential. Each test pit should be at least 30 cm in diameter and excavated a minimum of five cm into subsoil and examined for stratigraphy, cultural features, or evidence of fill. All soil shall be screened through mesh no greater than six

mm, all artifacts should be collected according to their associated test pit, and all test pits backfilled unless instructed not to by the landowner/proponent. If test pits are found to be positive (artifacts or cultural features), test pitting should be intensified around the positive test pits with eight additional test pits excavated at 2.5 metre intervals around the positive test pit. If there are sufficient positive test pits located to recommend a Stage 3 archaeological assessment (and sufficient materials), no additional intensification is required. If there is some question as to whether the positive test pit(s) is sufficient for a recommendations of Stage 3 assessment, a minimum of one – one metre square test unit must be excavated over the positive test pit. All recovered archaeological materials shall be bagged and tagged according to provenience.

Figures 6 and 7 illustrate the areas recommended for Stage 2 archaeological assessment.



Figure 6: Archaeological Potential of Study Area





Figure 7: Recommended Areas Requiring Stage 2 Assessment



5.0 IDENTIFICATION OF BUILT HERITAGE RESOURCES & CULTURAL HERITAGE LANDSCAPES

There are no structures within the Study Area itself, however, there are 30 structures located immediately adjacent. Figure 8 and Table 2 identify the lots and structures located within and adjacent to the Study Area. There are 13 structures that are located within lots identified as the Study Area (but not within the confines of the Study Area) of which four are heritage buildings or retain heritage elements. These buildings, as well as the heritage buildings adjacent to the Study Area (n = 6) are described below. Further information on all 30 buildings (houses/apartments) is presented in Appendix B. Figures 9 and 10 present the location and direction information for all photographs taken in the field.



Figure 8: Study Area Lots and Structure Location Information

Table 2: Structures Located Adjacent to Study Area

Street Address	Lot # (In Figure 8)	Structure #	CHVI
Study Area Lots			
2164 6 th Ave. W.	1	1	No
2133 6 th Ave. W.	2	2	No
590 21 st St. W.	3	3	No
585 21st St. W.	4	4	No
563 21st St. W.	5	5	No
596 20 th St. W.	6	6	Yes
560 20 th St. W.	7	7	No
2020 5 th Ave. W.	8	8	No
2006 5 th Ave. W.	9	9	Yes
550 19 th St. W.	10	10	No
1914 4 th Ave. W.	11	11	Yes
1909 4 th Ave. W.	12	12	Yes
280 19 th St. W.	13	13	No
Lots Adjacent to St	tudy Area		
2195 8 th Ave. W.	14	14	No
2130 6 th Ave. W.	15	15	No
2110 6th Ave. W.	16	16	No
2163 6th Ave. W.	17	17	No
2040 5 th Ave. W.	18	18	Yes
2090 6th Ave. W.	19	19	Yes
2064 6 th Ave. W.	20	20	No
2044 6 th Ave. W.	21	21	No
2024 6 th Ave. W.	22	22	No
2020 6 th Ave. W.	23	23	No
2016 6 th Ave. W.	24	24	Yes
1895 5 th Ave. W.	25	Vacant Lot	Yes
1880 4 th Ave. W.	26	25	No
1889 4 th Ave. W.	27	26	Yes
377 19 th St. W.	28	27	No
375 19 th St. W.	29	27	Yes
1898 3 rd Ave. W.	30	28	No
1893 3 rd Ave. W.	31	29	No
100 19 th St. W.	32	Park	No
		Related	
		Buildings	
485 20 th St. W.	33	30	No

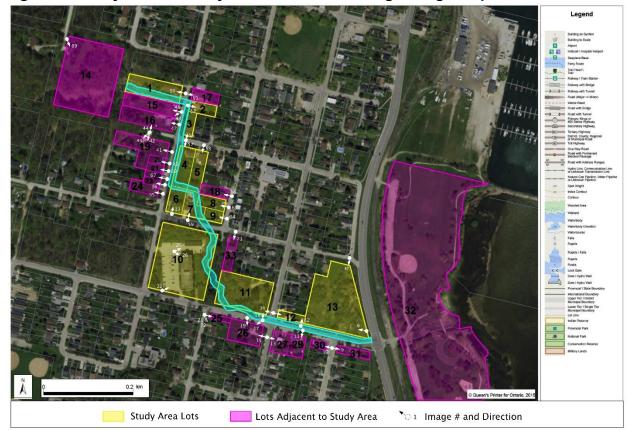


Figure 9: Study Area and Adjacent Lot Built Heritage Image Map

5.1 Built Heritage Resources

Built Heritage Resources Within Study Area Lots

The following lists the four buildings within the Study Area lots (but not within the confines of the actual Study Area) that were deemed to have cultural heritage value or interest. Building numbers are coordinated with Table 2.

Building 6

Building 6 (Image 33) is located at 596 20th St. W. with the main façade facing south toward the street. The overall visual aspect of Building 6 presents a one storey building with a distinctive square-shaped floor plan and clapboard façades. The main façade of the Building (southern elevation) includes one small sash window on either side of a central doorway. The roof is steeply pitched, has shallow eaves and no dormers. There is a small addition on the northern elevation and a modern detached garage at the rear of the building. This is a typical Victory Style house that dates to the 1940-1960 period (OASG 2009:25).



Building 9

Building 9 (Image 64) is located at 2006 5th Ave. W. with the main façade facing east toward the street. The overall visual aspect of Building 9 presents a two storey building with a distinctive rectangular-shaped floor plan and red brick façades. The main façade of the Building (eastern elevation) includes one small window on one side of an off-set doorway. The main façade of the Building has a front-facing gable with a steeply pitched roof. There is a small, one-storey addition with aluminum siding on the western elevation and a modern front porch enclosure at the main eastern entrance. This is a typical Vernacular Homestead Style house that dates to the 1890-1930 period (Carter and Oberst 2008:5).

Building 11

Building 11 (Images 16, 18) is located at 1914 4th Ave. W. with the main façade facing east toward the street. The overall visual aspect of Building 11 presents a two storey building with a distinctive L-shaped floor plan and yellow brick façades. The main façade of the Building (eastern elevation) includes a verandah at the main entrance which is off-set to one side. This elevation is two bays wide with two upper and two lower sash windows, one of which is a bay style window. There is a modern one storey wood paneled addition on the western elevation of the building. This is a typical Late Victorian Style house that dates to the 1840-1900 period (OASG 2009:15). This Building is listed on the City of Owen Sound Heritage Register List.

Building 12

Building 12 (Image 14) is located at 1909 4th Ave. W. with the main façade facing west toward the street. The overall visual aspect of Building 12 presents a one storey building with a distinctive square-shaped floor plan and clapboard façades. The main façade of the house (western elevation) includes one small window on one side of the central doorway. The roof is steeply pitched, has shallow eaves and no dormers. There is a small addition on the eastern elevation and a modern detached garage at the rear of the building. This is a typical Victory Style house that dates to the 1940-1960 period (OASG 2009:25).

Built Heritage Resources Adjacent to Study Area

The following describes the six buildings on lots adjacent to the Study Area that were deemed to have cultural heritage value or interest.

Building 18

Building 18 (Image 66) is located at 2040 5th Ave. W. with the main façade facing east toward the street. The overall visual aspect of Building 18 presents a one storey building



with a distinctive square-shaped floor plan and façades with aluminum siding. The main façade of the house (eastern elevation) includes one small window on either side of a central doorway. The main façade includes both aluminum siding and decorative brick work. The roof is steeply pitched, has shallow eaves and no dormers. There is a small, modern attached car-port on one side and a detached one-car garage and tool shed (both modern) at the rear of the building. This is a typical Victory Style house that dates to the 1940-1960 period (OASG 2009:25).

Building 19

Building 19 (Images 41 – 43) is located at 2090 6th Ave. W. with the main façade facing east toward the street. The overall visual aspect of Building 19 presents a 1 ½ storey building with a distinctive T-shaped floor plan and façades of red brick. The main façade of the house (eastern elevation) includes one small window on either side of a central doorway. The roof is medium pitched from front-to-back with a steeply pitched central front dormer. There is a large, modern aluminum sided addition on the western elevation, and a detached two-car garage at the rear of the building. This is a typical Gothic Revival Style house that dates from 1750 to 1900 (www.Ontarioarchitecture.com).

Building 24

Building 24 (Image 35) is located at 2016 6th Ave. W. with the main façade facing east toward the street. The overall visual aspect of Building 24 presents a one storey building with a distinctive square-shaped floor plan and clapboard façades. The main façade of the house (eastern elevation) includes one small sash window on either side of a central doorway (now covered by an enclosed porch). The roof is steeply pitched, has shallow eaves and no dormers. There is a small, modern addition on the western elevation of the building. This is a typical Victory Style house that dates to the 1940-1960 period (OASG 2009:25).

Building 25

Building 25 (Images 15, 17, 19 and 72) is located at 1880 4th Ave. W. with the main façade facing east toward the street. The overall visual aspect of Building 25 presents a 2½ storey building with irregular, multiple surfaces (floor plan) and red brick façades. The main façade of the house (eastern elevation) includes a wrap-around verandah at the main entrance which is off-set to one side. This elevation includes a tower that is off-set opposite the main entryway. The roof has a steep pitch with multiple rooflines and gables. There is also a large modern two storey red brick addition on the northern and western elevations of the building, and a small covered sitting area and tool shed (both modern) on the northern side of the house. This is a typical Queen Ann Revival Style house that dates to the 1870-1910 period (OASG 2009:12). This house is listed on the City of Owen Sound Heritage Register List.



Building 27

Building 27 (Image 11) is located at 375 and 377 19th St. W. with the main façade facing north toward the street. The overall visual aspect of Building 27 presents a 1 ½ storey building with a distinctive rectangular-shaped floor plan and façades of red brick. The main façade of the house (northern elevation) includes one small window on either side of a central doorway. The original doorway has been modified and there are now two separate side-by-side entrances. The roof is medium pitched from front-to-back with a steeply pitched central front dormer. This is a typical Ontario Cottage Style house that dates from c. 1830-present (OASG 2009:47).

Building 29

Building 29 (Image 9) is located at 1893 3rd Ave. W. with the main façade facing west toward the street. The overall visual aspect of Building 29 presents a two storey building with a distinctive rectangular-shaped floor plan and red brick façades. The main façade of the house (western elevation) includes one large window on one side of an off-set doorway. The main façade of the house is two bays wide and has a front-facing gable with a steeply pitched roof. There is a small, one-storey addition with aluminum siding on the eastern elevation. This is a typical Vernacular Homestead Style house that dates to the 1890-1930 period (Carter and Oberst 2008:5).

5.2 Roadscapes

There are nine roadways immediately abutting the Study Area and adjacent lots, including: 2nd Ave. W., 3rd Ave. W., 4th Ave. W., 5th Ave. W., 6th Ave. W., 8th Ave. W., 19th St. W., 20th St. W., and 21st St. W.

2nd Avenue West

2nd Avenue West is a paved, four lane thoroughfare with concrete curbs, grass verges, sidewalks and moderately deep ditches on either side of the street. Each side of the road also includes utilities (hydro/telephone and streetlight poles, and storm sewer drains). 2nd Avenue West is the former "Sound Street" in the historic Town Plot of Brooke.

3rd Avenue West

3rd Avenue West is a paved, two lane road with concrete curbs and sidewalks on either side of the street. There are utilities along both sides of the road. On the western side of the road are hydro, telephone and streetlight poles, while on the eastern side of the street are storm sewer drains. 3rd Avenue West is the former "Simpson Street" in the historic Town Plot of Brooke.



Legend

Manage a brown in the control of the contro

Figure 10: Study Area and Adjacent Roadscapes Image Map

4th Avenue West

4th Avenue West is a paved, two lane road with concrete curbs and sidewalks on either side of the street. The east side of the road also has a grass verge between the curb and sidewalk. There are utilities along both sides of the road, including hydro, telephone and streetlight poles, as well as storm sewer drains. 4th Avenue West is the former "Market Street" in the historic Town Plot of Brooke.

5th Avenue West

5th Avenue West is a paved, two lane road with concrete curbs on either side of the street. The east side also has a sidewalk and utilities along the roadway, including hydro, telephone and streetlight poles, as well as storm sewer drains. 5th Avenue West is the former "Edward Street" in the historic Town Plot of Brooke.



6th Avenue West

6th Avenue West is a paved, two lane road that lacks concrete curbs and sidewalks on both sides of the street. The east side of the road has a narrow gravel shoulder approximately one metre wide, while on the west side are manicured lawns and utilities including hydro, telephone and streetlight poles, as well as storm sewer drains. 6th Avenue West is the former "Amelia Street" in the historic Town Plot of Brooke.

8th Avenue West

8th Avenue West is a paved, two lane road with grass shoulders on either side of the street. There are utilities along both sides of the road, including hydro, telephone and streetlight poles. 8th Avenue West is the former "Albert Street" in the historic Town Plot of Brooke.

19th Street West

19th Street West is a paved, two lane road with concrete curbs on either side of the street. The south side of the road also has a sidewalk. On the north side of the street there are utilities including hydro, telephone and streetlight poles, as well as sewer drains. 19th Street West is the former "Palmerston Street" in the historic Town Plot of Brooke.

20th Street West

20th Street West is a paved, two lane road that lacks concrete curbs or sidewalks on either side of the street. The south side of the road has utilities including hydro, telephone and streetlight poles. 20th Street West is the former "Regent Street" in the historic Town Plot of Brooke.

21st Street West

21st Street West is a paved, two lane road with a concrete curb and sidewalk on the south side of the street. The south side of the road has utilities including hydro, telephone and streetlight poles, as well as sewer drains and a water main (fire hydrant). On the north side of the street are manicured lawns. 21st Street West is the former "Oxford Street" in the historic Town Plot of Brooke.

Although these roadways represent early transportation routes for the area (as part of the original Town Plot of Brooke), they no longer retain any of their original character and do not have any heritage value, interest or merit.

5.3 Cultural Heritage Landscapes

Cultural heritage landscapes are clusters of related heritage structures, lands, vegetation, archaeological resources and other heritage resources, and include agricultural



landscapes, industrial landscapes, cemetery landscapes, sacred landscapes as well as heritage conservation districts.

"While any landscape upon which humankind has left their imprint is a cultural landscape, only those cultural landscapes that have a deep connection with the history of the jurisdiction can be identified as cultural heritage landscape. To be considered significant from a heritage perspective it must be demonstrated...that ... [the property] meets one or more of the following criteria:

- A. Is associated with events that made significant contributions in the broad patterns of area history; i.e. strong association with central themes.
- B. Is closely associated with the lives of individuals and/or families who are considered significant to the history of the area.
- C. Embodies the distinctive characteristics of a particular settlement pattern or lifeway whether derived from ethnic background, imposed by the landscape, was the practice of a specific historic period or a combination of the above.
- D. Manifests a particularly close and harmonious long-standing relationship between the natural and domestic landscape.
- E. Has yielded or is likely to yield information important to prehistory or history.
- F. Is strongly associated with the cultural and/or spiritual traditions of First Nations or any other ethnic and/or religious group" (https://www.caledon.ca/en/live/resources/Cultural_Heritage_Landscapes_Invent ory_Report-Section5.pdf)

With respect to the criteria listed above (A - F), the landscape of the Study Area meets criteria A, C, D and possibly F:

- A) The landscape has a strong association with an early settlement theme.
- B) Is not associated with the lives of individuals and/or families who are considered significant to the history of the area.
- C) The Study Area lands are reflective of the early settlement patterning and the original Town Plot of Brooke.
- D) The Study Area has a particularly close and harmonious long-standing relationship between the natural and domestic landscape as the roadways are associated with the original Town Plot of Brooke.
- E) The Stage 2 archaeological assessment is outstanding, and,
- F) Has no known strong association with cultural/or spiritual traditions of Indigenous communities or any other ethnic and/or religious group.

Based on the above, the Study Area is identified as a cultural heritage landscape.

5.4 Summary of Cultural Heritage Values

The evaluation of the cultural heritage values for each building within and adjacent to the Study Area employed the following three criteria. The results are presented below.

- 1. Design Value or Physical Value: i) is a rare, unique, representative or early example of a style, type, expression, material or construction method; ii) displays a high degree of craftsmanship or artistic merit; or, iii) demonstrates a high degree of technical or scientific achievement.
- 2. Property has Historical Value or Associative Value: i) has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community; ii) yields, or has the potential to yield, information that contributes to an understanding of a community or culture; iii) demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.
- 3. Property has contextual value: i) is important in defining, maintaining or supporting the character of an area; ii) is physically, functionally, visually or historically linked to its surroundings; iii) is a landmark.

5.4.1 Built Heritage Resources within Lots of the Study Area

Building 6

Building 6 is a typical Victory Style home that dates to the 1940-1960 period. This property has design or physical value because it is a representative example of an Ontarian wartime house style. It has no known historical or associative value. Building 6 has contextual value as it is historically linked to its surroundings.

Building 9

Building 9 is a typical Vernacular Homestead Style house that dates to the 1890-1930 period. This property has design or physical value as it is a representative example of an early Ontarian house style. The architectural style was built well after the settlement of Brooke, therefore has no historical or associative value vis-à-vis the establishment of Brooke. Building 9 has no contextual value.

Building 11

Building 11 is a typical Late Victorian Style house that dates to the 1840-1900 period. This house is listed on the City of Owen Sound Heritage Register List due to its historic and associative value to the local community. The property has design or physical value because it is a representative example of an early Ontarian house style. It has historical or associative value because it has direct associations with an historic event (the original development of the Town of Brooke) as well as contextual value as it is historically linked to its surroundings.

Building 12

As with Building 6, Building 12 is a typical Victory Style home that dates to the 1940-1960 period. This property has design or physical value because it is a representative example of an Ontarian wartime house style. It has no historical or associative value. Building 12 also has no contextual value.



5.4.2 Built Heritage Resources in Lots Adjacent to the Study Area

Building 18

Building 18 is a typical Victory Style house that dates to the 1940-1960 period. This property has design or physical value because it is a representative example of an Ontarian wartime house style. It has no historical or associative value or contextual values.

Building 19

Building 19 a typical Gothic Revival Style house that dates from 1790 to 1900. There is no decorative bargeboard, which is a usual characteristic of this type of house, but it may have been removed. This property has design or physical value because it is a representative example of an early Ontarian house style. It has historical or associative value because it has direct associations with an historic event (the original development of the Town of Brooke). Building 19 has contextual value as it is historically linked to its surroundings.

Building 24

Building 24 is a typical Victory Style house that dates to the 1940-1960 period. This property has design or physical value because it is a representative example of an Ontarian wartime house style. It has no historical or associative value nor contextual value.

Building 25

Building 25 is a typical Queen Ann Revival Style house that dates to the 1870-1910 period. This house is listed on the City of Owen Sound Heritage Register List attributed to its historic and associative value to the local community. This property has design or physical value because it is a representative example of an early Ontarian house style, and has historical or associative value because it has direct associations with an historic event (the original development of the Town of Brooke). Finally, Building 25 has contextual value as it is historically linked to its surroundings.

Building 27

Building 27 is a typical Gothic Revival Style home that dates from 1790 to 1900 (www.ontarioarchitecture.com). This property has design or physical value because it is a representative example of an early Ontarian house style. It has historical or associative value because it has direct associations with an historic event (the original development of the Town of Brooke). Building 27 has contextual value as it is historically linked to its surroundings.



Building 29

Building 29 is a typical Vernacular Homestead Style house that dates to the 1890-1930 period. This property has design or physical value because it is a representative example of an early Ontarian house style. The house has historical or associative value as it has association with the settlement of Brooke. It has contextual value as it is historically linked to its surroundings.

5.4.3 Cultural Heritage Landscape

The Study Area is determined to be a cultural heritage landscape (refer to Section 5.3 of this report). Although the landscape of the Study Area has been deemed to have cultural heritage value or interest, the proposed development project will not negatively impact or further alter the integrity of the landscape, including its viewsheds.

6.0 POTENTIAL IMPACTS OF UNDERTAKING ON CULTURAL HERITAGE RESOURCES

6.1 Extent of Development

The proponent retained the services of Scarlett Janusas Archaeology Inc. (SJAI) to conduct a cultural heritage resource evaluation report for the Brooke Area Basin A3 (Figure 2). A description of the project is presented in Section 1.1.

6.2 Impact on Built Heritage

The proposed Brooke Area Basin A3 development will not have a direct impact on the built heritage resources located within (or adjacent to) the Study Area.

6.3 Impact on Cultural Heritage Landscapes

The landscape associated with the Study Area will not be adversely impacted by the Brooke Area Basin A3 development.

6.4 Impact on Current Viewsheds

The current viewsheds associated with the Study Area will not be adversely impacted by the Brooke Area Basin A3 development.

7.0 MITIGATION OPTIONS

Mitigation options are based solely on heritage values.

The majority of the built heritage (structures) adjacent to the Study Area have been evaluated as having no cultural heritage value and interest. There are no heritage structures located directly within the Study Area.

Options for managing the built heritage features can be broad, and include:

- 1. **Do Nothing**: This is recommended for all of the identified heritage buildings.
- Test: Prior to any restoration, testing of the integrity of the buildings should be conducted to determine restoration requirements or if the value of restoration is outweighed by the lack of structural integrity. This is not recommended the built heritage buildings.
- 3. **Comprehensive architectural drawings:** should be conducted for all of the built heritage features as a permanent record of the building. This is not recommended the built heritage buildings.
- 4. **Restoration in situ**: This is not recommended the built heritage buildings.
- 5. **Restoration and remove buildings to a different location**: This is not recommended the built heritage buildings.
- 6. **Adaptive reuse:** can be an alternative to removal of the buildings. This is not recommended the built heritage buildings.
- 7. **Reuse of buildings materials**: This is not recommended the built heritage buildings.
- 8. Provide buildings for reuse/restoration to Habitat for Humanity or other equivalent programs: This is not recommended the built heritage buildings.
- Signage recognition: Plaques and/or signs that provide a succinct description of the date, style, architect/builder, wherever possible. This is not recommended the built heritage buildings.
- 10. **Demolish:** Demolishment of any heritage building must be the last alternative visited in considering alternative, mitigative or conservation methods. This is not recommended the built heritage buildings.

In closing, given the scope of the proposed Brooke Area Basin A3 project it is not anticipated that any of the identified built heritage features, cultural heritage

landscape, roadways or viewsheds will be negatively impacted by the development and no mitigation or protective measures are required.

8.0 SOURCES

Bray, S.

1862 Town Plot of Brooke. Department of Crown Lands, Quebec, May 2nd 1862. Chief Surveyor, Department of Indian Affairs.

Carter, Phillip H., and Paul Oberst

2008 **Gormley Heritage Conservation District: The District Inventory.**https://www.richmondhill.ca/en/shared-content/resources/documents/Gormley-HCD-Study.pdf

County of Grey

2013 County of Grey Official Plan. https://www.grey.ca/planning-development

Croft. Melba Morris

2011 Memories of Brooke. Self-Published, Owen Sound.

Davidson, T. Arthur

1972 A New History of the County of Grey. The Grey County Historical Society, Owen Sound.

Government of Ontario

1990a **The Ontario Heritage Act R.S.O. 1990.** Ontario Regulation 9/06, made under the Ontario Heritage Act. Criteria for Determining Cultural Heritage Value or Interest. Queen's Printer, Toronto.

1990b The Planning Act. R.S.O. 1990.

Marsh, Edith Louise

1931 A History of the County of Grey. Fleming Pub. Co., Owen Sound, Ontario.

Northwood Associates Landscape Architects Ltd. (NALAL)

2010 **Kelso Beach Park Master Plan – City of Owen Sound.** Northwood Associates Landscape Architects Ltd., with Gamsby & Mannerow Ltd., and MJS Consultants Inc. Owen Sound, Ontario.

Ontario Architectural Style Guide (OASG)

2009 **Ontario Architectural Style Guide.** HPI Nomination Team, University of Waterloo, Heritage Resources Centre.

Ontario Ministry of Tourism and Culture

2006 Heritage Resources in the Land Use Planning Process. Part of the Ontario Heritage Toolkit, http://www.mtc.gov.on.ca/en/heritage/heritage_toolkit.shtml

Ontario Ministry of Tourism, Culture and Sport



- 2011 Standards and Guidelines for Consultant Archaeologists. Ministry of Tourism, Culture and Sport.
- 2018 Archaeological Sites Database Files. Ministry of Tourism, Culture and Sport, Toronto. Provided through Pastport.

Parks Canada

2010 Standards and Guidelines for the Conservation of Historic Places in Canada. Second edition. http://www.historicplaces.ca/en/pages/standards-normes.aspx

Scarlett Janusas Archaeology Inc. (SJAI)

2018 Stage 1 Archaeological Assessment for Brooke Area Basin A3, Lots 129, 131, 133, 135, 137, 139 East Amelia Street, 130 West Edward Street, 135, 137, 139 East Edward Street, Pt Lot 139 East Market Street and Lots 130, 132, 134, 136, 138, 140 West Sound Street, Town Plot of Brooke, Geographic Township of Sarawak, City of Owen Sound, Grey County, Ontario. Original Report. P027-0331-2018. On file with Ministry of Tourism, Culture and Sport.

Schmalz, Peter S.

- 1977 **The History of the Saugeen Indians.** Ontario Historical Society Research Publication No. 5, Toronto.
- 1991 The Ojibwa of Southern Ontario. University of Toronto Press, Toronto.

On Line and Other Sources:

- 1. The Atlas of Canada, Map of the Area of the 9 August 1836 Treaty http://atlas.gc.ca/sites/english/maps/historical/indiantreaties/historicaltreaties
- 2. Abstract Land Index. Grey County Archives, Owen Sound.
- 3. Assessment Rolls. Originals, Grey County Archives, Owen Sound.
- **4. Canadian Register of Historic Places**. 2018. http://www.historicplaces.ca/en/resultsresultats.aspx?m=2&Keyword=bowstring&PurposeGroupTypeId=15&PurposeTypeId=112
- **5. Ontario Architecture** http://www.ontarioarchitecture.com
- **6. Cultural Heritage Landscapes Inventory** The Town of Caledon (https://www.caledon.ca/en/live/resources/Cultural_Heritage_Landscapes_Inventory _Report-Section5.pdf)

9.0 IMAGES

Image 1:Adjacent to Study Area – Kelso Beach Entrance (Facing N)



Image 2: Adjacent to Study Area – Kelso Beach Entrance (Facing E)



Image 3: Adjacent to Study Area – Kelso Beach Entrance (Facing S)



Image 4: Adjacent to Study Area – Kelso Beach Entrance (Facing W)



Image 5: Study Area – 2nd Ave. W. from SE Side of Lot 13 (Facing N)



Image 6: Study Area – SE End of Lot 13 (Facing NW)



Image 7: Study Area – 2nd Ave. W. from SE End of Lot 13 (Facing S)



Image 8: Study Area – 19th St. W. from SE End of Lot 13 (Facing W)



Image 9: Adjacent to Study Area – Lot 31 and Building 29 (Facing E)



Image 10: Adjacent to Study Area – Lot 30 and Building 28 (Facing W)



Image 11: Adjacent to Study Area – Lots 28 & 29 and Building 27 (Facing S)



Image 12: Study Area – Lot 12 Outbuilding (Facing N)



Image 13: Adjacent to Study Area -Lot 27 and Building 26 (Facing E)



Image 14: Study Area – Lot 12 and Building 12 (Facing E)



Image 15: Adjacent to Study Area – Lot 26 and Building 25 (Facing W)



Image 16: Study Area – Lot 11 and Building 11 (Facing W)



Image 17: Adjacent to Study Area – Lot 26 and Building 25 (Facing SW)



Image 18: Study Area – Lot 11 and Building 11 (Facing N)



Image 19: Adjacent to Study Area – Lot 26 and Building 25 (Facing SE)



Image 20: Study Area – Creek
Between Lots 10 and 11 (Facing N)



Image 21: Adjacent to Study Area – Vacant Lot 25 (Facing E)



Image 22: Study Area – Lot 10 and Building 10 Apartments (Facing NW)



Image 23: Adjacent to Study Area – 6th Ave. W. from 19th St. W. (Facing N)



Image 24: Outside Study Area – 6th Ave. W. from 19th St. W. (Facing S)



Image 25: Study Area – Drive Shed at NE End of Lot 10 (Facing NE)



Image 26: Study Area – Lot 10 and Building 10 Apartments (Facing SE)



Image 27: Study Area – Culvert at NW End of Lot 10 (Facing SE)



Image 28: Study Area – Creek at NW End of Lot 10 (Facing NE)



Image 29: Study Area – 20th St. W. from 6th Ave. W. (Facing E)



Image 30: Outside Study Area – 20th St. W. from 6th Ave. W. (Facing W)



Image 31: Outside Study Area – 6th Ave. W. from 20th St. W. (Facing S)



Image 32: Study Area – 6th Ave. W. from 20th St. W. (Facing N)



Image 33: Study Area – Lot 6 and Building 6 (Facing N)



Image 34: Outside Study Area – View of Lot West of Lot 6 (Facing W)



Image 35: Adjacent to Study Area – Lot 24 and Building 24 (Facing W)



Image 36: Adjacent to Study Area – Lot 23 and Building 23 (Facing W)



Image 37: Study Area – Creek at SW End of Lot 4 (Facing E)



Image 38: Study Area – Creek at SW End of Lot 4 (Facing N)



Image 39: Adjacent to Study Area – Lot 21 and Building 21 (Facing W)



Image 40: Adjacent to Study Area – Lot 20 and Building 20 (Facing W)



Image 41: Adjacent to Study Area – Lot 19 and Building 19 (Facing W)



Image 42: Adjacent to Study Area – Lot 19 and Building 19 (Facing S)



Image 43: Adjacent to Study Area – Lot 19/Building 19 Garage (Facing SW)



Image 44: Adjacent to Study Area – SW End of Lot 16 (Facing N)



Image 45: Adjacent to Study Area – 21st St. W. from Dead-End (Facing E)



Image 46: Adjacent to Study Area – 21st St. W. Dead-End (Facing W)



Image 47: Adjacent to Study Area – Lot 16 and Building 16 (Facing W)



Image 48: Adjacent to Study Area – Lot 15 and Building 15 (Facing W)



Image 49: Adjacent to Study Area -Lot 16 Building & Garage (Facing SW)



Image 50: Study Area - Lot 1 and Building 1 (Facing W)



Image 51: Study Area – Creek Between Lots 15 and 1 (Facing SW)



Image 52: Study Area – Lot 2 and Building 2 (Facing E)



Image 53: Adjacent to Study Area – Lot 17 and Building 17 (Facing E)



Image 54: Study Area – 6th Ave. W. from Dead-End (Facing S)



Image 55: Study Area – Lot 3 and Building 3 (Facing N)



Image 56: Study Area – Culvert at NW Corner of Lot 4 (Facing NW)



Image 57: Study Area – Lot 4 and Building 4 (Facing S)



Image 58: Study Area – Lot 5 and Building 5 (Facing S)



Image 59: Study Area – Lot 7 and Building 7 (Facing N)



Image 60: Study Area – Creek Between Lots 7 and 9 (Facing NW)



Image 61: Study Area – Creek at NE Corner of Lot 10 (Facing S)



Image 62: Adjacent to Study Area – 20th St. W. from 5th Ave. W. (Facing E)



Image 63: Study Area – 5th Ave. W. from 20th St. W. (Facing N)

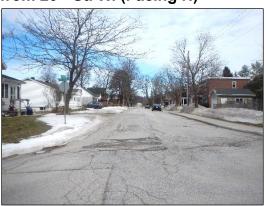


Image 64: Study Area – Lot 9 and Building 9 (Facing W)



Image 65: Study Area – Lot 8 and Building 8 (Facing W)



Image 66: Adjacent to Study Area – Lot 18 and Building 18 (Facing W)



Image 67: Adjacent to Study Area -Lot 22 / Building 22 on Right (Facing W)



Image 68: Adjacent to Study Area – NE End of Lot 14 (Facing SW)



Image 69: Adjacent to Study Area – 8th Ave. W. from NW End of Lot 14 (Facing N)



Image 70: Adjacent to Study Area – 8th Ave. W. from NW End of Lot 14 (Facing S)



Image 71: Adjacent to Study Area – Lot 33 and Building 30 (Facing S)



Image 72: Adjacent to Study Area – Building 25 from Lot 25 (Facing E)



Image 73: Adjacent to Study Area – 3rd Ave. W. from 19th St. W. (Facing S)



Image 74: Study Area – 19th St. W. from 4th Ave. W. (Facing W)



Image 75: Study Area - 19th St. W. from 4th Ave. W. (Facing E)



Image 76: Study Area – 4th Ave. W. from 19th St. W. (Facing N)



Image 77: Adjacent to Study Area – 4th Ave. W. from 19th St. W. (Facing S)



Image 78: Adjacent to Study Area – 5th Ave. W. from 19th St. W. (Facing S)



Image 79: Study Area – 19th St. W. from 6th Ave. W. (Facing E)



Image 80: Outside Study Area – 19th St. W. from 6th Ave. W. (Facing W)



Image 81: Study Area – 6th Ave. W. from 21st St. W. (Facing N)



Image 82: Study Area – 6th Ave. W. from 21st St. W. (Facing S)



Image 83: Study Area – 21st St. W. from 6th Ave. W. (Facing E)



Image 84: Study Area – 5th Ave. W. Between Lots 33 and 10 (Facing S)



Image 85: Study Area – 20th St. W. from 5th Ave. W. (Facing W)



Image 86: Outside Study Area – 3rd Ave. W. from 20th St. W. (Facing N)



Image 87: Study Area – Lot 13 and Building 13 from 3rd Ave. W. (Facing S)



Image 88: Outside Study Area – 20th St. W. from 3rd Ave. W. (Facing W)



Image 89: Adjacent to Study Area – Lot 14 and Building 14 (Facing SE)



Image 90: Study Area – Lot 13 from 19th St. W. (Facing N)



Image 91: Study Area – SW End of Lot 11 (Facing N)



10.0 APPENDICES

Appendix A: Cemetery Search



#	Street Address	Cemetery Y(es) /N(o)
1	2164 6 Ave W	N
2	2133 6TH AVE W	N
3	590 21ST ST W	N
4	585 21ST ST W	N
5	563 21ST ST W	N
6	596 20TH ST W	N
7	560 20TH ST W	N
8	2020 5TH AVE W	N
9	2006 5 th AVE W	N
10	550 19TH ST W	N
11	1914 4TH AVE W	N
12	1909 4TH AVE W	N
13	280 19TH ST W	N
14	2195 8th Ave West	N
15	2168 6TH AVE W	N
16	2130 6TH AVE W	N
17	2110 6TH AVE W	N
18	2163 6TH AVE W	N
19	Lot 10, Edward Street West (No address)	N
20	2140 5TH AVE W	N
21	570 21ST ST W	N
22	554 21ST ST W	N
23	520 21ST ST W	N
24	535 21ST ST W	N
25	513 21ST ST W	N



26	2000 ETH AVE W	N1
26	2060 5TH AVE W	N
27	2040 5TH AVE W	N
28	2090 6TH AVE W	N
29	2064 6TH AVE W	N
30	2044 6TH AVE W	N
31	2024 6TH AVE W	N
32	2020 6TH AVE W	N
33	2016 6TH AVE W	N
34	2006 6TH AVE W	N
35	1996 6TH AVE W	N
36	Part Lot 132, Lot 134 Amelia Street West (No address)	N
37	Lot 136, 138 & 140 Amelia Street West; Lot 135,137,139 Cocks Street East	N
	(No address)	
38	1896 6TH AVE W	N
39	1895 6TH AVE W	N
40	525 19TH ST WEST	N
41	1896 5TH AVE W	N
42	1895 5th Ave West	N
43	1880 4TH AVE W	N
44	1889 4TH AVE W	N
45	377 19TH ST W	N
46	375 19TH ST W	N
47	1898 3RD AVE W	N
48	1893 3RD AVE W	N
49	100 19th Street West	N
50	2004 3RD AVE W	N
51	325 20TH ST W	N
52	1985 4TH AVE W	N
53	1969 4TH AVE W	N
54	1965 4TH AVE W	N
55	1921 4TH AVE W	N
56	1913 4TH AVE W	N
57	1962 4TH AVE W	N
58	465 20TH ST W	N
59	475 20TH ST W	N
60	485 20TH ST W	N
61	492 20TH ST W	N
62	2031 5TH AVE W	N
63	2039 5TH AVE W	N

Appendix B: Field – Built Feature Records

Built Features Located within Lots of the Study Area

CULTURAL HERITAGE FORM	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
Built Heritage Resource Name:	T 1875 300 15 200 15 200 15 200 15 200 15 200 15 200 15 200 15 200 15 200 15 200 15 200 15 200 15 200 15 200 15
Building 1	THE R P. LEWIS CO., LANSING, MICH.
Municipal Address:	
2164 6th Ave. W.	
Associated Dates:	
20th Century (Unknown)	
Township. Former Sarawak Township, Town of Brooke	The state of the s
County/Regional Municipality: County of Grey, City of Owen Sound	· · · · · · · · · · · · · · · · · · ·
Resource Type:	Landmark (Y/N7):
House	N
One story brick house with attached two-car garag	
Evaluation of Cultural Heritage Value or Interest According to Design or Physical Value:	0 U. neg. 3706.
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: NO	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	

CULTURAL HERITAGE FORM	
Built Heritage Resource Name: Building 2	
Municipal Address: 2133 6th Ave. W.	
Associated Dates: 20th Century (Unknown)	The second
Township: Former Sarawak Township, Town of Brooke	Janes San -
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
One story brick house with attached car-port ad	dition. One story siding-covered addition at rear.
Evaluation of Cultural Heritage Value or Interest According	g to O. Reg. 9/06:
Design or Physical Value:	
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	



CULTURAL HERITAGE FOR	М
Built Heritage Resource Name:	
Building 3	
Municipal Address:	Unit Island
590 21st St. W.	
Associated Dates:	
20th Century (Unknown)	
Township:	
Former Sarawak Township, Town of Brooke	The same of the sa
County/Regional Municipality:	
County of Grey, City of Owen Sound	
Resource Type:	Landmark (Y/N?):
House	N
Description:	
One story house covered with aluminum siding	, attached one-car garage and addition at rear.
Evaluation of Cultural Heritage Value or Interest Accordi	ing to O. Pag. 9706-
	ng to O. Reg. 9700.
Design or Physical Value:	
When don't be a second to the last	
Historical or Associative Value:	
8905	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	



CULTURAL HERITAGE FORM	
Built Heritage Resource Name:	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Building 4	
Municipal Address: 585 21st St. W.	
Associated Dates: 20th Century (Unknown)	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
One story brick house with attached one-car gara	
Evaluation of Cultural Heritage Value or Interest According	to O. Reg. 9/06:
Design or Physical Value:	
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	



CULTURAL HERITAGE FORI	м
Built Heritage Resource Name: Building 5	
Municipal Address:	
563 21st St. W.	
Associated Dates:	The same of the sa
20th Century (Unknown)	The state of the s
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality:	
County of Grey, City of Owen Sound	
Resource Type:	Landmark (Y/N?):
House	N
Description:	
One story brick house with attached one-car ga	arage at rear.
Evaluation of Cultural Heritage Value or Interest Accordi	ing to O. Reg. 9/06:
Design or Physical Value:	
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Data Completed: February 22, 2018	7



CULTURAL HERITAGE FORM Built Heritage Resource Name: Building 6

Municipal Address:

596 20th St. W.

Associated Dates:

20th Century, 1940-1960

Fownship:

Former Sarawak Township, Town of Brooke

County/Regional Municipality:

County of Grey, City of Owen Sound

Resource Type:

House



Landmark (Y/N?):

Ν

Description:

One story Victory Style house with a small addition at rear, and detached one-car garage (modern). The main facade of the house is clapboard and includes one small sash window on either side of a central doorway. The roof is steeply pitched, has shallow eaves and no dormers.

Evaluation of Cultural Heritage Value or Interest According to O. Reg. 9/06:

Design or Physical Value:

One story Victory Style clapboard house with one small sash window on either side of a central doorway. The roof is steeply pitched, has shallow eaves and no dormers. Typical Victory Style house.

Historical or Associative Value:

Contextual Value:

The house is historically linked to its surroundings as it is a Victory house and reflectsocal development during the war time era.

Identified Heritage Attributes:

Simple one story clapboard house with one small sash window on either side of a central doorway. The roof is steeply pitched, has shallow eaves and no dormers. Typical Victory Style house.

Identification of CHVI: Yes

Completed By: P. Demarte (Name)



	NA.
CULTURAL HERITAGE FORM Built Heritage Resource Name:	
Building 7	
Municipal Address: 560 20th St. W.	
Associated Dates: 20th Century (Unknown)	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type:	Landmark (Y/N?):
House	N
Evaluation of Cultural Heritage Value or Interest According	to O. Reg. 9/06:
Design or Physical Value:	
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	



CULTURAL HERITAGE FORM	м
Built Heritage Resource Name: Building 8	
Municipal Address: 2020 5th Ave. W.	
Associated Dates: 20th Century (Unknown)	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type:	Landmark (Y/N?):
House	N
and has one window on either side of a central d	addition. The main facade of the house includes aluminum siding loorway, one of which is larger than the other.
Evaluation of Cultural Heritage Value or Interest According	ng to O. Reg. 9/06:
Design or Physical Value:	
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	



CULTURAL HERITAGE FORM	
Built Heritage Resource Name: Building 9	
Municipal Address: 2006 5th Ave. W.	
Associated Dates: Early 20th Century, 1890-1930	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
Description:	
entrance to one side. The two upper sash windo Evaluation of Cultural Heritage Value or Interest According	ws are small, while the main floor window is enlarged for display. In to O. Reg. 9/06:
Design or Physical Value:	3 10 0 . 11(3) 3/00.
Typical two story brick Vernacular Homestead St	yle house with enclosed porch and addition at rear. The main facade has easys wide, with an entrance to one side. The two upper sash windows are or display.
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Typical two story brick Vernacular Homestead S	tyle house. The main facade has a front-facing gable with a steep roof. . The two upper sash windows are small, while the main floor window
Identification of CHVI: Yes	
Completed By: P. Demarte (Name)	



CULTURAL HERITAGE FORM		
Built Heritage Resource Name: Building 10		
Municipal Address: 550 19th St. W.		
Associated Dates: 20th Century (Unknown)		
Township: Former Sarawak Township, Town of Brooke		
County/Regional Municipality: County of Grey, City of Owen Sound		
Resource Type: Housing Complex	Landmark (Y/N?): N	
Evaluation of Cultural Heritage Value or Interest According	to O. Reg. 9/06:	
Design or Physical Value:		
Historical or Associative Value:		
Contextual Value:		
Identified Heritage Attributes:		
Identification of CHVI: No		
Completed By: P. Demarte (Name)		
Date Completed: February 22, 2018		



CULTURAL HERITAGE FORM

Built Heritage Resource Name:

Building 11

Municipal Address:

1914 4th Ave. W.

Associated Dates:

Late 19th Century, 1840-1900

Former Sarawak Township, Town of Brooke

County/Regional Municipality:

County of Grey, City of Owen Sound

Resource Type:

Landmark (Y/N?):



Description:

Two storey Late Victorian Style yellow brick house with one-storey rear wood paneled addition. The plan is L-shaped and includes a veranda at the main entrance, which is off-set to one side. The main facade is two bays wide with two upper and two lower sash windows with the main entrance off to one side.

Evaluation of Cultural Heritage Value or Interest According to O. Reg. 9/06:

Design or Physical Value:

Typical Late Victorian Style home. The house is listed on the City of Owen Sound Heritage Register List.

Historical or Associative Value:

The house is listed on the City of Owen Sound Heritage Register List.

Associated with early settlement of Brooke.

Contextual Value:

Typical Late Victorian Style home. The house is listed on the City of Owen Sound Heritage Register List.

Identified Heritage Attributes:

Typical Late Victorian Style home. The house is listed on the City of Owen Sound Heritage Register List.

Identification of CHVI: Yes

Completed By: P. Demarte (Name)



CULTURAL HERITAGE FORM	M The state of the
Built Heritage Resource Name: Building 12	
Municipal Address: 1909 4th Ave. W.	
Associated Dates: 20th Century, 1940–1960	
Township: Former Sarawak Township, Town of Brooke	No. of the last of
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
	ion at rear, and detached one-car garage (modern). The main facade of ash window on one side of a central doorway. The roof is steeply
Evaluation of Cultural Heritage Value or Interest According	ng to O. Reg. 9/06:
Design or Physical Value:	
One story Victory Style clapboard house with on steeply pitched, has shallow eaves and no dorm	ne small sash window on one side of a central doorway. The roof is ners. Typical Victory Style house.
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Simple one story clapboard house with one sma steeply pitched, has shallow eaves and no dorm	all sash window on one side of a central doorway. The roof is ners. Typical Victory Style house.
Identification of CHVI: Yes	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	



CULTURAL HERITAGE FOR	м
Built Heritage Resource Name: Building 13	WI VE
Municipal Address: 280 19th St. W.	
Associated Dates: 20th Century (Unknown)	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
Evaluation of Cultural Heritage Value or Interest Accordi	ing to O. Reg. 9/06:
Design or Physical Value:	
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte	
(Name) Date Completed: February 22, 2018	



CULTURAL HERITAGE FOR	м
Built Heritage Resource Name: Building 14	
Municipal Address: 2195 8th Ave. W.	
Associated Dates: 20th Century (Unknown)	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
One-and-a-half story wood house wit Board and batten.	h detached one-car garage.
Evaluation of Cultural Heritage Value or Interest Accordi Design or Physical Value;	ng to O. Reg. 9/06:
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	



Built Features Located Adjacent to the Study Area

CULTURAL HERITAGE FORM	
Built Heritage Resource Name: Building 15	
Municipal Address: 2130 6th Ave. W.	
Associated Dates: 20th Century (Unknown)	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
Evaluation of Cultural Heritage Value or Interest Accordi	ng to O. Reg. 9/06:
Design or Physical Value:	
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	

	Sit.
CULTURAL HERITAGE FORM	
Built Heritage Resource Name: Building 16	***
Municipal Address: 2110 6th Ave. W.	
Associated Dates: 20th Century (Unknown)	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
Description: One story house with aluminum siding. Small pre Basement.	efabricated metal tool shed and one-car garage at rear.
Evaluation of Cultural Heritage Value or Interest According Design or Physical Value:	to O. Reg. 9/06:
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	



	4
CULTURAL HERITAGE FORM	
Built Heritage Resource Name: Building 17	
Municipal Address: 2163 6th Ave. W.	
Associated Dates: 20th Century (Unknown)	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type:	Landmark (Y/N?):
House	N
Gambrel shaped roof, return eaves.	
Evaluation of Cultural Heritage Value or Interest According	to O. Reg. 9/06:
Design or Physical Value:	
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	



CULTURAL HERITAGE FORM Built Heritage Resource Name: **Building 18** Municipal Address: 2040 6th Ave. W. Associated Dates: 20th Century, 1940-1960 Township: Former Sarawak Township, Town of Brooke County/Regional Municipality: County of Grey, City of Owen Sound Resource Type: Landmark (Y/N?): House Description: One story Victory Style house with a modern car-port addition at rear, and small detached tool shed and garage at rear. The main facade of the house is clapboard and includes decorative brick work on one side of the main entrance. There is one small sash window on either side of a central doorway. The roof is steeply pitched, has shallow eaves and no dormers. Evaluation of Cultural Heritage Value or Interest According to O. Reg. 9/06: Design or Physical Value: One story Victory Style clapboard house with one small sash window on either side of a central doorway. The roof is steeply pitched, has shallow eaves and no dormers. Typical Victory Style house. Historical or Associative Value: Contextual Value: Identified Heritage Attributes: Simple one story clapboard house with one small sash window on either side of a central doorway. The roof is steeply pitched, has shallow eaves and no dormers. Typical Victory Style house. Identification of CHVI: Yes Completed By: P. Demarte (Name)



CULTURAL HERITAGE FORM

Built Heritage Resource Name:

Building 19

Municipal Address:

2090 6th Ave. W.

Associated Dates:

c.1830-Present

Township:

Former Sarawak Township, Town of Brooke

County/Regional Municipality:

County of Grey, City of Owen Sound

Resource Type:

House



Landmark (Y/N?):

Ν

Description:

One-and-a-half storey Gothic Revival brick house with modern one storey rear addition (aluminum siding). The house has a simple T-shaped plan with a medium pitched front to back roof and steeply pitched central front dormer. The main facade includes a central front door with one sash window on either side. There is a detached two-car garage (modern) at rear.

Evaluation of Cultural Heritage Value or Interest According to O. Reg. 9/06:

Design or Physical Value:

One-and-a-half storey Gothic Revival brick house. The house has a simple T-shaped plan with a medium pitched front to back roof and steeply pitched central front dormer.

Absence of bargeboard.

Historical or Associative Value:

It has historical or associative value because it has direct associations with an historic event (the original development of the Town of Brooke).

Contextual Value:

historically linked to its surroundings.

Identified Heritage Attributes

One-and-a-half storey Gothic Revival brick house. The house has a simple T-shaped plan with a medium pitched front to back roof and steeply pitched central front dormer.

House style dates from 1790 to 1900.

Identification of CHVI: Yes

Completed By: P. Demarte



CULTURAL HERITAGE FORM	
Built Heritage Resource Name: Building 20	
Municipal Address: 2064 6th Ave. W.	
Associated Dates: 1950 - 2003	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
Description: One storey brick house with attached one-car gar	age. Raised Bungalow.
Evaluation of Cultural Heritage Value or Interest According Design or Physical Value:	to O. Reg. 9/06:
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	1



CULTURAL HERITAGE FOR	M
Built Heritage Resource Name: Building 21	
Municipal Address: 2044 6th Ave. W.	
Associated Dates: 1950- 2003	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
Evaluation of Cultural Heritage Value or Interest According to the Physical Value:	ng to O. Reg. 9/06:
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte	
Date Completed: February 22, 2018	



1			
CULTURAL HERITAGE FORM			
Built Heritage Resource Name: Building 22			
Municipal Address: 2024 6th Ave. W.			
Associated Dates: 20th Century (Unknown)			
Township: Former Sarawak Township, Town of Brooke			
County/Regional Municipality: County of Grey, City of Owen Sound			
Resource Type:	Landmark (Y/N?):		
House	N		
Description:	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
Two storey house with attached one-car garage	Vinyl siding.		
Evaluation of Cultural Heritage Value or Interest According Design or Physical Value:	to O. Reg. 9/06:		
Historical or Associative Value:			
Contextual Value:			
Identified Heritage Attributes:			
Identification of CHVI: No			
Completed By: P. Demarte (Name)			
Date Completed: February 22, 2018			



CULTURAL HERITAGE FORM Built Heritage Resource Name: Building 23	
Municipal Address: 2020 6th Ave. W.	
Associated Dates: 20th Century (Unknown)	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type:	Landmark (Y/N?):
House Description:	N
Evaluation of Cultural Heritage Value or Interest According	to O. Reg. 9/06:
Design or Physical Value:	
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	



CULTURAL HERITAGE FORM	
Built Heritage Resource Name: Building 24	
Municipal Address:	
2016 6th Ave. W.	
Associated Dates: 20th Century, 1940–1960	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality:	
County of Grey, City of Owen Sound	
Resource Type:	Landmark (Y/N?):
House	N
Description:	
	n at rear (modern). The main facade of the house is clapboard and a central doorway (now covered with a modern enclosed front porch eaves and no dormers.
Evaluation of Cultural Heritage Value or Interest According	to O. Reg. 9/06:
Design or Physical Value:	
One story Victory Style clapboard house with one steeply pitched, has shallow eaves and no dormer	small sash window on either side of a central doorway. The roof is rs. Typical Victory Style house.
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Simple one story clapboard house with one small steeply pitched, has shallow eaves and no dormer	sash window on either side of a central doorway. The roof is s. Typical Victory Style house.
Identification of CHVI: Yes	
Completed By: P. Demarte (Name)	



CULTURAL HERITAGE FORM

Built Heritage Resource Name: Building 25

Municipal Address:

1880 4th Ave. W.

Associated Dates:

Late 19th Century, 1870-1910

Township

Former Sarawak Township, Town of Brooke

County/Regional Municipality:

County of Grey, City of Owen Sound

Resource Type:

House



Landmark (Y/N?):

N

Description:

Two-and-a-half storey Queen Ann Revival Style brick house with attached two storey rear addition. Small, detatched modern covered sitting area and tool shed at rear. The main facade of the house includes a large wrap-around verandah and a tower off-set to one side.

Evaluation of Cultural Heritage Value or Interest According to O. Reg. 9/06:

Design or Physical Value:

Typical Queen Ann Revival Style home. The house is listed on the City of Owen Sound Heritage Register List.

Historical or Associative Value:

Typical Queen Ann Revival Style home. The house is listed on the City of Owen Sound Heritage Register List.

unknown

Contextual Value:

Typical Queen Ann Revival Style home. The house is listed on the City of Owen Sound Heritage Register List.

unknown

Identified Heritage Attributes:

Typical two-and-a-half storey Queen Ann Revival Style brick house. The main facade of the house includes a large wrap-around verandah and a tower off-set to one side.

Identification of CHVI: Yes

Completed By: P. Demarte (Name)



CULTURAL HERITAGE FORI	M A A A A A A A A A A A A A A A A A A A
Built Heritage Resource Name: Building 26	
Municipal Address: 1889 4th Ave. W.	
Associated Dates: 20th Century (Unknown)	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
Brick lower floor exterior and stucco uppe	
Evaluation of Cultural Heritage Value or Interest Accordi Design or Physical Value:	ng to O. keg. 9/06:
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte	
Date Completed: February 22, 2018	



CULTURAL HERITAGE FORM

Built Heritage Resource Name:

Building 27

Municipal Address:

375 & 377 19th St. W.

Associated Dates:

1790-1900

Township:

Former Sarawak Township, Town of Brooke

County/Regional Municipality:

County of Grey, City of Owen Sound

Resource Type:

House



Landmark (Y/N?):

Ν

Description:

One-and-a-half storey **Gothic Revival** brick house. The house has a simple rectangular plan with a medium pitched front to back roof and steeply pitched central front dormer. The main facade of the house includes two central front doors (modified from original single entryway), with one sash window on either side.

Evaluation of Cultural Heritage Value or Interest According to O. Reg. 9/06:

Design or Physical Value:

One-and-a-half storey Gothic Revival : brick house. The house has a simple rectangular plan with a medium pitched front to back roof and steeply pitched central front dormer.

There is no decorative barge board. House has been converted to a duplex but once had a central door.

Historical or Associative Value:

It has historical or associative value because it has direct associations with an historic event (the original development of the Town of Brooke)

Contextual Value:

Building 27 has contextual value as it is historically linked to its surroundings.

Identified Heritage Attributes:

One-and-a-half storey **Gothic Revival** brick house. The house has a simple rectangular plan with a medium pitched front to back roof and steeply pitched central front dormer.

Identification of CHVI: Yes

Completed By: P. Demarte



CULTURAL HERITAGE FORI	м
Built Heritage Resource Name: Building 28	
Municipal Address: 1898 3rd Ave. W.	
Associated Dates: 20th Century (Unknown)	
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: Commercial Building	Landmark (Y/N?): N
Evaluation of Cultural Heritage Value or Interest According Design or Physical Value:	ng to O. Reg. 9/06:
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte	
Date Completed: February 22, 2018	



CULTURAL HERITAGE FORM

Built Heritage Resource Name:

Building 29

Municipal Address:

1893 3rd Ave. W.

Associated Dates:

Early 20th Century, 1890-1930

Township

Former Sarawak Township, Town of Brooke

County/Regional Municipality:

County of Grey, City of Owen Sound

Resource Type:

House



Landmark (Y/N?):

Ν

Description:

Two storey brick Vernacular Homestead Style house with addition at rear. Rear addition is one storey and covered with aluminum siding. The main facade has a front-facing gable with a steep roof. It is two bays wide, with an entrance to one side. The two upper sash windows are small, while the main floor window is enlarged.

Evaluation of Cultural Heritage Value or Interest According to O. Reg. 9/06:

Design or Physical Value:

Typical two story brick Vernacular Homestead Style house. The main facade has a front-facing gable with a steep roof. It is two bays wide, with an entrance to one side. The two upper sash windows are small, while the main floor window is enlarged.

Historical or Associative Value:

This property has design or physical value because it is a representative example of an early Ontarian house style.

Contextual Value:

It has contextual value as it is historically linked to its surroundings.

Identified Heritage Attributes:

Typical two story brick Vernacular Homestead Style house. The main facade has a front-facing gable with a steep roof. It is two bays wide, with an entrance to one side. The two upper sash windows are small, while the main floor window is enlarged.

Identification of CHVI: Yes

Completed By: P. Demarte



CULTURAL HERITAGE FOR	м
Built Heritage Resource Name: Building 30	
Municipal Address: 485 20th St. W.	
Associated Dates: 20th Century (Unknown)	A LOOPERS
Township: Former Sarawak Township, Town of Brooke	
County/Regional Municipality: County of Grey, City of Owen Sound	
Resource Type: House	Landmark (Y/N?): N
Evaluation of Cultural Heritage Value or Interest Accordi	ng to O. Reg. 9/06:
Design or Physical Value:	
Historical or Associative Value:	
Contextual Value:	
Identified Heritage Attributes:	
Identification of CHVI: No	
Completed By: P. Demarte (Name)	
Date Completed: February 22, 2018	



Appendix C: Heritage Rivers

The following rivers are Canadian Heritage Rivers in Ontario (http://chrs.ca/the-rivers/,). The Pottawatomi and Sydenham Rivers are not on the list. This list was accessed on January 31, 2018.

Ontario Bloodvein River Boundary Waters/Voyageur Waterway Detroit River French River Grand River Humber River Mattawa River Missinaibi River Ottawa River Rideau Waterway St. Mary's River Thames River

Appendix D: National Historic Sites

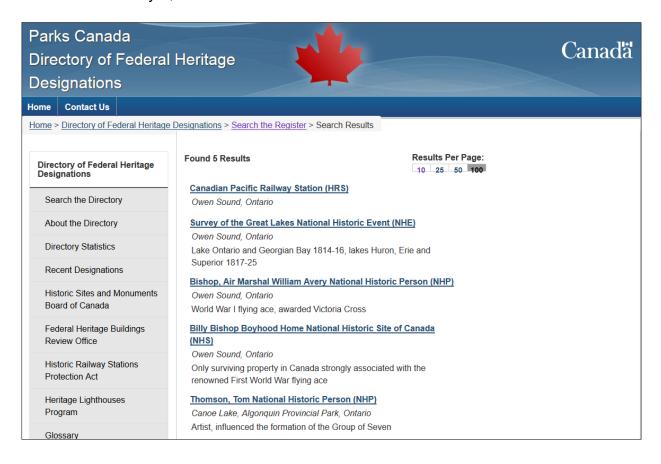
The following are National Historic Sites in Southern Ontario (http://www.soto.on.ca/national-historic-sites-of-southern-ontario/). None of them are located within or adjacent to the Study Area. The list was accessed January 31, 2018.

National Historic Sites

- ▶ Bell Homestead
- Fort George
- ► Fort Malden
- ► HMCS Haida
- Navy Island
- ▶ Point Clark Lighthouse
- Queenston Heights
- Southwold Earthworks
- ► Trent-Severn Waterway
- Woodside

Appendix E: Federal Heritage Buildings

A search was made for Federal heritage buildings using the key words "Owen Sound". Five results were found. The website, http://www.pc.gc.ca/apps/dfhd/result, was accessed February 1, 2018.



Appendix F: Municipally Designated Sites

A search was conducted of The City of Owen Sound's website. There were two addresses that lie within or adjacent to the Study Area. The first is 1914 4th Avenue West, which occupies part of a lot that the drainage basin runs through, while the second is 1880 4th Avenue West which lies on an adjacent lot.

The search was conducted on February 1, 2018. (https://www.owensound.ca/en/exploring/heritage-conservation.aspx)



Listed Below are the designated properties for the West Side of the City of Owen Sound. Highlighted in blue are the two properties that occupy adjacent lots to the Study Area or occupy part of a lot of the Study Area, but neither is located directly within the Study Area.

- 1. 815 1st Ave W Queen's Park*
- 2. 824 1st Ave W Public Library*
- 900 1st Ave W Christian Science Society*
- 4. 940 1st Ave W Kennedy Home
- 5. 972 1st Ave W
- 6. 996 1st Ave W Charles Rankin Home
- 7. 1064 1st Ave W Cobert Foundry
- 8. 1165 1st Ave W CNR Station
- 9. 405 2nd Ave W Legate Home
- 10. 606 2nd Ave W Wilcox/Bowman Home*
- 11, 665 2nd Ave W Christie Home
- 12. 680 2nd Ave W W.G. McLauchlan Home
- 13. 712 2nd Ave W Scott/Manley Home
- 14. 745 2nd Ave W Pettigrew/Urquhart Home
- 15. 756 2nd Ave W
- 16. 767 2nd Ave W Webster/Case Home
- 17. 785, 789, 791, 795 2nd Ave W Kennedy Terrace
- 18. 903 2nd Ave W Wilkinson House*
- 19. 935 2nd Ave W Wright Home
- 20. 949 2nd Ave W
- 21. 1010 2nd Ave W John Meir Home
- 22. 2nd Ave and 14th Street W Harrison Mill



- 23. 323 3rd Ave W Sheldon Place
- 24. 805 3rd Ave W John Miller Home
- 25. 927 3rd Ave W Harrison Home
- 26. 932 3rd Ave W U.S. Consulate*
- 27. 948 3rd Ave W Billy Bishop Home*
- 28. 331 4th Ave W Sheldon Place Gatehouse
- 29. 461 4th Ave W Art Moore Home
- 30. 681 4th Ave W Creasor Home
- 31. 727 4th Ave W Eaglesnest
- 32. 759 4th Ave W George Snider Home/Fairview
- 33. 1050 4th Ave W F.W. Harrison House*
- 34. 1178 4th Ave W Tannahill Funeral Home
- 35. 1735 4th Ave W Victoria School
- 36. 1880 4th Ave W located on adjacent lot
- 37. 1914 4th Ave W located on affected lot
- 38. 867 4th Ave 'A' W Fleming House
- 39. 2545 5th Ave W Eddie Sargent House
- 40. 1140 6th Ave W Michael Forhan Home
- 41. 190 1st St SW Greenwood Cemetery Buildings
- 42. 180 4th St W
- 43. 197 8th St W Kennedy Terrace
- 44. 215-217 8th St W Atkins Residence*
- 45. 284 9th St W Lemon Home
- 46. 187 10th St W Pollock Home
- 47. 219 10th St W Notter Home
- 48. 285 10th St W Park Apartments
- 49. 310 10th St W Central Westside United Church*
- 50. 245 11th St W British Methodist Episcopal Church*
- 51. 500 16th St W

A search of the County of Grey's list of historic properties or sites or plaques was also conducted (https://www.visitgrey.ca/unique-grey/historical-sites). There were no sites or plaque located within the Study Area. "The Newash Indian Village Heritage Plaque" is located within 1 km of the Study Area.

- Agnes Campbell MacPhail 1890-1954 Heritage Plaque
- Beautiful Joe Park
- Bishop House: Museum, Archives and National Historic Site
- Charles Rankin Heritage Plaque
- Craigleith Heritage Depot
- Craigleith Shale Oilworks 1859 Heritage Plaque
- Daniel Knechtel Heritage Plaque
- David William Currie, V.C., Heritage Plaque
- Meaford Hall Arts & Cultural Centre
- Meaford Museum
- Neustadt Springs Brewery



- Silent Valley
- The Blue Mountains Public Library, L.E Shore branch
- The Durham Road Heritage Plaque
- The Founding of Durham Heritage Plaque
- The Founding of Meaford Heritage Plaque
- The Founding of Owen Sound Heritage Plaque
- The Garafraxa Road Heritage Plaque
- The Loss of the Jane Miller Heritage Plaque
- The Newash Indian Village Heritage Plaque
- The Old Mail Road Heritage Plaque
- The Right Honourable Sir Lyman Poore Duff Heritage Plaque
- The Sinking of the Mary Ward Heritage Plaque
- The Toronto, Grey and Bruce Railway Heritage Plaque
- The Toronto-Sydenham Road Heritage Plaque
- Thomas William Holmes, V.C., Heritage Plaque
- Tommy Burns Heritage Plaque
- Tom Thomson Heritage Plaque
- Welbeck Shingle Mill
- William Avery Bishop, V.C. Heritage Plaque

Appendix G: Partial CV of Scarlett Janusas

SCARLETT JANUSAS ARCHAEOLOGY INC. 269 Cameron Lake Road Tobermory, Ontario N0H 2R0 Phone 519-596-8243 cell 519-374-1119 jscarlett@amtelecom.net www.actionarchaeology.ca

COMPANY PROFILE

Scarlett Janusas Archaeology Inc. (SJAI) is a consulting firm with area representatives in Owen Sound, Kingston, the Greater Toronto Area, Hamilton, London, Peterborough, Niagara-on-the-Lake, and Tobermory, Ontario. We conduct archaeological work **anywhere** in the province of Ontario, on <u>land and underwater</u>. Our experience has taken us to Thunder Bay in the north, Pembroke and Ottawa in the east, Amherstburg in the east; and Niagara on the Lake in the south, and all points in between. Our work has included partnerships and engagement with many First Nation and Métis groups across the province.

Staff and associates include:

- Ms. Scarlett Janusas, President of the company, and an experienced underwater and land based archaeologist, with experience in both prehistoric and historic archaeology, and over 39 years' experience.
- Ms. Susan Bazely, Senior Archaeologist and Education Coordinator, with 33 years' experience;
- Mr. John Grenville, Cultural Heritage Specialist, over 35 years' experience;
- Dr. Thomas Arnold, Senior Archaeologist and surveyor, 37 years' experience
- Mr. James Bandow, Senior Archaeologist, 33 years' experience
- Ms. Chelsea Robert; Field Director/Archaeologist; lab supervisor; 10 years' experience;
- Mr. Pete Demarte, Field Director/Archaeologist, 9 years' experience
- Ms. Gina Martin, historian, land conveyancer and genealogist with over 30 years' experience;
- Mr. Patrick Folkes, a recognized marine and land historian with over 40 years research experience;
- Mr. Douglas Sweiger, a material culture specialist in small arms and military history with over 25 years' experience;
- Mr. David Gilchrist, a marine archaeologist and teaching specialist with over 30 years' experience;
- Dr. Kimberly Monk, marine archaeologist and education expert;
- Mr. Jim Garrington, Shark Marine Technologies for geophysical projects.

Our vast experience allows us to offer our clients a multitude of services including both land and underwater archaeology, and prehistoric and historic archaeology. The company has licensed archaeologists under the requirements of the Ontario Heritage Act and is able to conduct Stage 1 (background research), Stage 2 (preliminary field assessment), Stage 3 (definitive field assessment) and Stage 4 (complete site mitigation) for all archaeological projects. In addition, we have the resources to offer our clients follow-up services such as development of interpretative displays, hands-on education, and educational course development.

SCARLETT E. JANUSAS

269 Cameron Lake Road, Tobermory, Ontario N0H 2R0 www.actionarchaeology.ca Phone 519-596-8243 cell 519-374-1119 <u>jscarlett@amtelecom.net</u>

EDUCATION

B.A., Anthropology/Archaeology, U/ of Western Ontario, London M.A., Anthropology/Archaeology, Trent University, Peterborough National Museum of Canada, Ottawa, Ontario Basic Museum Management Certificate

University of Waterloo, Waterloo, Ontario Courses towards a Certificate in Environmental Assessment

Courses towards a Certificate in Environmental Assessment Submerged Worlds and Marine Archaeology, U of Southampton

AFFILIATIONS

ONTARIO MARINE HERITAGE COMMITTEE
ONTARIO ARCHAEOLOGICAL SOCIETY
SOCIETY FOR HISTORICAL ARCHAEOLOGY
ASSOCIATION OF PROFESSIONAL ARCHAEOLOGISTS
(V.P. 2005-09) (PRES. 2009-13) (PAST PRESIDENT 2013-15)
COUNCIL FOR NORTHEASTERN HISTORIC ARCHAEOLOGY
CHAIR OF TOBERMORY HYPERBARIC FACILITY
BOARD (2017-2019)

Experience:

2013 to date SCARLETT JANUSAS ARCHAEOLOGY INC.

President – Responsible for conducting cultural impact assessment and site mitigation and development of cultural resource management plans for clients in Ontario as part of the Ontario Heritage Act, the Planning Act, the Aggregates Act and as part of environmental impact assessment both on land and underwater. Compliance with the Ministry of Labour Regulations for work conducted underwater. Responsible for day to day management of above mentioned firm. Responsible for varied crew sizes, ranging from 1 to 60 persons depending on project needs. Experience includes writing proposals and schedules, administration, co-ordination of projects and crew, data collection and analysis, photography, graphics, report writing and preparation, invoicing, payroll, accounting, and compliance mitigation.

2002 -2013 SCARLETT JANUSAS ARCHAEOLOGICAL AND HERITAGE CONSULTING AND EDUCATION

President – Responsible for conducting cultural impact assessment and site mitigation and development of cultural resource management plans for clients in Ontario as part of the Ontario Heritage Act, the Planning Act, the Aggregates Act and as part of environmental impact assessment both on land and underwater. Compliance with the Ministry of Labour Regulations for work conducted underwater. Responsible for day to day management of above mentioned firm. Responsible for varied crew sizes, ranging from 1 to 30 persons depending on project



needs. Experience includes writing proposals and schedules, administration, co-ordination of projects and crew, data collection and analysis, photography, graphics, report writing and preparation, invoicing, payroll, accounting, and compliance mitigation.

2009, 2010 THIS LAND ARCHAEOLOGY

FIELD DIRECTOR/ASSOCIATE – STAGE 2, 3 AND 4 PROJECTS IN GREATER TORONTO AREA, RICHMOND HILL, AURORA, BOND HEAD, BRAMPTON, BRANTFORD, INNISFIL, BRADFORD, VAUGHAN, OSHAWA.

1995 to 2002 MAYER HERITAGE CONSULTANTS

Consulting Archaeologist – Responsible for conducting cultural impact assessment and site mitigation and development of cultural resource management plans for clients in Ontario as part of the Ontario Heritage Act, the Planning Act, and as part of environmental impact assessment both on land and underwater. Responsible for varied crew sizes, ranging from 1 to 16 persons, depending on project needs. Responsibilities include writing proposals, schedules, coordination of projects and crew, data collection and analysis, photography, graphics, and report writing and preparation.

1993 to 1995 GOLDER ASSOCIATES LIMITED

Senior Archaeologist – Responsible for eastern Canada, development of an archaeology section, preparation of proposals, field and laboratory work, preparation of reports, marketing and budgeting. Associate in environmental assessment projects.

1993 to 2002 ONTARIO MARINE HERITAGE COMMITTEE

Co-Principal in the Submerged Prehistoric Shoreline Study in Georgian Bay in cooperation with the Ontario Marine Heritage Committee, Parks Canada, Fathom Five National Marine Park and the Geological Survey of Canada. The study focused on the geological history of previously exposed watercourses and the archaeological potential of the former exposed areas for archaeological sites dating to the Paleo and Archaic periods of southwestern Ontario. The technical portion of the project includes the use of side scan sonar, GPS, depth sounders, navy submersibles, remote videos, SCUBA, and computers.

1991 to 2001 ONTARIO MARINE HERITAGE COMMITTEE

Chairperson – Responsibilities include scheduling, organization of workshops and meetings, administrative duties, chairing meetings and providing archaeological input into proposed and active projects.

1986 to 1993 REGIONAL MUNCIPALITY OF WATERLOO

Regional Archaeologist – Responsibilities included 1) the provision of expert advice on archaeological matters to municipalities, developers, planning, engineering and archaeological consultants regarding archaeological potential of the Region, and Planning and Development policy pertaining to heritage resource management; 2) undertaking research and special studies to support Regional decisions on archaeologically related matters; 3) acted as an archaeological consultant for the Region; 4) acted as the liaison between the Province of Ontario and the Municipality; 5) developed policy for the effective management of archaeological resources; 6) acted as an information source for private, business and public sectors on matters of archaeology; 7) initiated and conducted special projects a) the creation of a permanent Archaeology Division for the Regional Municipality of Waterloo b) researched, developed and published the first Archaeological Master Plan in the Province of Ontario c) invited participant for the Federal Environmental Assessment Review Office Environmental Assessment and Heritage National Workshop, Ottawa; d) staff liaison for the Regional Official Policies Plan Heritage Advisory Committee (1991-1993); e) acquired the loan of the prehistoric and historic Lisso collection and conducted analysis of the collection f) organized and supervised the collection and analysis of urban historic archaeological potential data for urban centres in the

Regional Municipality of Waterloo g) member of the Regional Official Polices Plan Management Team h) Regional courses in field archaeology i) volunteer program j) designation of an Aboriginal cemetery for remains located during development and k) field school at the Waterloo County Jail for primary grade students.

1984 to 1997 SCARLETT JANUSAS AND ASSOCIATES INC.

President of Archaeological Consulting Firm— Created firm in response to development pressures on archaeological resources. Services provided by the firm included background research studies, archaeological resource assessments, cultural impact studies, interpretative design projects, resource evaluation and interpretation models, extant artifact collection documentation, analysis and interpretation, archaeological excavation and monitoring, cultural resource management, historic research to locate environmental hazards, historic interpretation of properties (genealogy of historic properties). Scarlett Janusas and Associates Inc. was a Canadian heritage and archaeological consulting firm specializing in archaeological resource assessment, cultural impact studies, cultural resource management and interpretative studies for land and underwater heritage resources.

1992 to 1995 MAYER HERITAGE CONSULTANTS INC.

Marine Heritage Associate – Responsibilities included management of all marine heritage projects.

1990 ONTARIO MARINE HERITAGE COMMITTEE

Co-principal for the archaeological documentation of the HMS NEWASH.

1990 ONTARIO HERITAGE FOUNDATION

Principal Conservator – Responsible for the restoration of ceramic class from Inge Va, Perth County, Ontario.

1989 CANADIAN PARKS SERVICE

Volunteer – Mapping of the shipwreck the MINCH in Fathom Five National Marine Park.

1988 SCARLETT JANUSAS AND ASSOCIATES INC.

Principal Investigator – Responsible for the underwater survey of Ste. Marie II, Christian Island and for research for the marine history of the Christian Islands for the Christian Island Archaeological Master Plan.

1987 MAYER, PIHL, POULTON AND ASSOCIATES

Principal Investigator – Responsible for conducting the TransCanada Kirkwell Pipeline Survey.

1987 SCARLETT JANUSAS AND ASSOCIATES INC.

Principal Investigator – Responsible for the preliminary investigations of a scuttled ship located in the excavation of the Dome Stadium.

1986 MAYER, PIHL, POULTON AND ASSOCIATES

- **a) Field Assistant** Responsible for the Union Gas pipeline heritage assessment in Ancaster/Hamilton area, housing development.
- **b)** Field Assistant excavation of the Pengelly site near Mississauga, a Middle Woodland village.
- **c) Field Assistant** several housing subdivision heritage resource assessments in the cities of Kitchener and Waterloo.

1986 EMPRESS OF IRELAND HISTORICAL SOCIETY



Archaeological Consultant – Providing archaeological advice to the Society.

1986 ONTARIO MARINE HERITAGE COMMITTEE

Archaeological Assistant – Responsible for the preliminary mapping and excavation of an unidentified mid-19th century ship located in Lake Erie at a depth of 70'.

1986 SCARLETT JANUSAS AND ASSOCIATES

Principal – Responsible for investigation of a proposed dock area at Historic Naval and Military Establishments. Underwater archaeological survey.

1985 TORONTO HISTORICAL BOARD

Senior Archaeologist – Developed a study report recommending a City Archaeology Policy and implementation guidelines. Two excavations were also conducted at the MacKenzie House and St. James Cathedral. Impact assessment of Toronto Island historic midden.

1984-1987 MAYER, PIHL, POULTON AND ASSOCIATES

Consulting Archaeologist – Conducting impact assessments and site mitigation on such projects as Union Gas Pipeline impact assessment in Ancaster/Hamilton area, subdivision in Niagara Region, excavation of the Pengelly site near Mississauga, subdivision assessment in Kitchener, excavation of 19th century mill (Elmdale Mill) in Ajax, and archaeological assessment along Moira River, Belleville.

1984 CANADIAN PARKS SERVICE

- a) Archaeologist—Responsible for conducting an archaeological resource evaluation of Point Pelee National Park and the development of the Point Pelee National Park Cultural Resource Management Plan. Also conducted two field campaigns to Central Grenedier Island in St. Lawrence Islands National Park. Acted as co-leader in the presentation of a special seminar at Point Pelee National Park to inform staff of progress of the Archaeological Resource Management Plan and to aid in establishing and interpretation exhibition of the prehistory of man at the Park.
- **b)** Marine Archaeologist (GT-2), Marine Heritage Unit Red Bay project, Labrador. Responsible for the excavation of a 16th century Spanish Basque whaling ship locating in approximately 40' of water including mapping and recording. Experience with airlifts, dry suits and hot water suits.

1983 FATHOM FIVE PROVINCIAL PARK

Docent – Aided visiting divers in orientation to the Park, its rules and regulations, and provided information of shipwrecks of the area.

1983 to 1986 ONTARIO UNDERWATER COUNCIL

Vice-President of Marine Conservation – Responsible for providing initiative for the certifying agencies to include an underwater archaeological component in their teaching programs. Developed a slide show on underwater archaeology. Established the Marine Heritage Trust Fun. Hosted and organized numerous underwater archaeological seminars and workshops including Thunder Bay and Toronto.

1983 MINISTRY OF CITIZENSHIP AND CULTURE

Archaeologist – Assisted in various underwater archaeological projects across the province including Port Abino and Niagara-on-the-Lake.

1983 ONTARIO MARINE HERITAGE COMMITTEE

Consultant – Provided advice on submerged resource survey of waters off the Penetanguishene Naval and Military Establishments.

1983 SAVE ONTARIO SHIPWRECKS

Consultant – Provided advice on the recording and survey of an 18th century wharf at Navy Hall.

1983 ONTARIO HERITAGE FOUNDATION

Originator, Designer, Producer and Promoter – slide and cassette show on underwater archaeology, lecture material for various diving agencies in Ontario on marine conservation. Grant.

1983 ONTARIO UNDERWATER COUNCIL

- a) Program Chairperson 3rd Annual Underwater Archaeological Seminar.
- b) Originator and Developer Ontario Underwater Council Heritage Trust Fund.
- c) OUC Representative Provided input for the National Marine Parks Policy.

1983 to 1991 MAYER, POULTON AND ASSOCIATES

Marine Heritage Associate – Provide advice on all marine projects.

1983 MUSEUM OF INDIAN ARCHAEOLOGY

Assistant Archaeologist – GO TRAIN (Ministry of Transportation and Communication) survey conducted near Oshawa, Ontario.

Field Director – Crawford Lake site, a Middle Woodland village for the Halton Region Conservation Authority. Supervision of a crew of 8 in the excavation and recording of a longhouse and test trenches.

Field Assistant – archaeological resource assessment of the McGrath Site, Middlesex County.

1982 MUSEUM OF INDIAN ARCHAEOLOGY

Assistant Field Director – Willcock site, Byron, Ontario. Responsible for the supervision of the excavation of an undisturbed prehistoric (circa 1250 A.D.) site, and the preliminary conservation and cataloguing of artifacts.

Field Director – Crawford Lake site, Halton Region Conservation Authority. Responsible for the excavation of a longhouse and the survey and excavation of a conservation roadway.

Assistant Field Director and Acting Director – Crawford Lake Village site, Halton Region Conservation Authority. Responsible for the excavation of the prehistoric Middleport village, preliminary conservation, cataloguing and flotation.

Assistant Photographer and Designer – Responsibilities included preparation of plates for publication, developing film and PMT production.

Principal Investigator – preliminary underwater archaeological survey of Crawford Lake, Halton Region.

Archaeological Assistant – archaeological resource assessment, City of London.

1981 MUSEUM OF INDIAN ARCHAEOLOGY

Assistant Contract Archaeologist – Responsible for conducting archaeological resource assessments on properties scheduled for development.

Contract Archaeologist – responsible for conducting archaeological resource assessment on properties scheduled for development.

Research Associate

1981-1983 SELF-EMPLOYED

Principal Investigator – Preliminary underwater survey of the Kettle Point chert outcrops off Kettle Point, Lambton County (part of Master's thesis).

1981 to 1982 SELF-EMPLOYED

Principal Investigator – Kettle Point Chert project. Kettle Point chert samples were collected and used in a petrological study and spatial and temporal distribution analysis. Methods of investigation included thin section analysis, x-ray fluorescence, neutron activation analysis and isotopic composition analysis. Master's thesis.

1980 MUSEUM OF INDIAN ARCHAEOLOGY



Lab analyst – Conducted the preliminary conservation and cataloguing of the 19th century Van Egmond house materials (Seaforth, Ontario).

Assistant Field Director – prehistoric Neutral Lawson village site, London. Responsible for directing excavation, public relations and technical assistance.

Field Director – Archaic site was subject of salvage excavation utilizing waterscreens and heavy machinery.

Field Assistant – excavation of the 19th century Van Egmond House.

Assistant Field Director – multi-component site of Squaw Island in St. Lawrence Islands National park. In association with the Archaeological Survey of Canada, National Museum of Man.

1979 to 1980 MUSEUM OF INDIAN ARCHAEOLOGY

Research Assistant – Analysis of the Draper site castellations employing SPSS, using the DEC10 and PDP11 systems. Completed an edit of the Draper rim sherd file.

1979 MUSEUM OF INDIAN ARCHAEOLOGY

Research Associate.

Field Director – Upper Thames Conservation Authority. Conducted an intensive field survey of the prehistoric and historic resources in the Glengowan Dam project area and analyzed materials.

Project Director – Upper Thames Conservation Authority. Conducted a preliminary assessment of the prehistoric and historic cultural resources of the Glengowan Dam Project area.

Field Director – excavation of a Glen Meyer village located in Longwoods Conservation Area and acted as public relations liaison.

Volunteer – Fathom Five Provincial Park, Tobermory, Ontario. Mapping of the 19th century shipwreck, WETMORE.

1978 MUSEUM OF INDIAN ARCHAEOLOGY

Research Assistant – Researching reference material for the Museum gallery, including such topics as trade networks, ceremonial goods, settlement patterns, burial practices, and artifact types and interpretation.

1977 MUSEUM OF INDIAN ARCHAEOLOGY

Curatorial Assistant – Inventory and preliminary analysis of the complete Wilfred Jury collection.

Archaeological Assistant – Survey of the New Toronto International Airport proposed location, Pickering. Project objectives included locating archaeological resources and preparing a site inventory. Also conducted preliminary conservation and cataloguing of recovered materials. **Research Assistant** –analysis of material recovered from the New Toronto International Airport Survey.

SCARLETT E. JANUSAS

PROJECT RELATED EXPERIENCE – CULTURAL HERITAGE ASSESSMSENT

DG Group Caledon East

Cultural Heritage impact assessment of farm, Airport Road, subdivision (2017).

County of Bruce Paisley

Cultural Heritage Impact Assessment of Bridge 11, Pratt Through Truss (2017)

County of Bruce Riversdale

Cultural Heritage Assessment of Bridge 0002 – Pony Truss (2017)

County of Grey Orchardville

Arcadis Canada Inc. Thunder Bay

Cultural Heritage Evaluation of Proposed Boulevard Lake Dan Rehabilitation.

Angil Development Group

Brantford

Heritage Impact Assessment, Block Bounded by Wellington Street, West Street, Darling Street and Bridge Street, City of Brantford (2016)

Block 59, Vaughan Vaughan

Cultural Heritage Impact Assessment of Block 59 in City of Vaughan. Industrial/commercial block development (2014).

Bracebridge Power Generation

Parry Sound

Cultural Heritage Impact Assessment of Cascade Street Power Generation Station (2014)

East Durham Wind Farm

Grey County

Cultural Heritage Assessment for proposed Wind Farm.

Gotham/Conestogo Wind Farm

Perth and Region of Waterloo

Cultural Heritage Assessment for proposed Wind Farm. Invenergy LLC

NextEra Middlesex

Co.

Self-Assessment Bornish and parts of Adelaide Wind Farm (2012)

AREA Architects

2008 Cultural Heritage Assessment of former Ontario Bedding Company, Waterloo, Ontario.



AREA Architects

2009 Cultural Heritage Assessment of Hergott Cider Mill and Property, Waterloo, Ontario.

METRUS Development Inc.

2010 Cultural Heritage Impact Assessment of Two Properties in City of Brampton, Ontario.

METRUS Development Inc.

2010 Cultural Heritage Impact Assessment of Four Properties in City of Brampton, Ontario.

Penn Energy

2010 Cultural Heritage Assessment of Stewart South and Stewart North properties, Northumberland County.

Helimax

2010 Cultural Heritage Assessment of Capreol Solar Farm, Sudbury District.

Helimax

2010 Cultural Heritage Assessment of Glenarm Solar Farm, Kawartha Lakes.

GL Garrad Hassan

Sophiasburg, Prince Edward County

Stage 1 Archaeological Assessment Sunny Shores Solar Facility (2012).

Schneider Power

2010 Cultural Heritage Assessment of Trout Creek Wind farm, Parry Sound.

GL-Garrad Hassan

Bruce County

Heritage Screening Skyway 127 Wind Energy Inc. Bruce County (2011)

Dillon Consulting Ltd

Mono Township, Ontario

Self- Assessment Dufferin Wind Farm 69 KV Transmission Line (2011)

Dillon Consulting Ltd

Amaranth Township, Ontario

Self-Assessment Dufferin Wind Farm 230 KV Transmission Line (2011)

Dillon Consulting Ltd

Amaranth Township, Ontario

Stage 1 Archaeological Assessment Dufferin Wind Farm – Additional Lands (2011)

Dillon Consulting Ltd.

Melancthon Township, Ontario

Stage 2 Archaeological Assessment Dufferin Wind Farm Alternate #5 Turbine (2011)

Dufferin Wind Power Inc. and Dillon Consulting Ltd.Melancthon Township Self-Assessment Protected Properties, Archaeological and Heritage Resources Dufferin Wind Power Project (2011)



Dufferin Wind Power Inc. and Dillon Consulting Ltd. Melancthon Township Self-Assessment Protected Properties, Archaeological and Heritage Resources Dufferin Wind Project proposed 69KV transmission line and POI (2012)

Melancthon and Amaranth Townships, Ontario

Cultural Heritage Assessment Proposed 230 KV Transmission Line Dufferin Wind Farm (2012)

Dillon Consulting Ltd.

Melancthon Township, Ontario

Stage 1 Arch. Ass. Dufferin Wind Farm 69 JV Transmission Line (2012)

Dillon Consulting Ltd.

Melancthon Township, Ontario

Cultural Heritage Assessment Proposed Dufferin Wind Farm (Including proposed 230 KV and 69 KV Transmission Line) (2012)

Dillon Consulting Ltd.

Melancthon Township, Ontario

Cultural Heritage Assessment and Stage 1&2 PRIVATE EASEMENT Proposed 230 KV Transmission Line Dufferin Wind Farm (2012)

Dufferin County, Ontario

Stage 2 Arch. Ass. Dufferin Wind Farm Layout Modifications (2012)

Canadian Solar Solutions Inc. & Dillon Consulting Ltd. Temiskaming, Ontario Self-Assessment Protected Properties, Archaeological & Heritage Resources and Stage 1 Archaeological Assessment Liskeard 1, 3, & 4 Solar Farms (2011)

Capreol, Ontario

Cultural Heritage Assessment for proposed Highlight Solar Project (2011)

SkyPower Limited

Durham, Ontario

Cultural Heritage Assessment Proposed Discovery light Solar Farm (2012)

SkyPower Limited

Durham, Ontario

Self – Assessment Protected Properties, Arch. & Heritage Resources (2012)

SkyPower Limited

Durham, Ontario

Self – Assessment Protected, Arch. & Heritage Resources - ILLUMINATIONLIGHT LP Solar Power Project (2012)

Sky Power Limited

Self- Assessment Protected Properties, Archaeological & Heritage Resources Fotolight LP Solar Power Project 2011)



SkyPower Limited

Dundas County, Ontario

Self-Assessment Protected Properties and Stage 1&2, Archaeological and Heritage Resources Mighty LP Solar Power Project (2012)

SkyPower Limited

Dundas County, Ontario

Self-Assessment Protected Properties and Stage 1&2, Archaeological and Heritage Resources CityLights LP Solar Power Project

SkyPower Limited

York County, Ontario

Cultural Heritage Assessment, Self-Assessment, and Stage 1&2 Proposed Goldlight Solar Farm (2012)

SkyPower Limited

York County, Ontario

Protected Properties, Archaeological and Heritage Resources Good Light LP Solar Power Project (2012)

SkyPower Limited

York County, Ontario

Cultural Heritage Assessment, Self -Assessment, and Stage 1&2 Proposed Earthlight Solar Farm (2012)

SkyPower Limited

York County, Ontario

Cultural Heritage Assessment, Self -Assessment, and Stage 1&2 Proposed Goldlight Solar Farm (2012) and CHIA

SkyPower Limited

York County, Ontario

Cultural Heritage Assessment, Self -Assessment, and Stage 1&2 Proposed Beam Light Solar Farm (2012)

SkyPower Limited

Simcoe County, Ontario

Self-Assessment, Cultural Heritage Assessment, and Stage 1&2 Archaeological Assessment for proposed Raylight Solar Farm, formerly Aria solar farm (2012).

Waste Management of Canada Corp.

Ottawa, Ontario

Environmental Assessment for a New Landfill Footprint at the West Carleton Environmental Centre Final – Cultural Heritage Detailed Impact Assessment (2012)

APPENDIX F: NATURAL ENVIRONMENT: BACKGROUND INFORMATION



237897 Inglis Falls Road, R.R.#4, Owen Sound, ON N4K 5N6
Telephone: 519.376.3076 Fax: 519.371.0437
www.greysauble.on.ca

September 14, 2016

Mr. Sean Potter
City of Owen Sound
Engineering Services Division
1900 20th Street East
Owen Sound ON
N4K 2H4

Dear Mr. Potter:

RE: Pre-Consultation Review of Upgrades to Basin A-3

Applicant: City of Owen Sound

City of Owen Sound Our File: P12229

Subject Proposal

It is our understanding that the City of Owen Sound is in the initial phase of considering upgrades and/or alterations to watercourse basin A-3 in the Town Plot of Brooke, and is seeking preliminary input from the Grey Sauble Conservation Authority (GSCA) prior to seeking project quotes. It is further our understanding that any of the potential changes would occur at and downstream of the culvert(s) within the 2100 block of 6th Avenue West. The purpose of the proposed changes is to alleviate ongoing issues within this system associated with periodic flooding and sedimentation.

GSCA Regulations

This watercourse system is regulated under Ontario Regulation 151/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses. As such, a permit or permits will be required from the GSCA prior to undertaking any alterations or development within the regulated areas.

Recommendations

From a general perspective, GSCA has no objection to the City undertaking upgrades to this system. We recommend that we are consulted throughout the planning process to ensure that what is being proposed is consistent with our policies for development and alterations. Although we do not have a specific sizing criteria that we would require for the system, the general essence of our policy direction is to not make situations worse than they currently are. Therefore, those portions of the system that can currently convey a regional storm event must continue to do so. However, those portions at the Kelso Beach outlet that currently struggle with 2-year storm event will not be required to be upgraded to handle regional flows.

We will require that any changes to the system are supported by appropriate engineered design.



1 of 2

Mr. Sean Potter, Engineering Services Division, City of Owen Sound Pre-Consultation Review of Upgrades to Basin A-3 City of Owen Sound September 14, 2016 Our File No. P12229

We do encourage the City to provide whatever additional relief is feasible through this system to protect the existing built environment without undue damage to the existing natural environment.

Depending on the specific nature of the proposed works, approvals may also be required from Fisheries and Oceans Canada and/or the Ontario Ministry of Natural Resources and Forestry and/or the Ontario Ministry of the Environment and Climate Change.

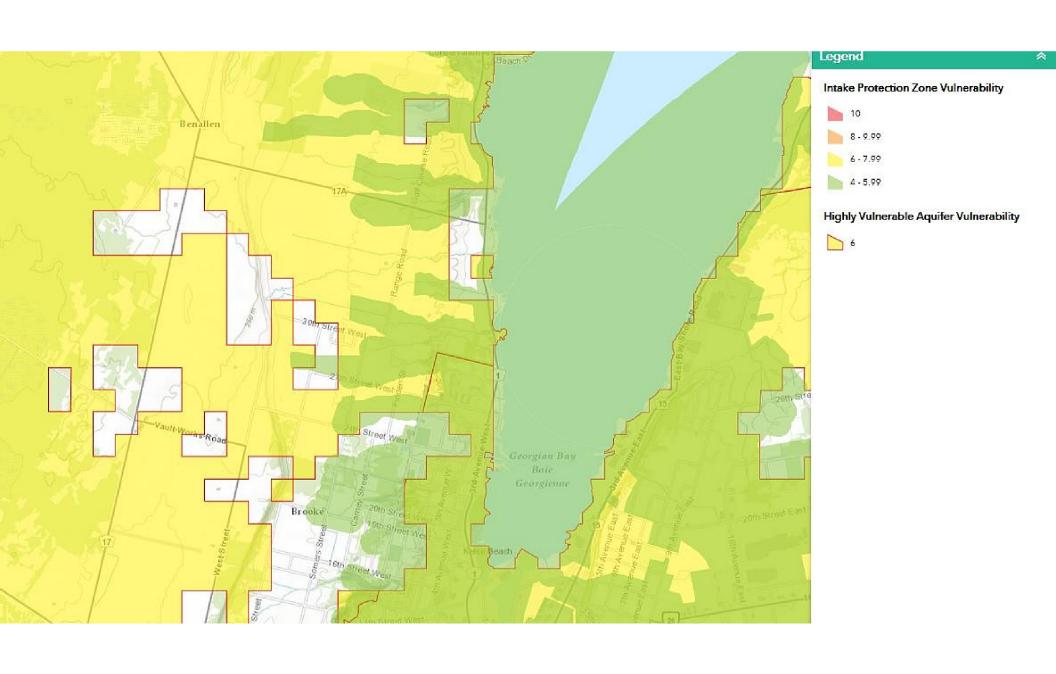
If any questions should arise, please contact our office.

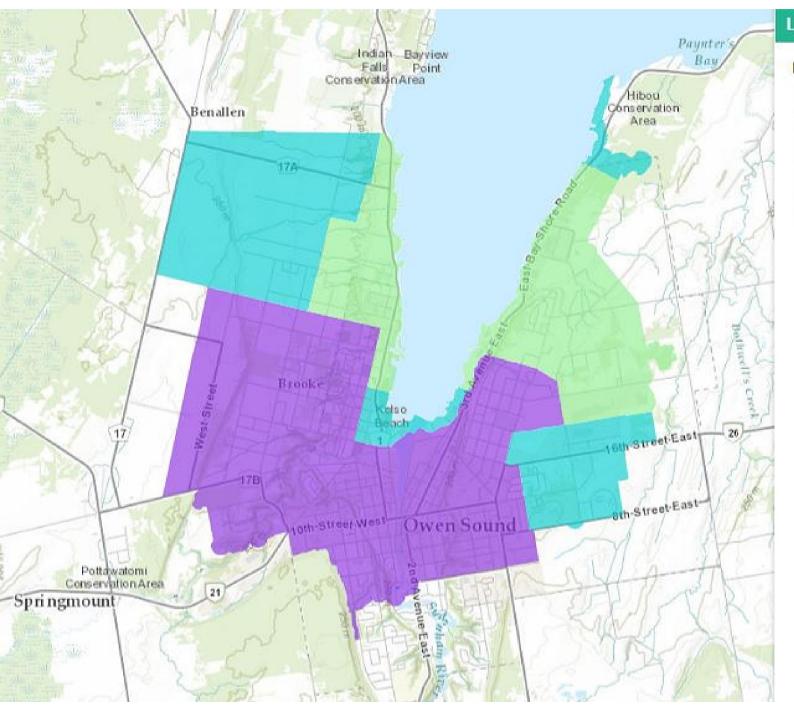
Regards,

Tim Lanthier Watershed Planner

cc via email: Mr. Dick Hibma, Authority Director, City of Owen Sound

Ms. Marion Koepke, Authority Director, City of Owen Sound





Legend

EBA Policy Component

- See Component Type in pop-up (B)
- See Component Type in pop-up (G)
- See Component Type in pop-up (P)
- See Component Type in pop-up (R)

NATURAL HERITAGE FEATURE ANALYISIS

PREPARED FOR

GM Blue Plan Engineering and The City of Owen Sound

Part Brooke Area Basin A3

Watercourses between 8th Avenue West to Kelso Beach Park, and 19th Street West to 22nd Street West City of Owen Sound County of Grey

PREPARED BY



ENVIRONMENTAL CONSULTING INC.

operating as Aquatic and Wildlife Services

Phone: (519) 372-2303, Fax: (519) 372-1990, Email: aws@gbtel.ca JOHN MORTON, R. R. # 1, Shallow Lake, Ontario, N0H 2K0

April, 2019

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1 Introduction

AWS Environmental Consulting Inc. (AWS) was retained by GM BluePlan to assist them with a Natural Heritage Feature Analysis, a process to completing a Master Plan for a drainage area in the City of Owen Sound known as the Brooke Area Basin A3. The scope of work was focused within the downstream area of Basin A3, with seven watercourse Reaches-of-Concern noted for potential future site alteration works. The watercourse and riparian habitat within this focused study area is referred to within this report as the 'General Study Area', delineated on Figure 1 and 2.

Due to extensive private lands along these watercourse features, field investigations of natural heritage features were only undertaken at all water crossing locations, road-side observations, accessible lands (permitted access or un-opened road allowances) and through air photo interpretation. Feature analysis for this Stage 1 included on-site review of the watercourses during the high flow (spring run-off season) period and base flow (summer season) periods. No detailed fish community works, intensive vascular plant or fauna inventory works has been undertaken through the Stage 1 process.

This technical report shall address the seven Natural Heritage Features, as defined by the Provincial Policy Statement 2.1, with a review of available federal, provincial and municipal literature (reports, data files, feature maps etc.) currently available, <u>augmented</u> with Stage 1 field observations/findings for the General Study Area.

2 Study Works

2.1 Background Review

A literature review and data search was conducted to aid in the identification of Natural Heritage Features and to search for historical occurrence records for flora and fauna species of conservation concern within 2 km of the Study Lands. Typically the search coverage area is 5km's from the study area however, given this is an 'urban' setting, the search coverage area was reduced to reflect the lack of undisturbed natural environment or off-site linkage functions in the Study Area. This background review was utilized to augment field findings.

- ➤ 2012 Grey County Official Plan and schedule mapping, Draft January 2017 schedules for the County of Grey Natural Heritage Study (Green in Grey)
- ➤ 2012 City of Own Sound Official Plan, Schedules and Zoning
- ➤ 2019 Natural Heritage Information Center (NHIC) database of the Ontario Ministry of Natural Resources and Forestry (OMNRF) on the Land Information Ontario website for significant flora and fauna records.

2.2 Field Study Methodology

Field survey works focused on water crossing locations and key reaches of the watercourses as mapped on Figure 7. Fish Habitat and fish community survey work was through visual observations only, at each field survey point locations within water course.

2.3 Field Survey Dates

Table 1: Field Survey Dates and Focus of Works

Date	Survey Time & Duration	Weather Conditions (at start time)	Survey Focus
April 26, 2018	1000-1130 For 1.5 hrs	Wind Speed = 6-11 km/hr Air Temp.= 8° C Precipitation = 0 Cloud Cover = 25%	Hydrology- high flow period
Sept. 6, 2017	1300-1500 For 2.0 hrs	Wind Speed = 6-11 km/hr Air Temp. = 20.0° C Precipitation = 0 Cloud Cover = 65%	Hydrology- base flow period, General Flora & Fauna

Total field survey work provided 3.5 hours of search /survey coverage during the late spring peak run-off period and summer base or low flow period.

3 Vegetation Community Characterization

Woodland communities within the General study area have been delineated as three polygons on Figure 8 and defined within Table 2 based on the 'Ecological Land Classification (ELC) for Southern Ontario, First Approximation' system.

Table 2: Woodland Communities Types - ELC Codes

Polygon Number	ELC Code	Туре	Description	Provincial Ranking
1	FOD5-6	Dry-Fresh Sugar Maple-Basswood Deciduous Forest	Mature aged forest stand with closed upper canopy. Patchy mixed groundcover at 30%	S 5
2	Fresh-Moist Sugar Maple-Hardwood Deciduous Forest		Mature aged forest stand with semi- closed upper canopy. Dense groundcover mix at 65%	S5
Fresh-Moist Ash Lowland Deciduous Forest		Lowland	Mid-Mature aged forest stand with closed upper canopy. Patchy mixed groundcover at 50%, abundant fallen woody debris	S5

All noted ELC community types are commonly found throughout Southern Ontario, with no significant status or unique forest stand composition.

4 Field Investigations Findings

A summary review of observations at the 'Field Review Points', as mapped on Figure 7 are provided below for both high-flow and base-flow conditions.

Point 1

- Waters accessible from migratory Owen Sound Bay fish, upstream to point 2 during high flow and base flow periods.
- Highly disturbed recreational park lands. Bottom substrate primarily silt/sand with a few scattered cobble sized rocks.
- Fish Habitat confirmed.

Point 2

- Metal grating bolted to outlet of buried culvert pipe. In-stream barrier to larger fish species
- From point 2 upstream to point 3, waters are within a buried pipe

Point 3

- Metal grating bolted to inlet of buried culvert pipe. Trash rack functions
- Upstream the watercourse exhibited a stable banks, bottom substrate was an equal mix of silt/sand, gravel, detritus and woody debris. Permanent flows with summer water thermal regime of 'water-water' conditions.
- Fish Habitat confirmed.

Point 4

- Watercourse exhibited stable banks; bottom substrate was an equal mix of silt/sand, detritus, woody debris and gravel. Forested lands along both banks but extensive 'garbage'. Permanent flows with summer water thermal regime of 'water-water' conditions.
- Observed 2-3 dozen Cyprinidae Family fish species (minnows) during both spring and summer seasons
- Fish Habitat confirmed.

Point 5

- Watercourse exhibited stable banks; bottom substrate was a mix of gravel, sand, cobble, woody debris and gravel. Forested lands along both banks but extensive 'garbage'. Permanent flows with summer water thermal regime of 'water-water' conditions.
- Fish Habitat confirmed.

Point 6

- Watercourse exhibited stable banks with channelization evident. Bottom substrate was a mix of gravel and sand. Banks with lawn grasses with scattered trees. Permanent flows with summer water thermal regime of 'water-water' conditions.
- Observed 5 to 7 Cyprinidae Family fish species present during both spring and summer seasons.
- Fish Habitat confirmed.

Point 7

- Watercourse exhibited stable banks with channelization evident but overland 'yard' flooding also
 evident. Bottom substrate was primarily silt and sand. Banks with lawn- grasses with scattered
 trees. Permanent flows with summer water thermal regime of 'water-water' conditions.
- Fish Habitat confirmed.

Point 8

- Water crossing site with channelization evident. Bottom substrate was primarily silt and sand.
 Banks with lawn- grasses with scattered trees. Permanent flows with summer water thermal regime of 'water-water' conditions.
- One adult snapping turtle observed during the low flow period.
- Upstream to point 9 watercourse is within a buried pipe.

Point 9

- Metal grating bolted to inlet of buried culvert pipe. Trash rack functions
- Upstream, channel exhibited stable banks with evidence of past overland 'yard' flooding
- Bottom substrate was an equal mix of silt/sand, detritus and gravel.
- Permanent watercourse with flows during the summer season.
- Observed 9-12 Cyprinidae Family fish species present during both spring and summer seasons.
- Fish Habitat confirmed.

Point 10

- Recent bank erosion control works done. Outlet from culvert crossing perched, preventing fish passage.
- Upstream of culvert inlet, channel was poured concrete with slope, fish passage barrier
- No flows observed during the summer low flow period, evidence of run-off after significant precipitation events.
- Banks with a few scattered shrubs and lawn-grasses, portions of watercourse near dwelling within a buried pipe.
- No direct Fish Habitat

Point 11

- Good flows observed during the spring run-off but channel was dry during base flow conditions, Intermittent flows.
- Both banks with mature forest cover.
- No direct Fish Habitat.

Point 12

- Seasonal spring run-off only, intermittent flows.
- Channel not well defined with erosion, abundant woody debris.
- No direct Fish Habitat

Point 13

- Flows observed during spring and base flow periods, permanent water course.
- Channel well defined and stable though steep gradient within a ravine feature. Both banks forested
- Channel substrate primarily cobble rock and woody debris
- No direct Fish Habitat.

Point 14

- No surface water flow evident, catch-basin from road run-off to buried pipe downstream to point 9.
- Observed three Butternut Trees along woodland edge at end of road.
- No direct Fish Habitat.

Point 15

- Permanent flows, though only a 'trickle' observed during base flow summer season.
- Observed 4-7 Cyprinidae Family fish species present during both spring and summer seasons.
- Stable channel within a forested environment.
- Bottom substrate an equal mix of gravel, sand and cobble sized rock.
- Fish Habitat confirmed.

Significant Feature Analysis

5 Habitat of Endangered and Threatened Species

Species are considered Endangered or Threatened based on: the provincial Species At Risk (SAR) list of the Ontario Ministry of Natural Resources and Forestry (OMNRF); the federal Species at Risk Act (SARA) and listings of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). As input to this work and in conjunction with field investigations, a literature search for historic records of endangered and threatened species was undertaken of the Natural Heritage Information Centre (NHIC) database and in the published resources of the OMNRF for the surrounding landscape extending 2 km (urban lands) from the General Study Area, provided under Appendix 1.

Through this background literature review, one historical record of a threatened species was noted: Eastern Meadowlark.

A review of provincial habitat requirements and on-site habitat assessment for Eastern Meadowlark is provided below:

Provincial habitat description states: Eastern Meadowlarks breed primarily in moderately tall grasslands, such as pastures and hayfields, but are also found in alfalfa fields, weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields, or other open areas. Small trees, shrubs or fence posts are used as elevated song perches. Typically require open grassy areas > 10 ha in size.

- Preliminary On-Site habitat investigations: No open country grassland meadow habitat suitable for nesting and/or rearing habitat was identified within 120m to the General Study Area.
- o No negative impacts to supporting habitat for Eastern Meadowlark from hydrology related development or site alterations within this general Study Area.

Additionally the OMNRF documentation of historical records section states:

Absence of information for a specific location does not mean there are no natural areas, provincially tracked species, plant communities or wildlife concentration areas at that location. It means that on the date the MNR created the dataset there was no information for that location. These data are not a substitute for site visits.

As such, preliminary habitat investigations along accessible portions of the riparian watercourses within the General Study Area were undertaken for candidate flora and fauna currently listed under the Endangered Species Act, Species at Risk Act, or designated by COSEWIC.

Field observations or assessment findings are provided below:

- ➤ <u>Confirmed</u> three **Butternut Trees** (Endangered species) as shown on Figure 8, near hydrology point 14 (see Figure 7), candidate habitat throughout woodland Polygon 1 and 2.
- ➤ Candidate nesting/rearing habitat for **Barn Swallows** (Threatened species) within existing water crossing structures on 20th Street West (point 5-6) and 21st Street West (point 8). Note, Barn swallows have been documented to nest under bridge structures and/or in large diameter culverts.
- Candidate SAR woodland habitat for **Bats** (Northern Myotis & Little Brown Myotis) and bat maternity roosting habitat within all three woodland Polygons within 25m to the watercourses.
- ➤ Candidate SAR habitat for **Gypsy Cuckoo Bumble Bee and Rusty-patched Bumble Bee** (both Endangered species) along the watercourse features.
- ➤ No identifiable habitat or historical records for any SAR fish or mussel species within the General Study Area watercourses.

6 Significant Valleylands

Grey County has mapped Significant Valleylands through its 'Green in Grey Natural Heritage Study'. Excerpt mapping is provided on Figure 4 which shows **no** significant valleyland feature within the General Study Area.

7 Significant Woodlands

Grey County has mapped significant woodlands through its 'Green in Grey Natural Heritage Study'. Excerpt mapping is provided on Figure 4 which **confirms** that woodland polygon number 1 and 2 as delineated on Figure 8 represent the significant woodland features within the General Study Area.

8 Significant Areas of Natural and Scientific Interest (A.N.S.I.)

A review of Provincially Significant ANSI's was undertaken from OMNRF and Land Information Ontario web site mapping provided on Figure No. 3. This provincial mapping demonstrates that **no** significant ANSI features, either earth science or life science, occur within the General Study Area.

9 Significant Wetlands

A review of Provincially Significant Wetlands (PSW) was undertaken from OMNRF and Land Information Ontario web site mapping provided on Figure No. 3. The provincial mapping demonstrates that **no** evaluated significant wetland features occur within the General Study Area.

10 Significant Wildlife Habitat

Currently, there is no mapping within the Grey County Official Plan to identify Significant Wildlife Habitat (SWH) due to its complexity and to the sub-components that require <u>on-site</u> survey work. Some historical OMNRF inventory and wildlife assessments within Grey County have been checked to locate any previously determined confirmed SWH to be known within the General Study Area.

The Province of Ontario is currently implementing a supplement report dated January 2015 "Significant Wildlife Habitat Eco-regional Criteria Schedules", to the original October 2000 Significant Wildlife Habitat Technical Guide (SWHTG), OMNRF technical document. This supplement Ecoregion Criteria Schedules provides a listing of criteria and threshold levels to determine candidate and/or confirmed presence of significant wildlife habitat within Ecoregion 6 (General Study Lands).

A preliminary review of the primary 6 sub-components to wildlife habitat has been provided below.

10.1 Seasonal Concentration Areas of Animals

- No suitable significant habitat for waterfowl, shorebirds, raptors, colonial birds, Landbird migratory stopover, migratory butterfly stopover, deer winter habitat, bat hibernacula, turtle wintering areas or reptile hibernacula's.
- > Candidate habitat within the three woodland polygons for bat maternity colonies

10.2 Rare Vegetation Communities

➤ Confirmed that no rare vegetation communities present within the General Study Area.

10.3 Specialized Habitat for Wildlife

- No suitable significant habitat for Waterfowl nesting, Bald Eagle or Osprey habitat, Amphibian wetland breeding habitat
- ➤ Suitable candidate habitat for woodland Raptor nesting in woodland polygon 1 and 2, Turtle nesting, groundwater upwellings (seeps), Amphibian woodland breeding habitat in polygon 1 and 2 and Area-Sensitive woodland bird habitat within polygon 1.

10.4 Habitat for Species of Conservation Concern

- ➤ No suitable significant habitat for Marsh breeding birds, Open Country bird breeding habitat, Shrub/Early successional bird breeding habitat and Terrestrial Crayfish
- > Suitable candidate habitat for Flora & Fauna having a 'Special Concern' or provincially 'Rare' status
- ➤ <u>Confirmed</u> presence of one adult Snapping Turtle at field point 8 and habitat area shown on Figure 8.

10.5 Animal Movement Corridors

- ➤ No seasonal deer movement corridors
- > Candidate amphibian movement corridors along watercourse features.

10.6 Exceptions for Ecoregion 6E

Confirmed that no suitable habitat is present within the General Study Area for 'mast' producing lands for black bear foraging or open country habitat for Sharp-tailed Grouse breeding.

11 Fish Habitat

Within the study watercourses, fish and Fish Habitat has been confirmed and delineated on Figure 8 for common species of the Cyprinidae Family (minnows). Thermal monitoring at field points 3 and 8 plus the noted aquatic community species all reflect a warm-water thermal regime for this watercourse. With the noted grate barriers at field points 2 and 3, no upstream migration for game fish species would be anticipated from the receiving waters of Owen Sound Bay.

12 Significant Feature Analysis Summary

Through the significant feature analysis, the following Natural Heritage features have been identified within the General Study Area, or within the 120m adjacent lands to the focused watercourse features.

- i. Habitat for SAR Species
 - a. Confirmed presence for Butternut.
 - b. Candidate suitable habitat for: Bats, Barn Swallow, Gypsy Cuckoo Bumble Bee, Rusty-patched Bumble Bee.
- ii. Fish Habitat
 - a. Confirmed Fish Habitat present for warm-water resident population of common Cyprinidae Family (minnows, dace) species.
- iii. Significant Woodland
 - a. Confirmed forested stand of polygon number 1 and 2 are significant woodlands.
- iv. Significant Wildlife Habitat (SWH)
 - a. Confirmed presence for Snapping Turtle.
 - b. Candidate for Bat maternity colonies, Specialized Habitat, Flora Species of conservation concern.

13 Conclusions

This natural heritage feature analysis has confirmed that any water crossing or watercourse site alterations within the General Study Area would be in compliance with the Provincial Policy Statement sections 2.1.4 (significant wetlands), 2.1.5.a (Canadian Shield significant wetlands), 2.1.5.c (significant valleylands) and 2.1.5.e (significant ANSI's).

Similarly any water crossing or watercourse site alterations within the General Study Area would be in compliance with the Grey County Official Plan policies 2.8.3 (provincially significant wetlands), 2.8.6.1 (significant valleylands), 2.8.6.3 (ANSI's) and 2.8.6.6 (other wetlands).

With confirmed Species-At-Risk and candidate other Species-At-Risk habitat along with confirmed Fish Habitat, Significant Woodland and Significant Wildlife Habitat within the General Study Area, site alterations will require further natural heritage impact assessment review. Such works shall be required to demonstrate compliance with the Endangered Species Act 2007, Fisheries Act and applicable Official Plan policies with survey works focused on site alteration impact zones with possible species or habitat related mitigation measures required.

Respectfully Submitted,

John Morton, President

AWS Environmental Consulting Inc.

14 References

Bird Studies Canada, Bird and Amphibian Monitoring Program.

Cadman, M.D., D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier (eds), 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto Canada.

Environment and Climate Change Canada, Species at Risk Public Registry. http://www.sararegistry.gc.ca/sar/index/default-e.cfm

Grey County Official Plan, 2012 and schedule mapping

Grey County, Natural Heritage Study, Green in Grey, January 2017

Draft New Grey County Official Plan, November 2017

Land Information Ontario, on-line database and mapping https://www.javacoeapp.lrc.gov.on.ca/geonetwork/srv/en/main.home

Lee, H.T., W.D. Bakowsky, J. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurray 1998. Ecological Land Classification for Southern Ontario: First Approximation and its Application. Ontario Ministry of Natural Resources, South central Science Section, Science Development and Transfer Branch. SCSS Field Guide FG-02

Natural Heritage Information Centre (NHIC), 2018. Provincial status of Plants, Wildlife and Vegetation Communities OMNR, Peterborough. http://nhic.mnr.gov.on.ca/nhic.cfm

Ontario Ministry of Natural Resources and Forestry, March 2010, Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement.

Ontario Ministry of Natural Resources, Significant Wildlife Habitat Eco-regional Criteria Schedules, January 2015

Ontario Ministry of Municipal Affairs and Housing, 2014. Provincial Policy Statement

Species at Risk in Ontario (SARO), Committee on the Status of Species at Risk in Ontario (COSSARO) www.mnr.gov.on.ca/mnr/speciesatrisk

15 Figures

Figure 1	
Figure 2	
Figure 3	Provincial Natural Heritage Features
Figure 4	Grey County Official Plan-Appendix B Natural Heritage Constraints
Figure 5	
Figure 6	
Figure 7	
Figure 8	Natural Heritage Features

Figure No. 1: General Study Area

• Base map source: Grey County web site, general features

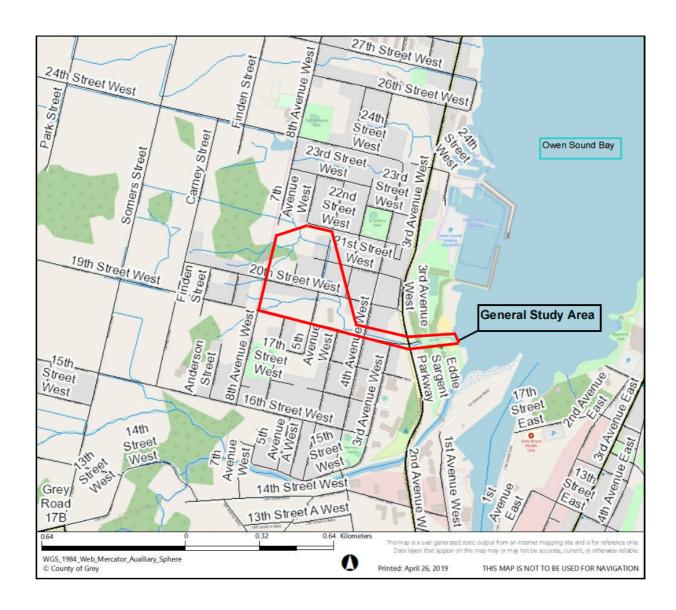


Figure No. 2: Study Watercourses & Riparian Zones

• Base map source: Grey County web site, 2015 aerial imagery with watercourses

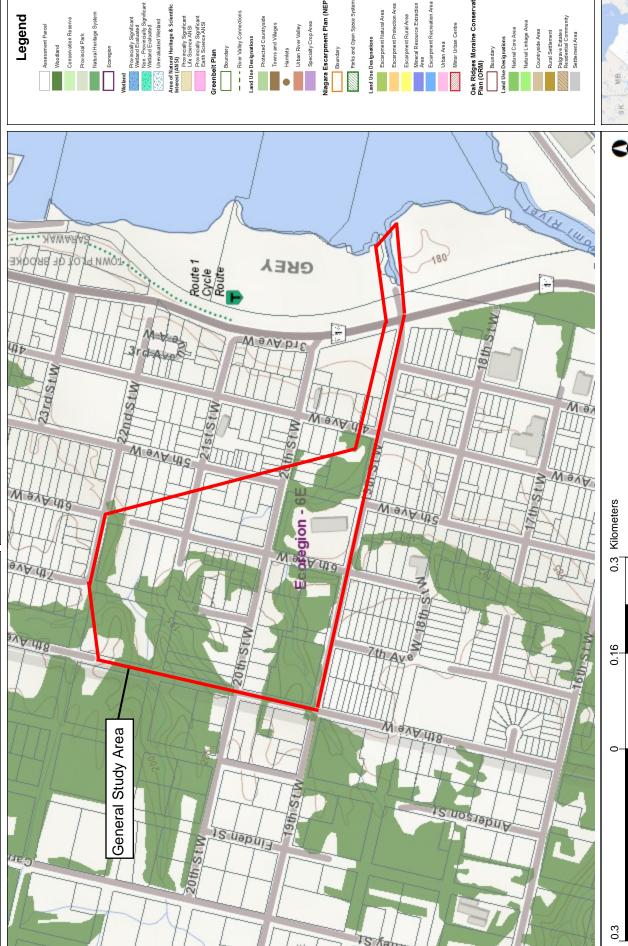


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Ministry of Natural Resources and Forestry Make-a-Map: Natural Heritage Areas

Figure No. 3: Provincial Features

Notes: General Study Area Part Brooke Area Basin A3



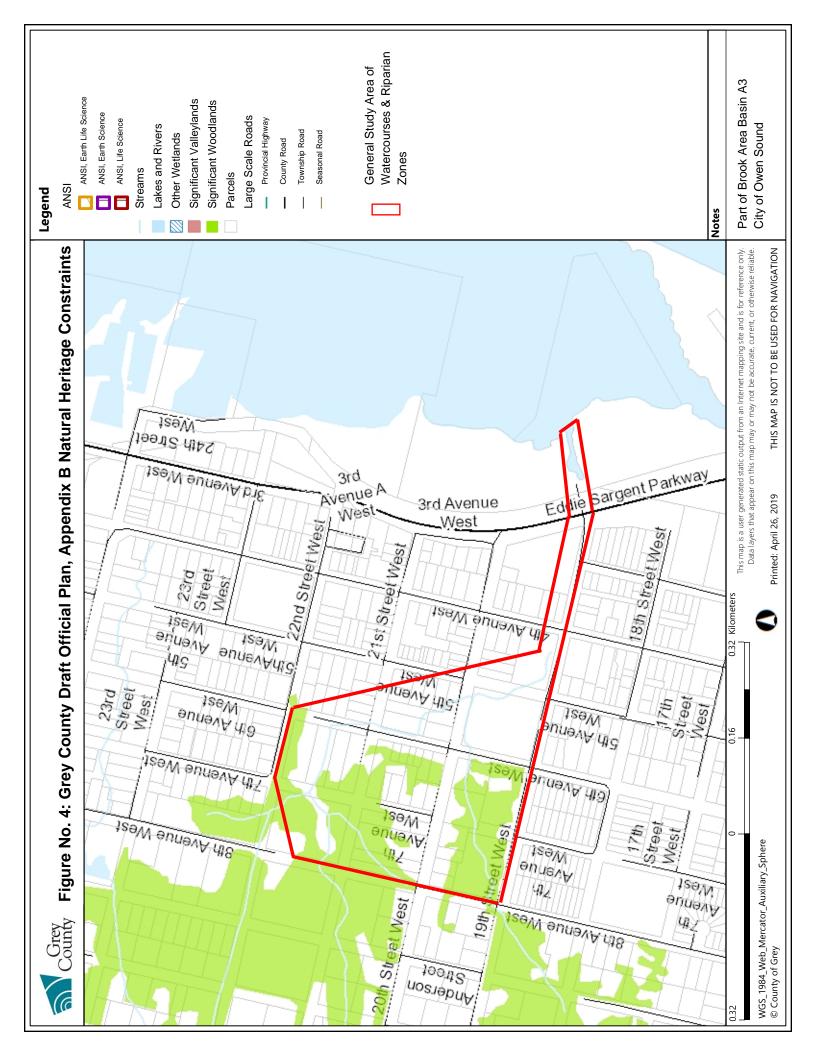
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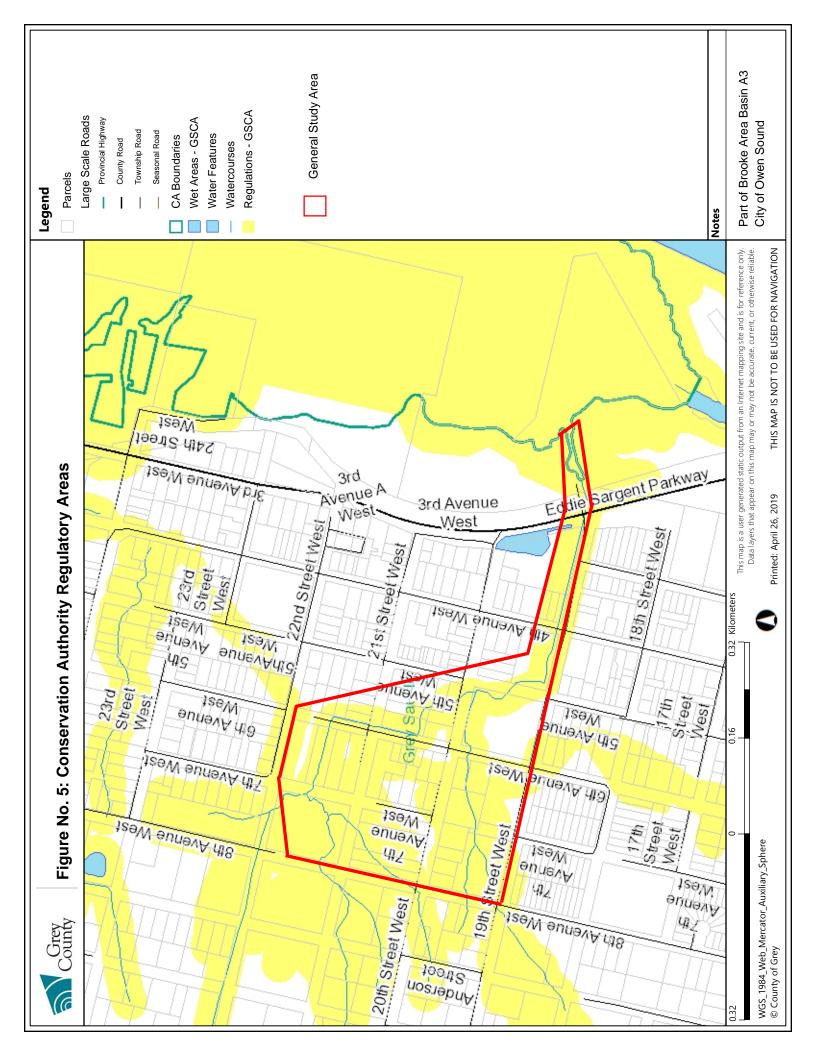
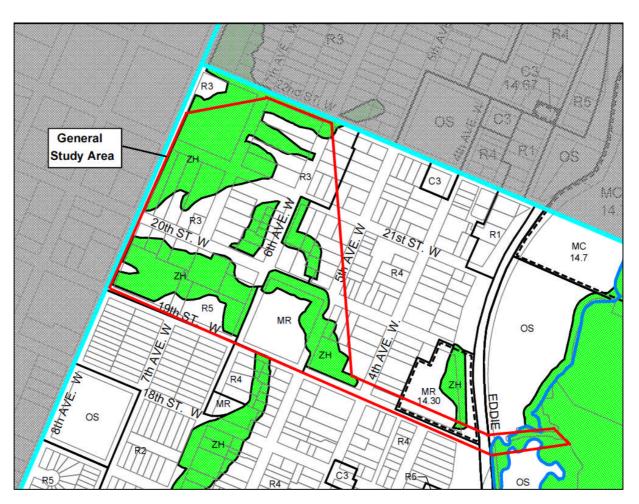


Figure No. 6: City of Owen Sound, Hazard Mapping

• Base map source: City of Owen Sound Zoning By-Law Schedule "A", map 2







• Base Map Source: GM BluePlan Engineering, Brooke Area Basin A3, with 'Key Reaches of Concern'

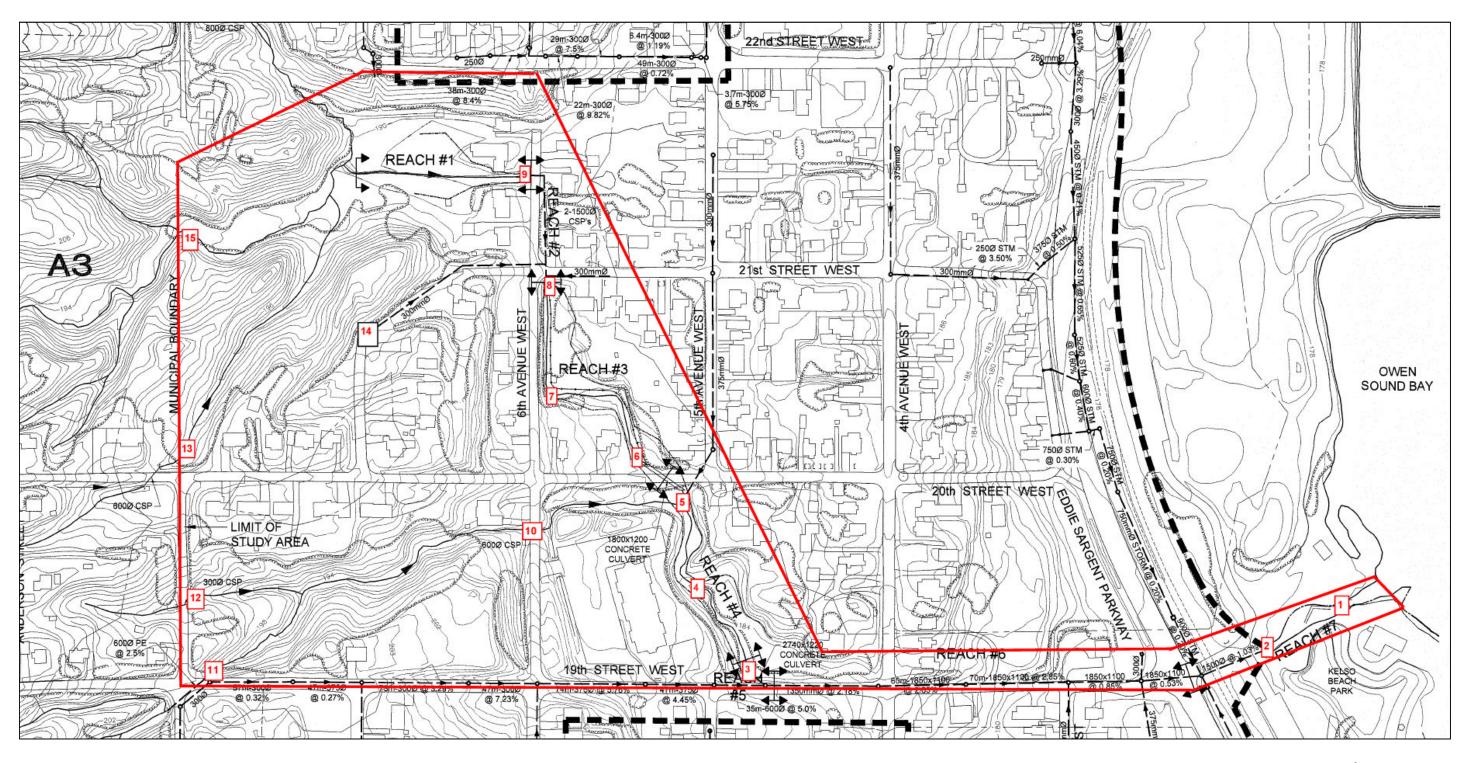


Figure No. 7: Watercourse Field Review Points





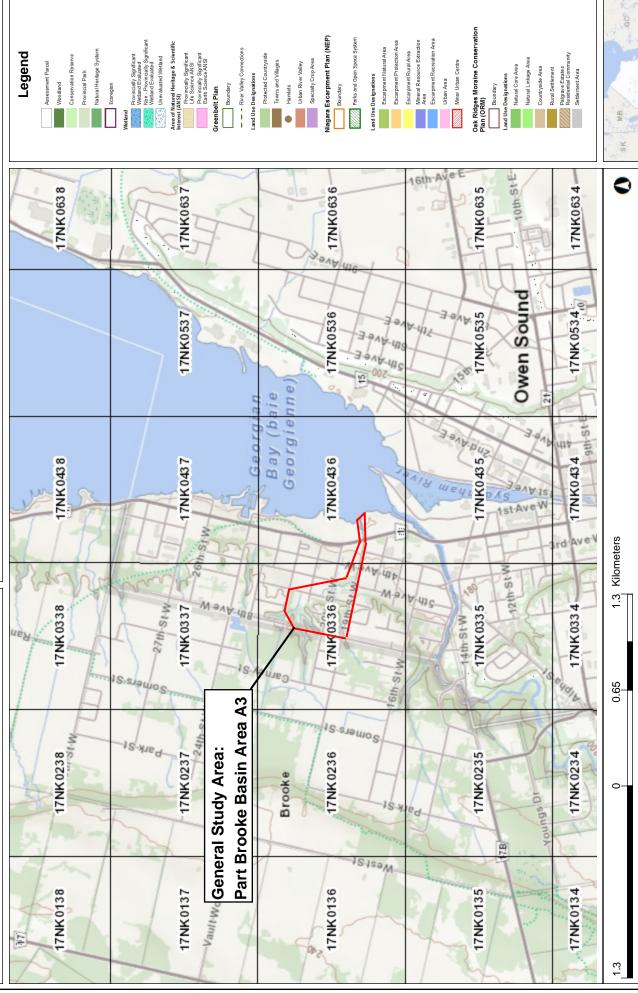
APPENDIX 1	
➤ Historical Records Search for Significant Flora and Fauna within 2 km of the Stud	ly Lands

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Ministry of Natural Resources and Forestry Make-a-Map: Natural Heritage Areas

Historical Records Search, Coverage Area Extending 2 km's from General

Notes: City of Owen Sound Part Brook Area Basin A3



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City of Owen Sound, Part Brooke Area Basin A3

Ontario Ministry of Natural Resources and Forestry – NHIC historical records search for Significant Flora and Fauna within 2 km of the Study Area

Source:

OMNRF – Natural Heritage Information Center records in the Land Information Ontario on-line databases, with historical records for five species for the search coverage area.

Eastern Meadowlark (Sturnella magna)

- o Provincial Ranking = S4, Provincial Status = Threatened
- Last recorded in the search area 2004

Eastern Wood-pewee (Cotopus virens)

- o Provincial Ranking = S4, Provincial Status = Special Concern
- o Last recorded in the search area pre 1984

Snapping Turtle (Chelydra serpentine)

- o Provincial Ranking = S3, Provincial Status = Special Concern
- Last recorded in the search area 2008

Northern Brook Lamprey (Ichthyomyzon fossor)

- o Provincial Ranking = S3, Provincial Status = Special Concern
- Last recorded in the search area 1947

Hart's-tongue Fern (Asplenium scolopendrium)

- o Provincial Ranking = S3, Provincial Status = Rare
- Last recorded in the search area pre 1998

APPENDIX 2

➤ Site Photographs, 2018



Photo No. 1A: Water crossing site 1, high flow period



Photo No. 1B Water crossing site 1, base flow period



Photo No. 2A: Water crossing site X, high flow period



Photo No. 2B Water crossing site X, base flow period



Photo No. 3A: Water crossing site 3, high flow period



Photo No. 3B Water crossing site 3, base flow period



Photo No. 4A: Watercourse site 4, high flow period



Photo No. 4B Watercourse site 4, base flow period



Photo No. 5A: Water crossing site 5, high flow period



Photo No. 5B Water crossing site 5, base flow period



Photo No. 6A: Water crossing site 6, high flow period



Photo No. 6B Water crossing site 6, base flow period



Photo No. 7A: Watercourse site 7, high flow period



Photo No. 7B Watercourse site 7, base flow period



Photo No. 8A: Water crossing site 8, high flow period



Photo No. 8B Water crossing site 8, base flow period



Photo No. 9A: Water crossing site 9, high flow period



Photo No. 9B Water crossing site 9, base flow period



Photo No. 10A: Water crossing site 10, high flow period



Photo No. 10B Water crossing site 10, base flow period



Photo No. 11A: Water crossing site 11, high flow period



Photo No. 11B Water crossing site 11, base flow period



Photo No. 12A: Water crossing site 12, high flow period



Photo No. 12B Water crossing site 12, base flow period



Photo No. 13A: Water crossing site 13, high flow period



Photo No. 13B Water crossing site 13, base flow period



Photo No. 14A: Catch Basin, high flow period



Photo No. 14B: 1 of 3 Butternut Tree at point 14, Canker



Photo No. 15A: Watercourse site 15, high flow period



Photo No. 15B: Watercourse site 15, base flow period



Photo 16: Grate at crossing site 3



Photo 17: Grate at crossing site 9



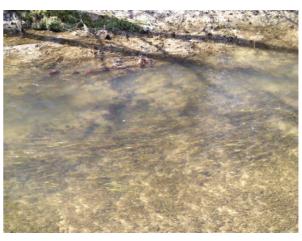
Photo 18: Perched culvert outlet at site 10, Fish Barrier



Photo 19, Upstream of culvert, concrete then buried pipe



Photo 20: Sections of watercourse with gravel/cobble substrate Photo 21: Section of watercourse with silt substrate



APPENDIX 3

> AWS Qualifications & EIS Experience



AWS Environmental Consulting Inc.

(Operating as Aquatic and Wildlife Services)

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C.V. Summary: John D. Morton

Education

- 1985: Graduate Sault College, Forestry Technician
- 1986: Honors Graduate Sault College, Fish & Wildlife Technologist
- 15 years training and experience with Ontario Ministry of Natural Resources as a contract & full time employee for Natural Heritage Programs and Biology/Ecology

Work Experience Summary

• 1997 to Present: Sole Proprietorship of **Aquatic and Wildlife Services**, specializing in Natural Heritage

Studies and Development Impact Assessments:

- Over 250 Natural Heritage and Natural Environment Impact Study Reports for Land Use development proposals throughout Southwestern and Central Ontario in accordance to Legislation and Regulation for Federal and Provincial Agencies, Government and Niagara Escarpment Plan Policies and Conservation Authority Regulatory Lands.
 - Impact assessment technical reports ranging from: Single Residential Lot creations to Plan of Subdivisions for 100+ Lots, and Aggregate applications ranging from 5ha Wayside Gravel Pits to 120 ha Quarry Operations for both above and below groundwater table.
- Design and Monitoring technical reports for Marina Development, , Water Crossings, Recreational Pond designs, Fish & Wildlife Habitat Restoration Plans and Managed Forest Plans.
- Species At Risk Surveys for flora and fauna with study areas encompassing 20ha to 7000ha
- o Ontario Municipal Board expert witness testimony on Natural Heritage Features, Ecology, Development Impacts and Mitigation Techniques.
- 1986 to 1997: Resource Technician with the Ontario Ministry of Natural Resources, responsibilities included:
 - o Backfill positions for Owen Sound Area Office District Biologist (Fisheries and Wildlife), and District Fish & Wildlife Management Officer.
 - Review and commenting on Provincial interests through Planning Review for development proposals.
 - Deputy Conservation Officer with completion of 5-week Enforcement Training Program, Provincial Offenses charges, court evidence presentation and convictions.
 - o Fish & Wildlife Population and Habitat surveys and Rehabilitation Designs.

- Midhurst District Administrator and Program Coordinator of Wetlands and CFWIP Programs with annual budgeting and auditing roles.
- o Fisheries Research Technician and Fish Culture Technician, Chatsworth Fish Culture Station.
- 1982 to 1986: Contract Resource Technician With Ontario Ministry of Natural Resources, Grey-Sauble and

Saugeen Conservation Authorities, responsibilities included:

 Wetland Inventory Technician, Fish and Wildlife Population and Habitat Surveys.

Project Related Experience Summary

- Fauna population and habitat surveys:
 - o Salmonid biomass surveys through seining and Electrofishing.
 - o Stream/Watershed surveys for habitat quality/conditions, fish passage/barriers, water quality assessment including Benthic Macro Invertebrate sampling.
 - o Genetic research survey work on Chinook Salmon, Saugeen Muskellunge, Backcross Lake Trout.
 - o Inland Lake surveys for water quality, thermal regimes, fisheries qualitative assessments through seining, trap netting, creel survey.
 - o Stream/River/Lake Fisheries habitat enhancement and rehabilitation Plans.
 - o Wintering Deer Yard mapping, quality assessment, carrying capacity calculations, herd health monitoring and natural reproduction rates.
 - o Genetic research work on Bruce Peninsula Eastern Massassagua Rattlesnake and Black Bears including radio telemetry.
 - o Breeding Bird surveys including waterfowl nesting surveys and natural recruitment success, Bald Eagle monitoring and banding, mapping of Owen Sound area significant production/staging areas.
 - o Amphibian qualitative assessment within sensitive environments and monitoring population trends for wetland habitat conditions.
 - Species At Risk Surveys with habitat mapping and Ecological Land Classification community mapping for Copeland Forest, Shallow Lake Wetland, Meaford National Defense Training Centre, Grey County Pretty River Forest Tract and Oliphant Fens
- Flora species and habitat surveys:
 - Provincially Certified Wetland evaluator to Book 2 and 3 standards, with over
 150 wetland evaluations and desktop upgrades completed. Wetland Evaluation instructor to former book 2 standards with successful training of 30+ candidates.
 - Southern Ontario Ecological Land Classification- Vegetation Community Mapping for sensitive and/or rare habitat types including fens, bogs, natural beaches, and alvars plus common woodland community types.
 - Botanical qualitative inventory works including identification, mapping of species of conservation concern with status levels and habitat types/condition assessments.
 - Tree marking for sustainable harvesting and rotational management of fuel wood and/or saw logs.
 - o Native tree and shrub nursery operation with annual seedling production and retail sales of deciduous and conifer seedlings and saplings.

Certification & Training Courses:

- Provincially Certified Wetland Evaluator to Book 2 and Book 3 Standards
- Provincial Class 1 Electrofishing Certification
- Provincial workshop training for Natural Heritage Environmental Impact Studies, Natural Hazard Studies and Non-Renewable (Aggregates) Impact Studies
- Level '1' OMNR Law Enforcement training
- Advanced Fish Habitat training and Habitat Impact Assessment
- Fluvial Geomorphology Workshop
- Stream Bioengineering Restoration training
- Cyprinidae Identification Workshop
- Wetland Restoration Techniques Training
- Provincial Managed Forest Tax Incentive Plan Approver
- Species-At-Risk Ontario Mussel Identification
- Bruce Peninsula Eastern Massassagua Rattlesnake Habitat Identification Training through Radio Telemetry work with Parks Canada
- Ecological Land Classification System for Southern Ontario
- Provincial Tree Making Course
- WHMIS
- Ontario Courts Evidence Collection and Presentation Training
- Department of Fisheries and Oceans South Georgian Bay Fish Habitat Issues Workshop
- Provincial Butternut Health Assessor
- Biotechnical Slope Stabilization Workshop.

Recipient of Provincial -OMNR Award for Fish Habitat Restoration Works & Stewardship

Residential Subdivisions & Commercial Development

Grey County (17)	Bruce C	Bruce County (29)
Andpet 16th Ave Comm DeveOwen Sound	Lakeside Woods Subdivision-Saugeen	Pegasus Trails-Saugeen
Loucks Subdivision- Chatsworth	Weatherhead Development- Eastnor	Lorne Beach Development- Kincardine
Langen Subdivision-Shallow Lake	Maple Ridge Development-Amabel	Mulholland Division St-Southampton
Boulter Subdivision- Keppel	Good Acres Development-Eastnor	Chippewa Golf & Country Club-Saugeen
Hilton Head Subdivision- Meaford	Brown Subdivision- Kincardine	Leslie Subdivision-Saugeen
Oak Meadows Subdivision-Meaford	Sundance Estates- Bruce	McMillan Subdivision-Saugen
Mannerow Estates- Owen Sound	Walker Estates Phase II-Amabel	Peacock's Meats and Groceries Inc-Tobermory
Georgian Shores Subdivision-Sarawak	Mystic Cove Subdivision-Kincardine	John Webster-Southampton
Sutacriti Park Phase III- Sarawak	Black Subdivision-Kincardine	John Innes-Southampton
Debrincat Subdivision- Holland	Mary Rose Subdivision-Saugeen	Moravian Subdivision-Southampton
Ferraro Subdivision- McCullough Lake	Gray Mildmay Development- Carrick	Barry's Construction-Walkerton
Andpet Bothwells Corner Comm Owen Sound	Lake Huron Escape-Bruce	Innes Subdivision-Southampton
HSC Alvanley Comm. Cement Plant-Keppel	MacKenzie Development-Saugeen	Wellington County (2)
MacKinnon-Smart Subdivision-Francis Lake	Harkins Harbour Development- Lindsay	Murphy Subdivision - Mount Forest
Saugeen Cedar Heights-Hanover	Karen Investment Ltd-Port Elgin	South Saugeen Development-Mount Forest
Sunvale Homes-Durham	Dent Dubdivision-Mildmay	Perth County (1)
Barry's Construction-Kilsyh	Barry's Construction- Blue Water Shores	Maitland River Estates - Listowel

Bruce County (17)	Grey County (20)	ıty (20)
Barrow Bay North Shore Road	Owen Sound 7th Street Drain	Town of Hanover Business Park
Bruce Road 21-Stoney Creek	Highway 4 Hanover-Stream Crossing	Viking-Cives Ltd - Mount Forest
Bruce Road 25	Owen Sound 6th Ave Stream Course	Sydenham Heights-Owen Sound Servicing
Kincardine-Park Street	Sarawak Carney Street SWM	Georgian Bluffs-Inglis Falls Road
Bruce Road 9	Southgate- Camp Creek Crossing	
Bruce Road 12	Owen Sound 9th St. Bridge	
Southampton Sanitary Sewers	Owen Sound 10th St. Extension	
Arran Landfill Expansion	Grey County Line	Huron County (2)
Calhouan Drain	Greir Creek Bridge	
Bruce County Line Road Upgrades	Chatsworth- Sewage Upgrade	Wingham Force main
Otter Creek-Dam Removal	Southgate-Stream Realignment	Goderich Pier Stabilization
McClure's Bridge	Mill Creek Crossing	
Silver Creek Bridges-Walkerton	Dipple Drain	Wellington County (2)
Saugeen Shores 10th Line Drain	West Grey-Traverston Creek Realignment	
Mildmay Elora Street Dam Removal	Owen Sound-Sydenham River Stabilization	Town of Minto-Coon Creek 5-Year Monitoring
South Bruce Carrick-Normanby Meux Cr Bridge	Minnihill Creek Fish Habitat Improvements	Town of Minto-Palmerston Industrial Park
Mildmay Adam Street Dam Removal		

Infrastructure Projects & Industrial Development

Recreational and Energy Land Use Development

Grey County (31)	Bruce County (13)	Simcoe County (3)
Monterra Plateau Stream Realignment	Blue Heron Parking Lot	Hamilton Brothers LtdStream Restoration
Devils Glen Ski Hill Expansion	Home Hardware-Sauble Beach	Devils Glen Stream Realignment
Morris Wetland Creation	Mystic Cove Stream Realignment	Devils Glen Club House Expansion
Rocky Saugeen Campground Expansion	Casey Property-Bank Stabilization	Robitaille Wind Farm-Cedar Point
Sobiski Property Shoreline Stabilization	Wells Trucking-Mildmay	
Pesnail Property Shoreline Stabilization	MacKenzie Marina Dredging	Dufferin County (2)
Carmicheal Pond Cleanout	Pike Bay Marina Dredging	
Overton Pond Design	Chesley Lake Cottagers Assoc. Dredging	Bowman Comm. Development
Beaver River Bank Stabilization	Miller Property Shoreline Dredging	Cedar Highlands Ski Club
Andrews Pond Design	Hood Property Shoreline Dredging	
Hrodzicki Storage Building	Smith Com. Expansion	Wellington County (1)
Klages Tree Retention Plan	LEED Tree Retention Plan	
Cedar Run Horse Park Expansion	Mildmay-Hamel's Pond and Elora Street Dam	White's Creek Restoration
Osler Bluff Shi Club-Storage Building		
Osler Bluff Ski Club-Water Reservoir		Manitoulin Island (2)
Blue Mount. Orchard Run Ski Hill Expansion		
Walters Falls Hydro Facility Proposal		Manitoulin Streams Association
Blue Mount Resort-Roller		Municipality Official Plan
Blue Mount. Resort Stream Monitoring		
AndPet Commercial Development		
East West Exchange Retreat Camp		
Lahman Comm. Development		
Blue Mount. Resort SWMP Outlet Monitoring		
Lee Pond Design		
Morrison Marina		
Meaford-Cemetery Creek Realignment		
Goodyear-Effluent Monitoring	-	
Miller Group Ltd, -Owen Sound Indus. Park		
Parker-Nature Retreat Resort		
Bayou Cable Park IncThornbury		
Georgian Escapes Ltd- Retreat		

Lot Severances & Building Envelopes

	Wiley Severance Davies Severance Stewart Severances Irwin Building Envelope Valent Building Envelope Barfoot Building Envelope Colborne Building Envelope Tengler Building Envelope Langeraap Building Envelope Wattie Building Envelope Hodzicki Building Envelope Wattie Building Envelope Hodzicki Building Envelope Hodzicki Building Envelope Bethone Severance Bethune Severance Bethune Severance O'Sullivan Building Envelope McGlynn Building Envelope Edgar Lot Severances Moore Building Envelope Craig Building Envelope Godwin Building Envelope Godwin Building Envelope Craig Building Envelope Godwin Building Envelope Godwin Building Envelope Vaue Stream Prod. Severances
Grey County (95) and NEC	Hughes Building Envelope Wilson Building Envelope Smith Severance Currie Building Envelope Robinson Severance Taylor Building Envelope Lupia Building Envelope Donavon Building Envelope Lupia Building Envelope Zegil Severance Byers Building Envelope Gilmour Building Envelope Gilmour Building Envelope Martindill Severance Peach Severance Ryan Severance Peach Severance Waxwell Severance Harris Severance Maxwell Severance Harris Severance Harris Severance Harris Severance Maxwell Severance Harris Severance Harris Severance Maxwell Severance Harris Severance Maxwell Severance Harris Severance Maxwell Severance Harris Severance Philipp Building Envelope Berg Building Envelope
	Zaferis Building Envelope Clancy- 20th Street Building Envelope Shantz Building Envelope Fligg Building Envelope Fligg Building Envelope Klages Severances Underwood Building Envelope Klages Severances Beacock Building Envelope McNeil Building Envelope Gilbert Severances Dillman Severances Dillman Severances Dillman Severances Dillman Severances Earnenhorst Building Envelope Biesinger Severances Love Building Envelope Braun Severances Love Building Envelope Braun Severances HSC Clavering Severances Holmes Building Envelope Wilcox Building Envelope Wilcox Building Envelope Brulette Severances Philipp Severances Philipp Severances Philipp Severances Doherty Building Envelope Wilmer Severance McNabb Building Envelope McGowan Building Envelope Lobban Severance

Lot Severances & Building Envelopes continued

Bruce County (42) and NEC

Chippewa Golf Course Severances **CAW-Saugeen Beach Severances** Siekierski Building Envelope Ferguson Point Severances Janssen Building Envelope P. MacDonald Severances S. MacDonald Severances Kramer Building Envelope Arcaro Building Envelope Knight Building Envelope Royal Homes-Kincardine Lee Building Envelopes Vespasiano Severance Hall Building Envelope Matheson Severances B. Elliot Severances Seeman Severance **Nalker Severances** D. Elliot Severance **Soetz Severances** Murray Severance Smith Severances Thorn Severance Porto Severance Zepf Severances

Hamiton Severances-Saugeen Miramichi Shores-Copway St, Saugeen Barclay Site Development-Saugeen Collins Severance- Kincardine NEC - Weiss Tree Preservation Plan Town of Saugeen Shores Building Envelope Bennett Severance Voison-Southamton Robinson Family-Southampton Rudell-Fishing Islands Kempton Building Envelope Sauble Christian Felowship-Parking Lot Exp. Lamport Building Envelope Southampton-Division Street

Huron County (2) Wingham Golf Course Severances

Kraemer Building Envelope
Simcoe County (2)
Wilbert Severances
Alliance Homes Building Envelopes

Dufferin County (1)
Preist Severance
Wellington County (2)

Town of Erin-Weber Building Envelope Town of Erin-Langen Severance

Burley Building Envelope

O'Conner Severances

McLay Severances

Bruce County (13) Rankin River-Sky Lake SAR Study Rankin River-Boat Lake SAR Study Rankin River-Isaac Lake SAR Study Beatty Saugeen River-Thermal Grey/Bruce Wetland Evaluation Upgrades Spring Creek Fish Habitat

Species At Risk and Biological Surveys

Saugeen River-Muskellunge Habitat
Beatty Saugeen River-Smolt Passage
Chesley Lake Angling Winter Creel
Peninsula Black Bear Radio Tag-Dens
Peninsula Winter Yard Deer Browse
Denny's Dam Fishway Monitoring
Saugeen Shores-Significant Woodland Study

Grey County (3)
Shallow Lake SAR Study
Meaford National Defence Base SAR Study
Pretty River Valley County Forest SAR Study

Simcoe County (1)
Copeland Forest SAR Study

Rattray Marsh SAR Study

Region of Peel (1)

Southern & Central Ontario: 100+ Technical Reports for Pits and Quarries, above and below watertable Natural Environment Impact Assessment Reports for Aggregate Applications

with scuccesful representation at Ontario Muncipal Board Hearing, Niagara Escarpment Hearings, County and Municipal Council Presentation and Legal Court Proceedings

Page 4 of 4

APPENDIX G: TECHNICAL ENVIRONMENT: BACKGROUND INFORMATION

Ontario Structure Inspection Manual - Inspection Form

21st Street West and 6th Avenue Culvert

Site Number: 09c

Bridge Condition Value (BCI)

6

Structure ID: OS-09c

Summary Action Report

Structure Name

Inspection Date: 5/15/2018

Next Biennial Inspection: 5/15/2020

Performance Deficiencies

Maintenance Needs

Repair/Rehabilitation

Element Group	Element Name	Repair/Rehabilitation	Priority	Est. Cost
Abutments	Abutment Walls	Replace structure. Costed under Soffit.	Urgent	
Abutments	Wingwalls	Replace structure. Costed under Soffit.	Urgent	
Approaches	Wearing Surface	Replace structure. Costed under Soffit.	Urgent	
Decks	Deck Top	Replace structure. Costed under Soffit.	Urgent	
Decks	Soffit - Thick Slab	Replace structure.	Urgent	\$58,000
Decks	Wearing Surface	Replace structure. Costed under Soffit.	Urgent	
Embankments & Strea	Streams and Waterways	Reslope while replacing structure.	Urgent	\$2,000
Foundations	Foundation (below ground level)	Install pile foundation.	Urgent	\$50,000
		Total Repair/R	ehabilitation Cost	\$110,000
		Total Asso	ciated Work Cost	\$51,000
			Total Cost	\$161,000

Overall Comment

Structure is in overall poor condition with failures of several critical structural elements such as foundations, abutments and the deck. We recommend that the current load posting be reduced from 15 Tonne to 12 Tonne and be scheduled for replacement within 3 years. Should be replaced simultaneously with structure 9a and 9b to save on replacement costs.

Additional Investigations

Based on the condition of the structure, we recommend that the City implement a monitoring program until the structure can be replaced.

\$5,000.00

Ontario Structure Inspection Manual - Inspection Form Site Number: 09c Structure Name 21st Street West and 6th Avenue Culvert Structure ID: 0S-09c

Inventory Data:									
Structure Name	21st Street West and 6th Avenue 0	Culvert							
Main Hwy/Road #		C	On Under	Crossir	ng Ty _l	pe: Nav Wate	er 🗌 No	on Nav	Water 🗸
Hwy/Road Name	21st Street			☐ Road ►	Ped	Ot	her		
Structure Location									
Latitude (decimal degrees)		Lo	ngitude (decimal degre	ees)					
Owner(s)	City of Owen Sound		Heritage:	Not Cons	S 🗌	Cons Not/Ap	p List/	Not Des	sig 🗌
Region	Southwestern		Designation:			Desig Not Lis	st 🗌	Desig L	ist
District	Owen Sound		Road Class:	Freeway	, <u> </u>	Arterial	Collector [Lo	ocal 🗹
Old County	Grey		No. of Lanes	2	Pos	ted Speed		40	(km/h)
Geographic Twp	Sarawak - 402		AADT	20	00	Trucks		0	(%)
Structure Type	Open Footing CIP Culvert								
Total Deck Length	3	(m)							
Overall Str Width	8.5	(m)							
Total Deck Area	25.5	(sq m)	Min. Vertical Clearand	се					(m)
Roadway Width	6.2		Special Routes: T	ransit []	Truck S	School 🗸	Bicyc	le 🗸
Skew Angle		(deg)	Detour Length						(km)
No. of Spans	1		Direction of Structure	e 1	North/	South			
Span Lengths	2.7	(m)	Fill on Structure						(m)
Historical Data:									,
Year Built	1920		Year of Last Rehab						
Last OSIM Inspection	05/11/2016		Last Evaluation						
Last Enhanced OSIM Inspection			Current Load Limit					(tonr	nes)
Enhanced Access Equipment (ladder, boat,			Load Limit By Law						
lift, etc)			By Law expiry Date						
Last Condition Survey			Last underwater Inspe	ection					
Rehabiliation History	<i>/</i> :.								

Ontario Structure	Inspection N	lanual - Inspe	ection	Form		Site Number: 09c		
Structure Name 21st S	Street West and 6th	Avenue Culvert				Struct	ure ID: OS-09c	
Field Inspection Inf	formation:							
Date of Inspection: (mm/dd/yyyy)	05/15/2018		Inspectio	n Type:	OSIM			
Inspector:	Zak Stewart, P.Er	ng.						
Others in Party:	Travis Denley, E.	.T.						
Equipment Used:	Digital camera, m	easuring tape, har	mmer					
Weather:	Sunny							
Temperature ^o C:	5							
Additional Investiga	ations Require	d:						
, 10 0 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					Priority			
				None	Normal	Urgent	Estimated Cost	
Detailed Deck Condi	tion Survey			✓			\$0	
Non-destructive Dela	am. Survey of Asph	alt-Covered Deck		✓			\$0	
Concrete Substructure Condition Survey				~			\$0	
Detailed Coating Co	ndition Survey			~			\$0	
Detailed Timber Inve	estigation			✓			\$0	
Post-Tensioned Stra	nd Investigation			✓			\$0	
Underwater Investiga	Underwater Investigation						\$0	
Fatigue Investigation	1			~			\$0	
Seismic Investigation	า			V			\$0	
Structure Investigation	on			V			\$0	
Monitoring Deformat	ions, Settlements,	Movements		✓			\$0	
Monitoring Crack Wi	dths				✓		\$5,000	
						otal Cost:	\$5,000	
Overall Structure N	until the structur	ndition of the struce can be replaced.		recommen	d that the City	y implement a	monitoring program	
Overall Comments:	foundations, abu Tonne to 12 Tor with structure 9a		eck. We related for re	ecommen placemen	d that the curi t within 3 year	rent load posti	ents such as ng be reduced from 15 replaced simultaneously	
Recommended Work	:							
Next Inspection:	05/15/2020			Recomm	ended Work	Гіте:		
Suspected Performance Deficier 00 None 01 Load carrying capacity 02 Excessive deformations (defle 03 Continuing settlement 04 Continuing movements 05 Seized bearings		06 Bearing not uniforr 07 Jammed expansio 08 Pedestrian/vehicul 09 Rough riding surfa 10 Surface ponding 11 Deck drainage	n joint Iar hazard	nstable	14 Underm	/ surface g/channel blockag nining of foundation e embankments	e 1	
Maintenance Needs 01 Lift & Swing Bridge Maintenan 02 Bridge Cleaning 03 Bridge Handrail Maintenance 04 Painting Steel Bridge Structur 05 Bridge Deck Joint Repair 06 Bridge Bearing Maintenance	al Steel concrete imber aintenance ol epair		14 Concret 15 Rout an 16 Bridge [•				

Ontario Structure	Inspe	ection N	lanual -	Inspection	Form	Site	Number: 09c	
tructure Name 21st 9	Street W	est and 6th	n Avenue C	ulvert		Str	ucture ID: OS-09c	
lement Data:								
Element Group:	Abutme	ents				Length:	8.50	
Element Name:	Abutme	ent Walls				Width:	0.00	
Location:	Each Sid	de				Height:	1.30	
Material:	Reinford	ced Concre	te			Count:		
Element Type:	Legs of	Rigid Fram	ne			Total Quantity:	22.1	
Environment:	Moderat	erate				Limited Inspection		
Protection System:								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficien	cies:	
	sq.m.	0.0	0.0	0.0	22.1			
				th washout of ba		e 200mm to 300mm. 2.3m		
Recommended Work:	Repla	ace		Maint. Needs:		Maint. Pri	ority:	
Recommended Timing	: Urge	nt		Maint. Desc.:				
Work Details:	Repla	ace structu	re. Costed	under Soffit.				
Element Group:	Abutme	ents				Length:	2.30	
Element Name:	Wingwa	alls				Width:	0.00	
Location:	West Si	de				Height:	1.10	
Material:	Reinford	ced Concre	te			Count:	2.0	
Element Type:	Reinford	ced Concre	te			Total Quantity:	5.1	
Environment:	Moderat	ie				Limited Inspection		
Protection System:								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficien	cies:	
	sq.m.	0.0	0.0	3.1	2.0			
Comments:						cking on northwest. 0.2 n wall with undermining.	n2 of delamination on	
Recommended Work:	Repla	ace		Maint. Needs:		Maint. Pri	ority:	
Recommended Timing				Maint. Desc.:				
Work Details:	Repla	ace structu	re. Costed	under Soffit.				

Ontario Structure	e Inspe	ction M	anual -	Inspection	Form		Site N	lumber: 09c	
the state of the s		est and 6th			Struc	cture ID: OS-0)9c		
Element Group:	Approac	ches				Length:			5.00
Element Name:	Wearing	Surface				Width:			6.20
Location:	Each En	d				Height:			0.00
Material:	Asphalt					Count:			2.0
Element Type:	-					Total Quantity:			62.0
Environment:	Severe					Limited Inspec	tion		
Protection System:									
Condition Data:	Units:	Exc. Good: Fair: Poor:				Performance D	eficiencie	es:	
	sq.m.	0.0	0.0	0.0	62.0				
Recommended Work:	Repla	асе		Maint. Needs	:	Ma	aint. Prior	rity:	
Recommended Timing	g: Urger	nt		Maint. Desc.					
Work Details:	Repla	ice structui	re. Costed	under Soffit.					
Element Group:	Decks					Length:			3.00
Element Name:	Deck To	p				Width:			8.50
Location:						Height:			0.00
Material:	Cast-in-l	Place Cond	rete			Count:			1.0
Element Type:	Cast-in-p	olace Conc	rete on Su	pports		Total Quantity:			25.5
Environment:	Moderat	e				Limited Inspec	tion	✓	
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance D	eficiencie	es:	
	sq.m.	0.0	0.0	9.0	16.5				
Comments:	Deck is	exposed or	n west side	. In poor condit	ion overall				
Recommended Work:	Repla	ace		Maint. Needs		Ma	aint. Prior	rity:	
Recommended Timing				Maint. Desc.	:			-	
Work Details:	Repla	ce structui	e. Costed	under Soffit.					

Ontario Structure	e Inspe	ection M	lanual -	Inspectio	n Form		Site Numb	er: 09c
	•	est and 6th					Structure	ID: OS-09c
Element Group:	Decks					Length:		2.70
Element Name:	Soffit -	Thick Slab				Width:		8.50
Location:						Height:		0.00
Material:	Reinford	ced Concre	te			Count:		1.0
Element Type:	_					Total Quantity:		22.9
Environment:	Moderat	:e				Limited Inspec	tion	
Protection System:								
Condition Data:	Units:	nits: Exc. Good: Fair: Poor:			Performance De	eficiencies:		
	sq.m.	0.0	0.0	7.2	15.7			
	2 01 00	zamilauon	1751111110	Tuest Toution 1	isai miu sp	an with substantial o	aayngni violon	a anough the dook.
Recommended Work:	Repla	ace		Maint. Need	s:	Ма	int. Priority:	
Recommended Timing	ı: Urge	nt		Maint. Desc	p.:			
Work Details:	Repla	ace structu	re.					
Element Group:	Decks					Length:		2.30
Element Name:	Wearing	g Surface				Width:		6.20
Location:						Height:		0.00
Material:	Asphalt					Count:		1.0
Element Type:	-					Total Quantity:		14.3
Environment:	Severe					Limited Inspect	tion	
Protection System:								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance De	eficiencies:	
	sq.m.	0.0	0.0	0.0	14.3			
Comments:	Severe i	utting of as	sphalt, pato	ching througho	out. Patchii	ng has failed near m	nid span over	the bridge deck.
Recommended Work:	Repla	ace		Maint. Need	s:	Ма	int. Priority:	
Recommended Timing	g: Urge	nt		Maint. Desc	p.:			
Work Details:	Repla	ace structu	re. Costed	under Soffit.				

Ontario Structure	Inspe	ction M	lanual -	Inspection	n Form	Si	te Number: 09c
Structure Name 21st 5	Street We	est and 6th	Avenue C	ulvert			Structure ID: OS-09c
Element Group:	Embank	ments & S	Streams			Length:	0.00
Element Name:	Embank	ments				Width:	0.00
Location:	West Si	de				Height:	0.00
Material:	Vegetati	on				Count:	2.0
Element Type:	_					Total Quantity:	2.0
Environment:	Moderat	е				Limited Inspection	
Protection System:							
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficie	encies:
	Each	0.0	2.0	0.0	0.0		
Comments:	iii oveia	I good con	dition.				
Recommended Work:				Maint. Need	s:	Maint. F	Priority:
Recommended Timing	: None			Maint. Desc	: :		
Work Details:							
Element Group:	Embank	ments & S	Streams			Length:	0.00
Element Name:	Streams	and Wate	erways			Width:	0.00
Location:						Height:	0.00
Material:	Other					Count:	1.0
Element Type:	_					Total Quantity:	1.0
Environment:	Benign					Limited Inspection	
Protection System:							
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficie	encies:
	Each	0.0	0.0	1.0	0.0		
Comments:	Overall i	n fair cond	ition. Debri	s and sedimer	nt within cul	vert bottom is restricting	flow.
Recommended Work:	Reha	b		Maint. Need	s:	Maint. F	Priority:
Recommended Timing	: Urgei	nt		Maint. Desc	: .:		
Work Details:	Resid	pe while re	eplacing st	ructure.			

Ontario Structure	e Inspe	ction N	lanual - I	nspectio	n Form		Site Nu	ımber: 09c	
Structure Name 21st	Street We	est and 6tl	n Avenue Cu	llvert			Struct	ure ID: OS-09c	
Element Group:	Foundat	tions				Length:		0.00	
Element Name:	Founda	tion (belo	w ground le	evel)		Width:		0.00	
Location:	Each En	d				Height:		0.00	
Material:	Cast-in-l	t-in-Place Concrete				Count:		2.0	
Element Type:	Spread	ead				Total Quantity	<i>r</i> :	2.0	
Environment:	Moderat	oderate				Limited Insped	ction		
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficiencies:			
	Each	0.0	0.0	0.0	2.0				
Comments:	Full leng	th of foun	dation is und	lermined					
Recommended Work:	Repla	ace		Maint. Need	s:	M	aint. Priorit	ty:	
Recommended Timing	g: Urger	nt		Maint. Desc	D.:				
Work Details:	Instal	stall pile foundation.							

Ontario Struc	cture Inspection	n Manual - Inspection For	rm	Site Number: 09	С		
Structure Name	21st Street West and	6th Avenue Culvert		Structure ID: OS	S-09c		
Repair / Rehat	oilitation Require	d					
Element Group	Element	Repair / Rehabilitation		Priority	Const Cos		
Abutments	Abutment Walls	Replace structure. Costed und	ler Soffit.	Urgent			
Abutments	Wingwalls	Replace structure. Costed und	ler Soffit.	Urgent			
Approaches	Wearing Surface	Replace structure. Costed und	ler Soffit.	Urgent			
Decks	Deck Top	Replace structure. Costed und	ler Soffit.	Urgent			
Decks	Soffit - Thick Slab	Replace structure.		Urgent	\$58,000		
Decks	Wearing Surface	Replace structure. Costed und	ler Soffit.	Urgent			
Embankments & Streams	Streams and Waterways	Reslope while replacing structu	•				
Foundations	Foundation (below ground level)	Install pile foundation.	all pile foundation. Urgent				
			Total Repair/Rehabi	litation Cost	\$110,000		
Associated Wo	ork						
	Comments			<u> </u>	Estimated Co		
Approaches					\$0		
Detours					\$0		
Traffic Control					\$0		
Utilities					\$0		
Right-of-Way					\$0		
Environmental S	tudy				\$0		
Other	By-Pass Pip	oing System and Dewatering			\$14,000		
			Contingencies	10.00%	\$12,000		
			Engineering	20.00%	\$25,000		
			Total Associated	l Work Cost	\$51,000		
			Total Repair / Rel	nabilitation Cost	\$110,000		
			Total Cost		\$161,000		
<u>Justification</u>							
Luctitiontion							

21st Street West and 6th Avenue Culvert

Structure ID: OS-09c

Inspection Photos



View of structure facing east.



View of structure facing north.



View of soffit.



View of spalling in soffit.



View of spalled soffit at south abutment.



View of south soffit spall near mid span.



View of north soffit spall near mid span.



View of 175mm soffit crack near mid span. (visible daylight through deck)



View of abutment undermining and scour at southwest corner.



View of typical undermining at south abutment base.

21st Street West and 6th Avenue Culvert



View of typical undermining at north abutment base.



View of full height north abutment 50mm crack.



View of full height south abutment 50mm crack.



View of deteriorated and collapsed north abutment.

21st Street West and 6th Avenue Culvert



View of exterior soffit delamination.



View of southwest wingwall narrow crack.

21st Street West and 6th Avenue Culvert



View of northwest exterior soffit crack.



View of wearing surface pothole showing a steel plate support.

Ontario Structure Inspection Manual - Inspection Form

5/15/2020

Structure Name 21st Street West and 6th Avenue Culvert Site Number: 09b

Structure ID: OS-09b

Summary Action Report

Inspection Date: 5/15/2018 Bridge Condition Value (BCI)

75

Performance Deficiencies

Next Biennial Inspection:

Maintenance Needs

Repair/Rehabilitation

Element Group	Element Name	Repair/Rehabilitation	Priority	Est. Cost
Culverts	Barrels	Replace in conjunction with str	ucture 9c. 1-5 Years	\$175,000
Foundations	Foundation (below ground level)	Install pile foundation.	1-5 Years	\$150,000
		Total	Repair/Rehabilitation Cost	\$325,000
		To	otal Associated Work Cost	\$152,000
			Total Cost	\$477,000

Overall Comment

The structure is in overall good condition. However, structure 9a and 9c are in poor condition requiring replacement. It would be advantageous for the City to replace structure 9b simultaneously to save on construction costs.

Additional Investigations

\$0.00

Ontario Structure Inspection Manual - Inspection Form Site Number: 09b Structure Name 21st Street West and 6th Avenue Culvert Structure ID: OS-09b

Inventory Data:								
Structure Name	21st Street West and 6th Avenue 0	Culvert						
Main Hwy/Road #		C	On _ Under _ Crossing Type: Nav Water _ Non Nav Water _					
Hwy/Road Name	21st Street		Rail ☐ Road ✔ Ped ☐ Other ☐					
Structure Location								
Latitude (decimal degrees)		Loi	ngitude (decimal de	grees)				
Owner(s)	City of Owen Sound		Heritage:	Not Co	ns 🗌	Cons Not/Ap	p List/No	t Desig
Region	Southwestern		Designation:			Desig Not Lis	st 🗌 💮 De	sig List 🗌
District	Owen Sound		Road Class:	Freewa	ay 🗌	Arterial	Collector	Local 🗹
Old County	Grey		No. of Lanes		2 Post	ed Speed		40 (km/h)
Geographic Twp	Sarawak - 402		AADT		200	Trucks		0 (%)
Structure Type	Double CSP							
Total Deck Length	3.4	(m)						
Overall Str Width	50	(m)						
Total Deck Area	170	(sq m)	Min. Vertical Clear	ance				(m)
Roadway Width	6.6		Special Routes:	Transit	✓ T	ruck 🗸 S	ichool 🗹 E	Bicycle 🗹
Skew Angle		(deg)	Detour Length					(km)
No. of Spans	2		Direction of Struct	ure	East/W	'est		
Span Lengths	1.5, 1.5	(m)	Fill on Structure					(m)
Historical Data:								
Year Built	1971		Year of Last Rehat)				
Last OSIM Inspection	05/11/2016		Last Evaluation					
Last Enhanced OSIM Inspection			Current Load Limit					(tonnes)
Enhanced Access Equipment (ladder, boat,			Load Limit By Law					
lift, etc)			By Law expiry Date	•				
Last Condition Survey			Last underwater In	spection	_			
Rehabiliation History	<i>-</i>							

Ontario Structure	Inspection	Ontario Structure Inspection Manual - Inspection Form						
		th Avenue Culvert			Struct	ure ID: OS-09b		
Field Inspection Int	formation:							
Date of Inspection:	05/15/2018	In	spection Type:	OSIM				
(mm/dd/yyyy)	03/13/2010	ıı.	ispection Type.	OSIN				
Inspector:	Zak Stewart, P.F	Eng.						
Others in Party:	Travis Denley, E	i.I.T.						
Equipment Used:	Hammer, camer	a and measuring tape	•					
Weather:	Sunny							
Temperature °C:	15							
Additional Investiga	ations Require	ed:						
	•			Priority				
			None	Normal	Urgent	Estimated Cost		
Detailed Deck Condi	tion Survey		✓	П		\$0		
Non-destructive Dela	am. Survey of Asp	halt-Covered Deck	~			\$0		
Concrete Substructu	re Condition Surv	ey	✓			\$0		
Detailed Coating Co	✓			\$0				
Detailed Timber Inve	✓			\$0				
Post-Tensioned Stra	~			\$0				
Underwater Investiga	Underwater Investigation					\$0		
Fatigue Investigation	1		V			\$0		
Seismic Investigation	n		V			\$0		
Structure Investigation	on		V			\$0		
Monitoring Deformat	ions, Settlements	, Movements	~			\$0		
Monitoring Crack Wi	dths		~			\$0		
				To	otal Cost:	\$0		
Investigation Notes:								
Overall Structure N	lotes							
Overall Comments:		s in overall good cond	ition However s	structuro Oo or	nd Oc are in no	or condition requiring		
Overall Comments.		t would be advantage						
Recommended Work	:							
Next Inspection:	05/15/2020		Recomm	nended Work	Time:			
Suspected Performance Deficier	ncies							
00 None 01 Load carrying capacity		06 Bearing not uniformly 07 Jammed expansion jo		12 Slipper	y surface g/channel blockag	۵		
22 Excessive deformations (deflections & rotations) 08 Pedestrian/vehicular ha			hazard	14 Undern	nining of foundation			
03 Continuing settlement 04 Continuing movements 05 Seized bearings		09 Rough riding surface 10 Surface ponding 11 Deck drainage		16 Other	le embankments			
Maintenance Needs	200	07 Donair to Structural S	Stool	19 Erosion	Control at Bridge			
01 Lift & Swing Bridge Maintenau 02 Bridge Cleaning		07 Repair to Structural S 08 Repair to Bridge Con	crete	14 Concre				
03 Bridge Handrail Maintenance 04 Painting Steel Bridge Structur		09 Repair to Bridge Timi 10 Bailey Bridges - Main			Deck Drainage			
05 Bridge Deck Joint Repair06 Bridge Bearing Maintenance		11 Animal/Pest Control 12 Bridge Surface Repa	ir	17 Scaling 18 Other	(Loose Concrete	or ACR Steel)		

Ontario Structure Inspection Manual - Inspection Form Site Number: 09b 21st Street West and 6th Avenue Culvert Structure ID: OS-09b Element Data: 50.00 **Element Group:** Culverts Length: Width: 1.50 **Element Name: Barrels** Location: Height: 1.50 Steel Count: Material: 2.0 Element Type: Pipe Round **Total Quantity:** 471.3 **V** Environment: Moderate Limited Inspection Protection System: Condition Data: Units: Exc. Good: Fair: Poor: Performance Deficiencies: 471.3 0.0 0.0 sq.m. 0.0 Comments: Moderate corrosion throughout. Moderate sediment and debris within culvert bottoms is restricting flow. Maint. Needs: Recommended Work: Replace Maint. Priority: Recommended Timing: 1-5 Years Maint. Desc.: Work Details: Replace in conjunction with structure 9c. **Element Group:** 0.00 Culverts Length: **Element Name: Inlet Components** Width: 1.20 Location: North End Height: 1.20 Steel Material: Count: 2.0 Total Quantity: Element Type: 2.9 **~** Moderate Environment: Limited Inspection Protection System: Condition Data: Units: Exc. Good: Fair: Poor: Performance Deficiencies: 2.9 0.0 0.0 sq.m. 0.0 Comments: Moderate corrosion throughout. No loss of section. Maint. Needs: Recommended Work: Maint. Priority: Recommended Timing: None Maint. Desc.: Work Details:

Outouio Cturrotru	a luana	a atiana M	lomusl	luana atia	. Гоши	S	te Number: 09b
Ontario Structur Structure Name 21st		ection iv /est and 6th		•	n Form		Structure ID: OS-09b
Structure Name 21st	Street W	rest and otr	i Avenue C	uiveri			Structure ID. 05-09b
Element Group:	Culver	ts				Length:	0.00
Element Name:	Outlet	Componen	its			Width:	1.20
Location:	South E	End				Height:	1.20
Material:	Steel					Count:	2.0
Element Type:						Total Quantity:	2.9
Environment:	Modera	ite				Limited Inspection	✓
Protection System:							
Condition Data:	Units:				Poor:	Performance Deficie	encies:
	sq.m.	0.0	2.9	0.0	0.0		
Comments:	spalling	and deterio	orating. A v	vooden suppo	ort was also		and Structure No. OS-09A is tlet. This support may have is beginning to rot.
Recommended Work:				Maint. Nee		Maint. I	Priority:
Recommended Timing	g: Non	e		Maint. Des	sc.:		
Work Details:							
Element Group:	Emban	ıkments & 3	Streams			Length:	0.00
Element Name:	Stream	s and Wate	erways			Width:	0.00
Location:						Height:	0.00
Material:						Count:	1.0
Element Type:	_					Total Quantity:	1.0
Environment:	Benign					Limited Inspection	
Protection System:							
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficie	encies:
	Each	0.0	1.0	0.0	0.0		
Comments:		in good cor	ndition. Mo	derate amour	nt of sedime	nt at bottom of culverts of	causing minor restriction of
	flow.						
Recommended Work:				Maint. Nee	ds:	Maint. I	Priority:
Recommended Timing	g: Non	е		Maint. Des	sc.:		
Work Details:							

Ontario Structure	Inspe	ction N	lanual -	Inspectio	n Form		Site	Number: 0	9b
Structure Name 21st	Street We	est and 6tl	n Avenue Ci	ulvert		Structure ID: OS-09b			
Element Group:	Foundat	ions				Length:			0.00
Element Name:	Foundat	oundation (below ground level)							0.00
Location:	Each En	ach End							0.00
Material:	Concrete	Concrete							2.0
Element Type:	-						tity:		2.0
Environment:	Moderate	Moderate					pection	✓	
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance	e Deficien	cies:	
	Each	0.0	2.0	0.0	0.0				
Comments:	Not visib	le, but ap	pears stable						
Recommended Work:	Repla	ice		Maint. Need	ds:		Maint. Pr	iority:	
Recommended Timing	j: 1-5 Ye	ears		Maint. Des	c.:				
Work Details:	Install	pile foun	dation.						

Ontario Struc Structure Name	cture Inspectio 21st Street West an	Site Number: <mark>09b</mark> Structure ID: <mark>OS-</mark>						
Repair / Rehabilitation Required								
Element Group	<u>Element</u>	Repair / Rehabilitation	<u>Priority</u>	Const Cost				
Culverts	Barrels	Replace in conjunction with structure 9c.	1-5 Years	\$175,000				
Foundations	Foundation (below ground level)	Install pile foundation.	1-5 Years	\$150,000				
		Total Repair/Rel	habilitation Cost	\$325,000				

leve	ow ground el)			
		Total Repair/Rehabilit	ation Cost	\$325,000
Associated Work				
	Comments			Estimated Cos
Approaches				\$0
Detours				\$0
Traffic Control				\$0
Utilities				\$0
Right-of-Way				\$0
Environmental Study				\$0
Other	By-Pass Piping System and Dewatering			\$42,000
		Contingencies	10.00%	\$37,000
		Engineering	20.00%	\$73,000
		Total Associated V	Vork Cost	\$152,000
		Total Repair / Rehal	bilitation Cost	\$325,000
		Total Cost		\$477,000

<u>Justification</u>

We recommend that the structure be replaced entierly in conjunction with structure 9c to save on construction costs.

Structure ID: OS-09b

Inspection Photos



View of structure facing north



View of east barrel.



View of west barrel.



View of stone headwall on east side of outlet.



View of central headwall.



View of west head wall at outlet.

21st Street West and 6th Avenue Culvert



View of structure facing south.



View of typical barrel corrosion.



View of spall with exposed and corroded reinforcing steel above west barrel.

Ontario Structure Inspection Manual - Inspection Form

5/15/2020

Structure Name 21st Street West and 6th Avenue Culvert Site Number: 09a

Structure ID: OS-09a

Summary Action Report

Inspection Date: 5/15/2018 Bridge Condition Value (BCI)

39

Next Biennial Inspection:

Performance Deficiencies

Maintenance Needs

Repair/Rehabilitation

Element Group	Element Name	Repair/Rehabilitation	Priority	Est. Cost
Abutments	Abutment Walls	Replace structure 9a in conjunction with 9b and 9c. Costed under soffit.	1-5 Years	
Abutments	Wingwalls	Replace structure 9a in conjunction with 9b and 9c. Costed under soffit.	1-5 Years	
Approaches	Wearing Surface	Replace structure 9a in conjunction 1-5 Years with 9b and 9c.		\$5,500
Barriers	Posts	Replace structure 9a in conjunction with 9b and 9c.	1-5 Years	\$1,000
Barriers	Railing Systems	Replace barrier. Replace structure 9a in conjunction with 9b and 9c.	1-5 Years	\$1,500
Decks	Soffit - Inside Boxes	Replace structure 9a in conjunction with 9b and 9c.	1-5 Years	\$58,000
Decks	Wearing Surface	Replace structure 9a in conjunction with 9b and 9c.	Replace structure 9a in conjunction 1-5 Years	
Foundations	Foundation (below ground level)	Install pile foundation during replacement.	1-5 Years	\$50,000
Sidewalks/Curbs	Curbs	Replace structure 9a in conjunction with 9b and 9c.	1-5 Years	\$1,000
		Total Repair/F	Rehabilitation Cost	\$120,000
		Total Asso	ociated Work Cost	\$54,000

Total Cost \$174,000

Overall Comment

The structure is in overall fair to poor condition with several elements requiring major rehabilitation. It is our understanding that the City intends to replace structure 9c in the near future. Given the condition of the structure we recommend it be replaced intirely in conjuntion with structure 9c and 9b.

Additional Investigations

\$0.00

Ontario Structure Inspection Manual - Inspection Form Site Number: 09a Structure Name 21st Street West and 6th Avenue Culvert Structure ID: OS-09a Inventory Data: Structure Name 21st Street West and 6th Avenue Culvert Crossing Type: Nav Water On Under Main Hwy/Road # Non Nav Water 🗸 Rail Road 🗸 Ped 🗌 Hwy/Road Name 21st Street Structure Location Latitude (decimal degrees) Longitude (decimal degrees) Owner(s) City of Owen Sound Cons Not/App List/Not Desig Heritage: Not Cons Southwestern Desig Not List Region Designation: Desig List District Owen Sound Freeway Arterial Collector Local Road Class: No. of Lanes 2 Posted Speed 40 (km/h) Old County Grey Trucks (%) AADT Geographic Twp Sarawak - 402 Structure Type Open Footing CIP Culvert Total Deck Length 3.8 (m) Overall Str Width 16 (m) Total Deck Area 60.8 (sq m) Min. Vertical Clearance (m) Roadway Width 7.8 Transit 🗸 Truck < School Bicycle Special Routes:

Historical Data:			
Year Built	1920	Year of Last Rehab	
Last OSIM Inspection	05/05/2016	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	(tonnes)
Enhanced Access Equipment (ladder, boat,		Load Limit By Law	
lift, etc)		By Law expiry Date	
Last Condition Survey		Last underwater Inspection	
Rehabiliation Histor	V:		

Detour Length

Fill on Structure

Direction of Structure

East/West

(deg)

(m)

1

Skew Angle

No. of Spans

Span Lengths

3.1

(km)

(m)

Ontario Structure Inspection Manual - Inspection Form							Site Number: 09a		
Structure Name 21st Street West and 6th Avenue Culvert						Struct	ure ID: OS-09a		
Field Inspection Inf	ormation:								
Date of Inspection: (mm/dd/yyyy)	05/15/2018		Inspection	on Type:	OSIM				
Inspector:	Zak Stewart, P.E	ng.							
Others in Party:	Travis Denley, E.								
Equipment Used:	Measuring tape,	digital camera, ha	mmer						
Weather:	Sunny								
Temperature °C:	15								
A delitional law action	-ti Di	al.							
Additional Investiga	ations Require	d:							
				None	Priority Normal	Linerand	Estimated Cost		
Detailed Deck Condi	tion Curvoy				INOITHAL	Urgent	\$ 0		
Non-destructive Dela		alt Covered Deek	,	V			\$0		
Concrete Substructu	<u>.</u>		`	V			\$0 \$0		
		у		V			\$0		
	Detailed Coating Condition Survey						\$0		
	Detailed Timber Investigation Post-Tensioned Strand Investigation						\$0		
Underwater Investiga		V			\$0				
Fatigue Investigation							\$0		
Seismic Investigation				V			\$0		
Structure Investigation				V			\$0		
Monitoring Deformat		Movements		<u> </u>			\$0		
Monitoring Crack Wi				<u>V</u>			\$0		
g				•	To	otal Cost:	\$0		
Investigation Notes:							•		
Overall Structure N	lotes:								
Overall Comments:	our understandi		tends to re	place stru	cture 9c in the	e near future.	ajor rehabilitation. It is Given the condition of and 9b.		
Recommended Work	:								
Next Inspection:	05/15/2020			Recommended Work Time:					
01 Load carrying capacity 07 Jamn 02 Excessive deformations (deflections & rotations) 08 Pede 03 Continuing settlement 09 Roug 04 Continuing movements 10 Surfa		07 Jammed expansi 08 Pedestrian/vehicu			stable 12 Slippery surface 13 Flooding/channel blockage 14 Undermining of foundation 15 Unstable embankments 16 Other				
02 Bridge Cleaning03 Bridge Handrail Maintenance	aintenance Needs I Lift & Swing Bridge Maintenance 2 Bridge Cleaning 3 Bridge Handrail Maintenance 4 Painting Steel Bridge Structures 5 Bridge Deck Joint Repair 11 Animal/Pest Control		Concrete Timber Maintenance trol		14 Concre 15 Rout ar 16 Bridge l				

Ontario Structure	Inspe	ction M	lanual -	Inspectio	n Form	Site	Number: 09a	
tructure Name 21st S	Street We	st and 6th	Avenue C	ulvert	Stru	ucture ID: <mark>OS-09a</mark>		
lement Data:								
Element Group:	Abutme	nts				Length:	16.00	
Element Name:	Abutme	nt Walls				Width:	0.00	
Location:	Each Sid	le				Height:	1.10	
Material:	Reinforce	ed Concre	te			Count:	2.0	
Element Type:	Integral					Total Quantity:	35.2	
Environment:	Moderate					Limited Inspection		
Protection System:								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficiend	cies:	
	sq.m.	0.0	0.0	32.2	3.0			
						.0 m2 of delamination thro		
Recommended Work:	Repla	ice		Maint. Need	s:	Maint. Priority:		
Recommended Timing	: 1-5 Ye	ears		Maint. Des	D.:			
Work Details:	Repla	ce structu	re 9a in cor	njunction with	9b and 9c. (Costed under soffit.		
Element Group:	Abutmei	nts				Length:	2.30	
Element Name:	Wingwa	lls				Width:	0.00	
Location:	South Er	ıd				Height:	2.30	
Material:	Reinforce	ed Concre	te			Count:	2.0	
Element Type:	Reinforce	ed Concre	te			Total Quantity:	10.6	
Environment:	Moderate					Limited Inspection		
Protection System:								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficience	cies:	
	sq.m.	0.0	9.6	0.5	0.5			
Comments:				t wingwall. 0.4 Ill on backside		ocracking on southeast wi est wingwall.	ngwall. 0.25 m2 of minor	
Recommended Work:	Repla	ice		Maint. Need	s:	Maint. Pri	ority:	
Recommended Timing				Maint. Des		Walle I II		
Work Details:	Repla	ce structu	re 9a in cor	njunction with	9b and 9c. (Costed under soffit.		

Ontario Structuro	e Inspe	ction M	lanual -	Inspectio	n Form		Site Number: 09a
		est and 6th					Structure ID: OS-09a
Element Group:	Approa	ches				Length:	5.00
Element Name:	Wearing	Surface			Width:	7.80	
Location:					Height:	0.00	
Material:	Asphalt				Count:	2.0	
Element Type:	-					Total Quantity:	78.0
Environment:	Severe					Limited Inspection	n 🗆
Protection System:							
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Defice	ciencies:
	sq.m.	0.0	0.0	0.0	78.0		
Comments:	wap cra	cking and r	utting trirot	agnout.			
Recommended Work:	Repla	ace		Maint. Need	ls:	Maint	. Priority:
Recommended Timing	g: 1-5 Y	ears		Maint. Des	o.:		
Work Details:	Repla	ace structu	re 9a in co	njunction with	9b and 9c		
Element Group:	Barriers	;				Length:	0.25
Element Name:	Posts					Width:	0.25
Location:	South E	nd				Height:	0.90
Material:	Reinford	ed Concre	te			Count:	4.0
Element Type:	Concret	9				Total Quantity:	4.0
Environment:	Severe					Limited Inspection	n 🗆
Protection System:							
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Defic	ciencies:
	Each	0.0	0.0	0.0	4.0		
Comments:	All posts	have narr	ow cracks	and light spall	ing througl	hout. 0.2 m2 of modera	te delamination on east post.
Recommended Work:	Repla	ace		Maint. Need	ls:	Maint	:. Priority:
Recommended Timing				Maint. Des			
Work Details:	Repla	ace structu	re 9a in co	njunction with	9b and 9c		

Ontario Structur	e Insp	ection N	lanual -	Inspectio	n Form		Site N	lumber:	 09a
		est and 6th				Struc	ture ID:	OS-09a	
Element Group:	Barrier	s				Length:			2.20
Element Name:	Railing	Systems				Width:			0.00
Location:	South E	End				Height:			0.00
Material:	Reinfor	ced Concre	ete			Count:			3.0
Element Type:	Concre	te Post and	Bars			Total Qua	ntity:		6.6
Environment:	Severe					Limited Ins	spection		
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performan	ce Deficiencie	es:	
	m	0.0	0.0	0.0	6.6				
Comments:		ern barrier		corroded rec	ar and delan	nination throug	nout. Only co	orroded r	ebar remaining
Recommended Work	: Repl	ace		Maint. Nee	ds:		Maint. Prior	ity:	
Recommended Timin	g: 1-5 \	rears		Maint. Des	sc.:				
Work Details:	Repl	ace barrier	. Replace s	structure 9a ir	conjunction	with 9b and 9	C.		
Element Group:	Decks					Length:			3.10
Element Name:	Soffit -	Inside Box	(es			Width:			16.90
Location:						Height:			0.00
Material:	Reinfor	ced Concre	ete			Count:			1.0
Element Type:	-					Total Qua	ntity:		52.4
Environment:	Modera	te				Limited Ins	spection		
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performan	ce Deficiencie	es:	
	sq.m.	0.0	36.4	8.0	8.0				
Comments:		palling with nt wall crac		orroded rebar	. 5 m2 of del	aminations. 4r	n long mediui	m crack	connecting
Recommended Work	: Repl	lace		Maint. Nee	ds:		Maint. Prior	ity:	
Recommended Timin	g: 1-5 \	rears		Maint. Des	sc.:				
Work Details:	Repl	ace structu	re 9a in co	njunction with	9b and 9c.				

Ontario Structure	Inspe	ection M	lanual - I	Inspection	n Form	Site	e Number: <mark>09a</mark>
			Avenue Cu			Str	ructure ID: OS-09a
Element Group:	Decks				Length:	6.00	
Element Name:	Wearing	g Surface				Width:	7.80
Location:						Height:	0.00
Material:	Asphalt					Count:	1.0
Element Type:	-					Total Quantity:	46.8
Environment:	Severe					Limited Inspection	
Protection System:							
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficien	cies:
	sq.m.	0.0	0.0	0.0	46.8		
	-	cking throu					
Recommended Work:	Repla			Maint. Need		Maint. Pr	iority:
Recommended Timing			•	Maint. Desc			
Work Details:	Repla	ace structu	re 9a in con	ijunction with	9b and 9c.		
Element Group:	Embank	ments & \$	Streams			Length:	0.00
Element Name:	Embank	ments				Width:	0.00
Location:	South E	nd				Height:	0.00
Material:	Soil					Count:	2.0
Element Type:	_					Total Quantity:	2.0
Environment:	Moderat	е				Limited Inspection	
Protection System:							
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficien	cies:
	Each	0.0	2.0	0.0	0.0		
Comments:	Overall i	n good cor	ndition.				
Recommended Work:				Maint Nood	~ :	Maint Dr	i a rituu
Recommended Timing	: None			Maint. Need Maint. Desc		Maint. Pr	ionty.

Ontario Structure	Inspe	ction M	anual -	Inspection	Form	Sit	e Number: <mark>09a</mark>
Structure Name 21st S	Street We	est and 6th	Avenue C	ulvert		St	tructure ID: OS-09a
Element Group:	Embank	ments & S	Streams			Length:	0.00
Element Name:	Streams	and Wate	erways			Width:	0.00
Location:						Height:	0.00
Material:						Count:	1.0
Element Type:	_					Total Quantity:	1.0
Environment:	Benign					Limited Inspection	
Protection System:							
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficie	ncies:
	Each	0.0	0.0	0.0	1.0		
Recommended Work:				Maint. Needs	:	Maint. P	riority:
Recommended Timing	: None			Maint. Desc	:		
Work Details:							
Element Group:	Founda					Length:	0.00
Element Name:		tion (belov	w ground l	evel)		Width:	0.00
Location:	Each En					Height:	0.00
Material:		ed Concre	te			Count:	2.0
Element Type:	Spread					Total Quantity:	2.0
Environment:	Moderat	e				Limited Inspection	✓
Protection System:	11.34	_	0	F.:	D		
Condition Data:	Units:	Exc.	Good:	Fair: 0.0	Poor: 0.0	Performance Deficie	ncies:
Commente	Each	0.0	2.0		0.0		
Comments:	THUL VISIL	le, but app	rcais stable	.			
Recommended Work:	Repla	асе		Maint. Needs	:	Maint. P	riority:
Recommended Timing	: 1-5 Y	ears		Maint. Desc	:		
Work Details:	Instal	I pile found	lation durin	g replacement			

Ontario Structure	e Inspe	ction N	lanual - I	Inspectio	n Form		Site N	Number: 09a	
Structure Name 21st	Street We	est and 6tl	า Avenue Cเ	ılvert			Struc	cture ID: OS-09a	
Element Group:	Sidewal	ks/Curbs				Length:			8.50
Element Name:	Curbs					Width:			0.30
Location:	North Si	de				Height:			0.30
Material:	Cast-in-l	Place Con	crete			Count:			1.0
Element Type:	-					Total Quar	ntity:		5.1
Environment:	Severe					Limited Ins	spection		
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performand	ce Deficienci	es:	
	sq.m.	0.0	4.1	0.5	0.5				
Comments:	Spalling	on northw	est curb.						
Recommended Work:				Maint. Nee			Maint. Prio	rity:	
Recommended Timing	g: 1-5 Y	ears		Maint. Des	sc.:				
Work Details:	Repla	eplace structure 9a in conjunction with 9b and 9c.							

Site Number: 09a Ontario Structure Inspection Manual - Inspection Form Structure Name 21st Street West and 6th Avenue Culvert Structure ID: OS-09a Repair / Rehabilitation Required **Element Group** Element Repair / Rehabilitation **Priority Const Cost** Replace structure 9a in conjunction with 9b and 9c. Costed 1-5 Years **Abutment Walls** Abutments under soffit. **Abutments** Wingwalls Replace structure 9a in conjunction with 9b and 9c. Costed 1-5 Years under soffit. Approaches Wearing Surface Replace structure 9a in conjunction with 9b and 9c. 1-5 Years \$5,500 **Barriers Posts** Replace structure 9a in conjunction with 9b and 9c. 1-5 Years \$1,000 **Barriers** Railing Systems Replace barrier. Replace structure 9a in conjunction with 1-5 Years \$1,500 9b and 9c. **Decks** Soffit - Inside Replace structure 9a in conjunction with 9b and 9c. 1-5 Years \$58,000 **Boxes** Decks Wearing Surface Replace structure 9a in conjunction with 9b and 9c. 1-5 Years \$3,000 Foundations Foundation Install pile foundation during replacement. 1-5 Years \$50,000 (below ground level) Sidewalks/Curbs Curbs Replace structure 9a in conjunction with 9b and 9c. 1-5 Years \$1,000 **Total Repair/Rehabilitation Cost** \$120,000 Associated Work Comments Estimated Cost Approaches \$0 **Detours** \$0 Traffic Control \$0 Utilities \$0 Right-of-Way \$0 **Environmental Study** \$0 \$14,000 Other Bypass Piping System and Dewatering 10.00% Contingencies \$13,000 20.00% Engineering \$27,000 **Total Associated Work Cost** \$54,000 Total Repair / Rehabilitation Cost \$120,000 **Total Cost** \$174,000

Justification

We recommend a complete replacement of the structure based on the overall condition on the structure in order to maintain pedestrian and motorist safety.

Structure ID: OS-09a

Inspection Photos



View of structure facing north.



View of structure facing west.

21st Street West and 6th Avenue Culvert



View of soffit.



View of exterior soffit with severe spalling and exposed corroded rebar.

21st Street West and 6th Avenue Culvert



View of narrow crack on southwest wingwall.



View of map cracking on southeast wingwall.

21st Street West and 6th Avenue Culvert



View of delamination on southwest wingwall.



View of barrier rail repairs.



View of east barrier post.



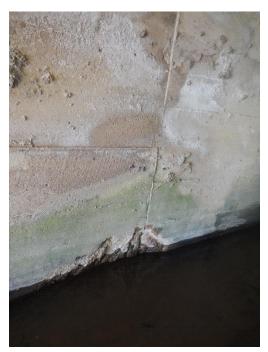
Spalling of barrier rail.

Site Number: 09a

Structure Name 21st Street West and 6th Avenue Culvert



View of wearing surface with map and alligator cracking.



West abutment severe spall.

21st Street West and 6th Avenue Culvert



View of narrow crack in west abutment.



View of spall at the base of the east abutment.



View of spall and exposed reinforcing in the east abutment at the storm drain penetration.



View of narrow crack in east abutment.



View of delamination on soffit near east abutment interface.



View of severe soffit delamination above storm drain.



View of severe soffit spall with exposed corroded reinforcing and adjacent delamination.



View of small soffit delamination following transverse crack.



View of erosion on southwest embankment.

Ontario Structure Inspection Manual - Inspection Form

Structure Name 20th Street West at 5th Avenue Culvert

Site Number: 08

Structure ID: OS-08

75

Summary Action Report

Inspection Date: 5/15/2018 Bridge Condition Value (BCI)

Next Biennial Inspection: 5/15/2020

Performance Deficiencies

Maintenance Needs

Element Group	Element Name	Maintenance Need
Approaches	Wearing Surface	Rout and Seal
Embankments & Streams	Streams and Waterways	Other

Repair/Rehabilitation

Element Group	Element Name	Repair/Rehabilitation	Priority	Est. Cost
Approaches	Wearing Surface	Resurface and repair granular base during major road works.	6-10 Years	\$1,500
		Total Repair/	Rehabilitation Cost	\$1,500
		Total Ass	ociated Work Cost	\$0
			Total Cost	\$1.500

Overall Comment

In overall good condition. Approaches should be resurfaced.

Additional Investigations

\$0.00

Ontario Structure Inspection Manual - Inspection Form Site Number: 08 20th Street West at 5th Avenue Culvert Structure ID: OS-08 Inventory Data: Structure Name 20th Street West at 5th Avenue Culvert Main Hwy/Road # On Under Crossing Type: Nav Water Non Nav Water 🗸 Rail Road 🗸 Ped Hwy/Road Name 20th Street West Structure Location Latitude (decimal degrees) Longitude (decimal degrees) Owner(s) City of Owen Sound Not Cons Cons Not/App ☐ List/Not Desig ☐ Heritage: Southwestern Desig Not List Region Designation: Desig List District Owen Sound Freeway Arterial Collector Local Road Class: No. of Lanes 2 Posted Speed 50 (km/h) Old County Grey 0 (%) **AADT** 500 Trucks Geographic Twp Sarawak - 402 Structure Type Cast-in-place (open footing) culvert Total Deck Length 3.6 (m) Overall Str Width 30 (m) Total Deck Area (m) 108 (sq m) Min. Vertical Clearance Roadway Width 6.4 Truck School Bicycle Transit ___ Special Routes: Detour Length Skew Angle (deg) (km) Direction of Structure East/West No. of Spans 1 (m) Fill on Structure Span Lengths 3.2 (m) **Historical Data:** Year Built N/A Year of Last Rehab Last OSIM Inspection 05/05/2016 Last Evaluation Last Enhanced Current Load Limit (tonnes) **OSIM** Inspection **Enhanced Access** Load Limit By Law

By Law expiry Date

Last underwater Inspection

Equipment (ladder, boat,

Last Condition Survey

Rehabiliation History:

lift, etc)

Ontario Structure	Inspection	Manual - Inspec	tion Form		Site Number: 08				
Structure Name 20th S	Street West at 5th	Avenue Culvert			Struct	ure ID: OS-08			
Field Inspection Inf	ormation:								
Date of Inspection: (mm/dd/yyyy)	05/15/2018	In	spection Type:	OSIM					
Inspector:	Zak Stewart, P.E	Eng.							
Others in Party:	Travis Denley, E	i.l.T.							
Equipment Used:	Tape measure,	digital camera, chain							
Weather:	Sunny								
Temperature ^o C:	10	•							
Additional Investiga	ations Require	ed:							
0	· ·			Priority					
			None	Normal	Urgent	Estimated Cost			
Detailed Deck Condi	tion Survey		~			\$0			
Non-destructive Dela		halt-Covered Deck	<u> </u>			\$0			
Concrete Substructu	re Condition Surv	ey	<u> </u>			\$0			
Detailed Coating Cor	ndition Survey		<u> </u>			\$0			
Detailed Timber Inve	stigation		<u> </u>			\$0			
Post-Tensioned Stra	nd Investigation		<u> </u>			\$0			
Underwater Investiga	ation		<u> </u>			\$0			
Fatigue Investigation			<u> </u>			\$0			
Seismic Investigation	1		<u> </u>			\$0			
Structure Investigation	on		<u> </u>			\$0			
Monitoring Deformati	ons, Settlements	Movements	✓			\$0			
Monitoring Crack Wie	dths		✓			\$0			
				То	tal Cost:	\$0			
Investigation Notes:									
Overall Structure N	otes:								
Overall Comments:	In overall good	condition. Approache	s should be resur	faced.					
Recommended Work	:								
Next Inspection:	05/15/2020		Recomm	ended Work T	īme:				
Suspected Performance Deficien 00 None 01 Load carrying capacity 02 Excessive deformations (defle 03 Continuing settlement 04 Continuing movements 05 Seized bearings Maintenance Needs 01 Lift & Swing Bridge Maintenan 02 Bridge Cleaning	ections & rotations)	08 Pedestrian/vehicular hazard 14 Underm 19 Rough riding surface 15 Unstab 10 Surface ponding 16 Other 11 Deck drainage 17 Period 18 Repair to Structural Steel 18 Erosion 19 Repair to Bridge Concrete 14 Concre			y/channel blockagining of foundation embankments Control at Bridges es Sealing	1			
03 Bridge Handrail Maintenance 04 Painting Steel Bridge Structur 05 Bridge Deck Joint Repair 06 Bridge Bearing Maintenance	es	09 Repair to Bridge Timl 10 Bailey Bridges - Main 11 Animal/Pest Control 12 Bridge Surface Repa	tenance		d Seal Deck Drainage (Loose Concrete o	or ACR Steel)			

Ontario Structure	Inspe	ection N	lanual -	Inspectio	n Form	Site	Number: 08
			Avenue Cul			Stru	icture ID: OS-08
lement Data:							
Element Group:	Approa	ches				Length:	5.00
Element Name:	Wearing	g Surface				Width:	6.40
Location:	Each Er	nd				Height:	0.00
Material:	Asphalt					Count:	2.0
Element Type:	-					Total Quantity:	64.0
Environment:	Severe				Limited Inspection		
Protection System:	None						
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficience	cies:
	sq.m.	32.0	30.0	0.0	2.0		
Recommended Work:	Repla	ace Years		Maint. Need		Maint. Prio	ority: 1 Year
Work Details:	Resu	ırface and	repair gran	ular base duri	ng major roa	ad works.	
Element Group:	Culvert	S				Length:	3.20
Element Name:	Barrels					Width:	30.00
Location:						Height:	1.00
Material:	Reinford	ced Concre	ete			Count:	1.0
Element Type:	Frames	- Rigid (3-	Sided)			Total Quantity:	156.0
Environment:	Moderat	te				Limited Inspection	
Protection System:	None						
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficience	cies:
	sq.m.	0.0	156.0	0.0	0.0		
Comments:	1 m2 of	honeycom	ibing. In ove	erall good con	dition.		
Recommended Work:				Maint. Need	ls:	Maint. Prid	ority:
Recommended Timing	: None)		Maint. Desc	o.:		<u> </u>
Work Details:							

Ontario Structur	e Inspe	ction M	lanual - I	nspection	Form		Site N	lumber: 08	
Structure Name 20th	Street W	est at 5th A	Avenue Culv	ert			Struc	ture ID: OS-08	
Element Group:	Culverts	3				Length:			0.00
Element Name:	Inlet Co	mponents)			Width:			3.60
Location:	North er	nd				Height:			1.00
Material:	Reinford	ed Concre	te			Count:			1.0
Element Type:	-					Total Quantity	y:		3.6
Environment:	Moderat	е				Limited Inspe	ection		
Protection System:	None								
Condition Data:	Units:	Exc.	Good:	Fair: Poor: Performance [Deficiencie	es:	
	sq.m.	0.0	3.6	0.0	0.0				
Recommended Work:				Maint. Needs		N	Лаint. Prior	rity:	
Recommended Timin				Maint. Desc.		IV	naint. Prior	ity:	
Work Details:									
Element Group:	Culverts	3				Length:			0.00
Element Name:	Outlet C	omponen	ts			Width:			3.60
Location:	South E	nd				Height:			0.00
Material:	Reinford	ed Concre	te			Count:			1.0
Element Type:	-					Total Quantity	y:		3.6
Environment:	Moderat	е				Limited Inspe	ection		
Protection System:	None								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance	Deficiencie	es:	
	sq.m.	0.0	3.6	0.0	0.0				
Comments:	Hairline	cracks in c	old joints at	haunches.					
Recommended Work				Maint. Needs		N	/laint. Prior	rity:	
Recommended Timin				Maint. Desc.		•		•	
Work Details:									

Ontario Structure					Form		e Number: 08
Structure Name 20th	Street We	est at 5th A	venue Culv	rert		St	ructure ID: OS-08
Element Group:	Decks					Length:	3.60
Element Name:	Deck To	p				Width:	30.00
Location:						Height:	0.00
Material:	Reinforce	ed Concre	te			Count:	1.0
Element Type:	Cast-in-p	olace Conc	rete on Sup	ports		Total Quantity:	108.0
Environment:	Moderate	е				Limited Inspection	✓
Protection System:							
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficier	ncies:
	sq.m.	0.0	108.0	0.0	0.0		
Recommended Work:				Maint. Needs		Maint. P	riority:
						Maint. P	riority:
Recommended Timing	j: None			Maint. Desc.	:		
Work Details:							
Element Group:	Decks					Length:	3.60
Element Name:	Wearing	Surface				Width:	6.40
Location:						Height:	0.00
Material:	Asphalt					Count:	1.0
Element Type:	-					Total Quantity:	23.0
Environment:	Severe					Limited Inspection	
Protection System:	None						
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficier	ncies:
	sq.m.	0.0	23.0	0.0	0.0		
Comments:	Minor cra	acking alor	ng edges. In	overall good	condition.		
Recommended Work:				Maint. Needs		Maint. P	riority:
Recommended Timing	j: None			Maint. Desc.	:		
Work Details:							

Ontario Structur	e Inspe	ection N	lanual -	Inspecti	ion Fo	orm		Site	Number: 08	
Structure Name 20th	Street W	est at 5th A	Avenue Cul	vert				Stru	cture ID: OS-0)8
Element Group:	Emban	kments &	Streams				Length:			0.00
Element Name:	Emban	kments					Width:			0.00
Location:	Each co	rner					Height:			0.00
Material:	Vegetat	ion					Count:			4.0
Element Type:	-						Total Quar	ntity:		4.0
Environment:	Modera	te					Limited Ins	spection		
Protection System:	None	None								
Condition Data:	Units:	Exc.	Good:	Fair:	Р	oor:	Performan	ce Deficienc	ies:	
	Each	0.0	4.0	0.0	0.	0				
Comments:	III OVOIC	all good cor	idition							
Recommended Work:				Maint. Ne	eds:			Maint. Pric	ority:	
Recommended Timing	g: None	e		Maint. Do	esc.:					
Work Details:										
Element Group:	Emban	kments &	Streams				Length:			0.00
Element Name:	Stream	s and Wat	erways				Width:			0.00
Location:							Height:			0.00
Material:							Count:			1.0
Element Type:	-						Total Quar	ntity:		1.0
Environment:	Modera	te					Limited Ins	spection		
Protection System:	None									
Condition Data:	Units:	Exc.	Good:	Fair:	P	oor:	Performan	ce Deficienc	ies:	
	Each	0.0	1.0	0.0	0.	0				
Comments:	Modera	te vegetation	on at outlet.	In overall o	good co	ndition.	Sediment and	d rock buildu	ıp inside culve	ert.
Recommended Work:				Maint. Ne	eds:	17			ority: 1 Year	
Recommended Timing	g: None	•		Maint. De	esc.:	Remov	/e sediment bu	uildup inside	culvert.	
Work Details:										

Ontario Structure	e Inspe	ection N	lanual - I	nspectio	n Form		Site N	Number: 08	
Structure Name 20th	Street W	est at 5th	Avenue Culv	ert			Struc	cture ID: <mark>OS-08</mark>	
Element Group:	Founda	itions				Length:		0.	.00
Element Name:	Founda	ition (belo	w ground le	vel)		Width:		0.	.00
Location:	Each Er	nd				Height:		0.	.00
Material:	Concret	e				Count:			1.0
Element Type:	-					Total Quantit	ty:		1.0
Environment:	Modera	te				Limited Inspe	ection	✓	
Protection System:	None								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance	Deficienci	es:	
	Each	0.0	1.0	0.0	0.0				
Comments:	Not visil	ble but stru	icture appea	rs stable.					
Recommended Work:				Maint. Need	ds:	N	Maint. Prio	rity:	
Recommended Timing	ı: None	e		Maint. Des	c.:				
Work Details:									

Ontario Stru	cture Inspectior	Manual - Inspection Form Site Number:	80
Structure Name	20th Street West at 5	th Avenue Culvert Structure ID:	OS-08
Repair / Reha	bilitation Require	d	
Element Group	Element	Repair / Rehabilitation Priority	Const Cos
		None	\$0
Approaches	Wearing Surface	Resurface and repair granular base during major road 6-10 Ye works.	ears \$1,500
		Total Repair/Rehabilitation Cost	\$1,500
Associated W	ork		
	Comments		Estimated Co
Approaches			\$0
Detours			\$0
Traffic Control			\$0
Utilities			\$0
Right-of-Way			\$0
Environmental S	Study		\$0
Other	none		\$0
		Contingencies 10.00%	\$0
		Engineering 20.00%	\$0
		Total Associated Work Cost	\$0
		Total Repair / Rehabilitation Cost	\$1,500
		Total Cost	\$1,500
luctification			
<u>Justification</u>		ed to maintain motorist safety.	

Structure ID: OS-08

Inspection Photos



View of structure facing south.



View of structure facing east.

20th Street West at 5th Avenue Culvert



View of soffit.



View of map cracking on southeast approach.

20th Street West at 5th Avenue Culvert



View of typical medium crack on approaches.



View of wearing surface narrow crack.

Site Number: 08

structure Name 20th Street West at 5th Avenue Culvert



View of sediment buildup in barrel.

Ontario Structure Inspection Manual - Inspection Form

19th Street West at 5th Avenue Culvert

Site Number: 07

Bridge Condition Value (BCI)

Structure ID: OS-07

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Summary Action Report

Structure Name

Inspection Date: 5/15/2018

Next Biennial Inspection: 5/15/2020

Performance Deficiencies

Maintenance Needs

Repair/Rehabilitation

Element Group	Element Name	Repair/Rehabilitation	Priority	Est. Cost	
Approaches	Wearing Surface	Resurface approaches.	1-5 Years	\$4,500	
Culverts	Barrels	Remove and replace all poor concrete in original south section.	1-5 Years	\$36,500	
Culverts	Inlet Components	Replace steel grate.	1-5 Years	\$4,000	
Decks	Wearing Surface	Resurface roadway.	1-5 Years	\$1,500	
Embankments & Strea	Streams and Waterways	Remove sediment and debris.	1-5 Years	\$1,000	
		Total Repair/R	Rehabilitation Cost	\$47,500	
	Total Associated Work Cost				
			Total Cost	\$62,500	

Overall Comment

Structure is in overall good condition. Wearing surface and approaches should be resurfaced and all poor concrete should be removed and replaced. Sediment and debris should be removed from bottom of culvert. The structure currently outlets into a cistern at the south end of the structure. The cistern structure is showing significant signs of deterioration which may warrant a more detailed review as part of a review of the underground infrastructure,

Additional Investigations

\$0.00

Ontario Structure Inspection Manual - Inspection Form Site Number: 07 19th Street West at 5th Avenue Culvert Structure ID: OS-07 Inventory Data: Structure Name 19th Street West at 5th Avenue Culvert Main Hwy/Road # On 🗌 Under -Crossing Type: Nav Water Non Nav Water 🗸 Rail Road 🗸 Ped 🗌 Hwy/Road Name 19th Street Structure Location Latitude (decimal degrees) Longitude (decimal degrees) Owner(s) City of Owen Sound Not Cons Cons Not/App ☐ List/Not Desig ☐ Heritage: Southwestern Desig Not List Region Designation: Desig List District Owen Sound Freeway Arterial Collector Local Road Class: No. of Lanes 2 Posted Speed 40 (km/h) Old County Grey Trucks 0 (%) **AADT** 100 Geographic Twp Sarawak - 402 Structure Type Cast-in-place Open Footing Total Deck Length 3.7 (m) Overall Str Width 16 (m) Total Deck Area 59.2 (sq m) Min. Vertical Clearance (m) Roadway Width 8 Truck School Bicycle Transit Special Routes: Detour Length Skew Angle (deg) (km) Direction of Structure East/West No. of Spans 1 (m) Fill on Structure Span Lengths 3.0 (m) Year Built 1930 Year of Last Rehab

Historical Data: Last OSIM Inspection 05/05/2016 Last Evaluation Last Enhanced Current Load Limit (tonnes) **OSIM** Inspection **Enhanced Access** Load Limit By Law Equipment (ladder, boat, lift, etc) By Law expiry Date Last Condition Survey Last underwater Inspection Rehabiliation History:

Ontario Structur	Site Number: 07								
Structure Name 19th	Street West at 5th	Struct	ure ID: OS-07						
Field Inspection In	formation:								
Date of Inspection: (mm/dd/yyyy)	05/15/2018		Inspectio	n Type:	OSIM				
Inspector:	Zak Stewart, P.E	ing.							
Others in Party:	Travis Denley, E	.l.T.							
Equipment Used:	Tape measure, o	digital camera							
Weather:	Sunny								
Temperature °C:	11								
Additional Investig	ations Require	ed:							
					Priority		Estimated Cost		
				None	Normal	Urgent	Estimated Cost		
Detailed Deck Cond				✓			\$0		
Non-destructive Del				✓			\$0		
Concrete Substructi	ure Condition Surve	еу		✓			\$0		
Detailed Coating Co	ondition Survey			✓			\$0		
Detailed Timber Inv	estigation			✓			\$0		
Post-Tensioned Stra	and Investigation			✓			\$0		
Underwater Investig	ation			✓			\$0		
Fatigue Investigatio	Fatigue Investigation						\$0		
Seismic Investigation	Seismic Investigation						\$0		
Structure Investigation	ion			✓			\$0		
Monitoring Deforma	tions, Settlements,	Movements		✓			\$0		
Monitoring Crack W	idths			✓			\$0		
					To	otal Cost:	\$0		
Investigation Notes:									
Overall Structure N	Notes:								
Overall Comments:	concrete should culvert. The str structure is sho	d be removed and ructure currently ou	replaced. S Itlets into a Ins of dete	Sediment a cistern a	and debris sh It the south er	nould be removed of the struct			
Recommended World	k:								
Next Inspection:	Next Inspection: 05/15/2020				Recommended Work Time:				
Suspected Performance Deficie 00 None 01 Load carrying capacity 02 Excessive deformations (def 03 Continuing settlement 04 Continuing movements 05 Seized bearings Maintenance Needs 01 Lift & Swing Bridge Maintena 02 Bridge Cleaning	07 Jammed expansion joint 13 Floodi 08 Pedestrian/vehicular hazard 14 Under 09 Rough riding surface 15 Unstal 10 Surface ponding 16 Other 11 Deck drainage 13 Erosio 07 Repair to Structural Steel 13 Erosio 08 Repair to Bridge Concrete 14 Concre				on Control at Bridges rete Sealing				
03 Bridge Handrail Maintenance 04 Painting Steel Bridge Structu 05 Bridge Deck Joint Repair 06 Bridge Bearing Maintenance	09 Repair to Bridge 1 10 Bailey Bridges - N 11 Animal/Pest Cont 12 Bridge Surface Re	laintenance rol		nd Seal Deck Drainage (Loose Concrete or ACR Steel)					

Ontario Structure	Inspe	ection M	lanual -	Inspection	n Form	Site	Number: 07
tructure Name 19th	Street W	est at 5th A	Avenue Cul	vert	Stru	icture ID: OS-07	
lement Data:							
Element Group:	Approa	ches				Length:	10.10
Element Name:	Barriers	5				Width:	0.00
Location:	North co	orners			Height:	0.00	
Material:	Steel				Count:	2.0	
Element Type:	_				Total Quantity:	20.2	
Environment:	Severe					Limited Inspection	
Protection System:	Hot dip	galvanizing	9				
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficience	cies:
	m	0.0	20.2	0.0	0.0		
Recommended Work: Recommended Timing Work Details:	: None)		Maint. Need:		Maint. Prid	ority:
Element Group:	Approa	ches				Length:	5.00
Element Name:	Wearing	g Surface				Width:	8.00
Location:	Each Er	nd				Height:	0.00
Material:	Asphalt					Count:	2.0
Element Type:	-					Total Quantity:	80.0
Environment:	Severe					Limited Inspection	
Protection System:	None						
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficience	cies:
Comments:	sq.m.	0.0 alligator cra	0.0 acking alon	0.0 g north and so	80.0 uth sides, v	wide longitudinal crack alo	ng centerline of road.
Recommended Work:	Repla	ace		Maint. Needs	3:	Maint. Prid	ority:
Recommended Timing	: 1-5 Y	'ears		Maint. Desc	.:		
Work Details:	Resu	ırface appr	oaches.				

Ontario Structur	e Inspe	ection M	lanual -	Inspection	Form	S	ite Number: <mark>07</mark>	
			Avenue Cul				Structure ID: OS-07	
Element Group:	Barriers	3			Length:	0.20		
Element Name:	Posts				Width:	0.20		
Location:	North Si	de			Height:	6.90		
Material:	Wood				Count:	3.0		
Element Type:	Wood P	ost			Total Quantity:	3.0		
Environment:	Severe				Limited Inspection			
Protection System:								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficie	encies:	
	Each	0.0	3.0	0.0	0.0			
Comments:	In overa	ll good con	dition					
Recommended Work: Recommended Timing Work Details:)		Maint. Needs Maint. Desc.	Maint. I	Priority:		
Element Group:	Barriers					Length:	1.90	
Element Name:		Systems				Width:	0.00	
Location:	North Si	ae				Height:		
Material:	Steel	av Daam a	n Wood Po			Count:	2.0	
Element Type: Environment:	Severe	ex beam of	n wood Po	SI 		Total Quantity: Limited Inspection	3.8	
Protection System:	Severe					Limited inspection		
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficie	anaiaa	
Condition Data.	m	0.0	3.8	0.0	0.0	renormance Dence	encies.	
Comments:		Il good con			0.0			
		3 -0-1						
Recommended Work:				Maint. Needs	:	Maint. I	Priority:	
Recommended Timing	g: None	;		Maint. Desc.	:			
Work Details:								

Ontario Structur	e Insp	ection M	anual -	Inspection	n Form		Site Number: 07			
Structure Name 19th	Street W	est at 5th A	venue Cul	vert			Structure ID: OS-07			
Element Group:	Culvert	:s			Length:	3.				
Element Name:	Barrels)			Width:	16.				
Location:					Height:	1.				
Material:	Precast	Concrete			Count:					
Element Type:	Box (Cl	osed Botton	n)			Total Quantity:	129			
Environment:	Modera	te				Limited Inspecti	on 🗹			
Protection System:	None									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance De	ficiencies:			
	sq.m.	0.0	64.8	32.4	32.4					
				ppears to be in						
Recommended Work:	Reha	ab		Maint. Need	s:	Mair	Maint. Priority:			
Recommended Timing	g: 1-5 \	rears		Maint. Desc	D.:					
Work Details:	Rem	ove and rep	place all po	or concrete in	original so	uth section.				
Element Group:	Culvert	s				Length:	0.			
Element Name:	Inlet Co	omponents				Width:	0.			
Location:	North E	nd				Height:	0.			
Material:	Precast	Concrete				Count:				
Element Type:						Total Quantity:				
Environment:	Modera	te				Limited Inspecti	on \square			
Protection System:	None									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance De	ficiencies:			
	Each	0.0	1.0	0.0	0.0					
Comments:	Grate o	ver upstrea	m end of s	tructure has d	eformed ve	rtical bars. In overall	good condition.			
Recommended Work:	Reha	ab		Maint. Need	s:	Mair	nt. Priority:			
Recommended Timing		rears		Maint. Desc						
Work Details:	Repl	ace steel gr	rate.							

Ontario Structure	Inspe	ction M	anual -	Inspection	Form	Sit	e Number: 07
Structure Name 19th 5	Street We	st at 5th A	venue Cul	vert		St	ructure ID: OS-07
Element Group:	Decks					Length:	3.70
Element Name:	Deck To	р			Width:	16.00	
Location:					Height:	0.00	
Material:	Cast-in-F	Place Cond	rete		Count:	1.0	
Element Type:	Cast-in-p	lace Conc	rete on Su	pports		Total Quantity:	59.2
Environment:	Benign				Limited Inspection	✓	
Protection System:							
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficie	ncies:
	sq.m.	0.0	59.2	0.0	0.0		
Recommended Work:				Maint. Needs	:	Maint. P	riority:
Recommended Timing	: None			Maint. Desc.		Walle	nonty.
Work Details:							
Element Group:	Decks					Length:	3.70
Element Name:	Wearing	Surface				Width:	8.00
Location:						Height:	0.00
Material:	Asphalt					Count:	1.0
Element Type:	_					Total Quantity:	29.6
Environment:	Severe					Limited Inspection	
Protection System:	None						
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficien	ncies:
	sq.m.	0.0	0.0	0.0	29.6		
Comments:	Severe a	lligator cra	ecking with	settlement at e	dges of pa	vement.	
Recommended Work:	Repla	ce		Maint. Needs	:	Maint. P	riority:
Recommended Timing	: 1-5 Ye	ears		Maint. Desc.	:		
Work Details:	Resur	face roady	way.				

Ontario Structure	e Inspe	ection M	lanual -	Inspectio	n Form		Site N	lumber: 07	
Structure Name 19th	Street W	est at 5th A	venue Cul	vert			Struc	ture ID: OS-07	
Element Group:	Embani	kments & \$	Streams			Length:			0.00
Element Name:	Embani	kments				Width:			0.00
Location:	Each Co	orner			Height:			0.00	
Material:	Vegetati	ion			Count:			2.0	
Element Type:	-				Total Quant	ity:		2.0	
Environment:	Moderat	te			Limited Insp	ection			
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance	e Deficiencie	es:	
	Each	0.0	2.0	0.0	0.0				
Comments:	Heavily	vegetated	with no sigr	ns or erosion.					
Recommended Work:				Maint. Need	le:		Maint. Prior	:4	
Recommended Timing		<u> </u>		Maint. Des		Mant. I Honty.			
Work Details:	,								
Element Group:	Embanl	kments & \$	Streams			Length:			0.00
Element Name:	Streams	s and Wate	erways			Width:			0.00
Location:						Height:	Height:		
Material:						Count:			1.0
Element Type:	-					Total Quant	ity:		1.0
Environment:	Moderat	te				Limited Insp	ection		
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance	e Deficiencie	es:	
	Each	0.0	0.0	0.0	1.0				
Comments:	Sedime	nt and debr	ris accumul	ation within b	ottom of str	ucture is restricti	ng flow.		
_									
Recommended Work:	Reha	ab		Maint. Need	is:		Maint. Prior	itv:	
Recommended Timing	g: 1-5 Y	/oare		Maint. Des			Manne I noi	ity.	

Ontario Structure	e Inspe	ction N	lanual - I	nspectio	n Form	Sit	e Number: <mark>07</mark>				
Structure Name 19th	Street We	treet West at 5th Avenue Culvert Structure ID: OS-07									
Element Group:	Foundat	tions				Length:	0.00				
Element Name:	Foundat	tion (belo	w ground le	vel)	Width:	0.00					
Location:	Each En	d				Height:	0.00				
Material:	Cast-in-F	Place Cond	crete			Count:	1.0				
Element Type:	Spread					Total Quantity:	1.0				
Environment:	Moderate	е				Limited Inspection	✓				
Protection System:	None	None									
Condition Data:	Units: Exc. Good:			Fair:	Poor:	Performance Deficie	ncies:				
	Each	0.0	1.0	0.0	0.0						
Comments:	Not visib	le but stru	cture appear	rs stable.							
Recommended Work:				Maint. Need	ds:	Maint. P	Maint. Priority:				
Recommended Timing	: None			Maint. Des	c.:						
Work Details:											

Ontario Struc	ture Inspection	Manual - Inspection Form		Site Number:	07
Structure Name	19th Street West at 5	th Avenue Culvert		Structure ID:	OS-07
Repair / Rehat	oilitation Require	d			
Element Group	Element	Repair / Rehabilitation		<u>Priority</u>	Const Cost
Approaches	Wearing Surface	Resurface approaches.		1-5 Yea	rs \$4,500
Culverts	Barrels	Remove and replace all poor concrete section.	in original sou	th 1-5 Yea	rs \$36,500
Culverts	Inlet Components	Replace steel grate.		1-5 Yea	rs \$4,000
Decks	Wearing Surface	Resurface roadway.		1-5 Yea	rs \$1,500
Embankments & Streams	Streams and Waterways	Remove sediment and debris.		1-5 Yea	rs \$1,000
		Total R	Repair/Rehabil	itation Cost	\$47,500
Associated Wo	ork				
	Comments				Estimated Cos
Approaches					\$0
Detours					\$0
Traffic Control					\$0
Utilities					\$0
Right-of-Way					\$0
Environmental St	tudy				\$0
Other	none				\$0
		Con	tingencies	10.00%	\$5,000
		Eng	ineering	20.00%	\$10,000
		Tota	al Associated	Work Cost	\$15,000
		Tota	Total Repair / Rehabilitation Cost		
		Tota	al Cost		\$62,500

<u>Justification</u>

The recommended repairs are intended to extend the useful life cycle of the structure and maintain pedestrian and motorist safety.

Structure Name

19th Street West at 5th Avenue Culvert

Structure ID: OS-07

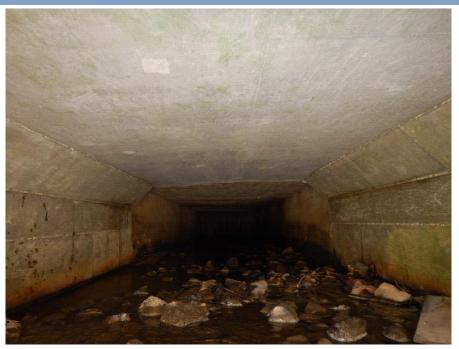
Inspection Photos



View of structure facing south.



View of structure facing west.



View of soffit.



View of wearing surface alligator cracking.



View of corroded barrier.



View of curb scour.



View of typical soffit spall and delamination with exposed corroded reinforcing.



View of typical soffit delamination.



View of west abutment spall.



View of east abutment spall.



View of vertical medium crack through abutment.



View of west abutment efflorescence.



View of outlet cistern steel beam corrosion.



View of outlet cistern block wall efflorescence.

Ontario Structure Inspection Manual - Inspection Form

MTO Site Number: 07

Bridge Condition Value (BCI)

19th Street West at 5th Avenue Culvert

Structure ID: OS-07

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Summary Action Report

Structure Name

Inspection Date: 6/17/2020

Next Biennial Inspection: 6/17/2022

Performance Deficiencies

Maintenance Needs

Repair/Rehabilitation

Element Group	Element Name	Repair/Rehabilitation	Priority	Est. Cost
Approaches	Wearing Surface	Resurface approaches.	1-5 Years	\$4,500
Barriers	Posts	Replace rotten post.	1-5 Years	\$750
Culverts	Barrels	Remove and replace all poor concrete in original south section.	1-5 Years	\$36,500
Decks	Wearing Surface	Resurface roadway.	1-5 Years	\$1,800
Embankments & Strea	Streams and Waterways	Remove sediment and debris.	1-5 Years	\$3,000
		Total Repair/R	Rehabilitation Cost	\$46,550
		Total Associated Work Cost		\$17,500
			Total Cost	\$64,050

Overall Comments

Structure is in overall good condition. Wearing surface and approaches should be resurfaced and all poor concrete should be removed and replaced. Sediment and debris should be removed from bottom of culvert. The structure currently outlets into a cistern at the south end of the structure. The cistern structure is showing significant signs of deterioration which may warrant a more detailed review as part of a review of the underground infrastructure,

Additional Investigations

\$0.00

Ontario Structure	Inspection Manual - Ins	spect	tion Form	MTO Site Nu	mber: 07
Structure Name 19th St	reet West at 5th Avenue Culvert			Structu	ıre ID: OS-07
nventory Data:					
Structure Name	19th Street West at 5th Avenue Cu	lvert			
Main Hwy/Road #		C	On Under Cro	ossing Type: Nav Wate	er Non Nav Water 🗸
Hwy/Road Name	19th Street			Rail 🔲 Road 💽	Ped Other
Structure Location					
Latitude (decimal degrees)		Loi	ngitude (decimal degrees)		
Owner(s)	City of Owen Sound		Heritage: Not C	Cons Cons Not/Ap	p List/Not Desig
Region	Southwestern		Designation:	Desig Not Lis	st Desig List
District	Owen Sound		Road Class: Free	way 🗌 Arterial 🗌	Collector Local 🗹
Old County	Grey		No. of Lanes	2 Posted Speed	40 (km/h)
Geographic Twp	Sarawak - 402		AADT	100 Trucks	0 (%)
Structure Type	Cast-in-place Open Footing				
Total Deck Length	3.7	(m)			
Overall Str Width	16	(m)			
Total Deck Area	59.2	(sq m)	Min. Vertical Clearance		(m)
Roadway Width	8		Special Routes: Trans	it Truck S	School 🗹 Bicycle 🗌
Skew Angle		(deg)	Detour Length		(km)
No. of Spans	2		Direction of Structure	East/West	
Span Lengths	3	(m)	Fill on Structure		(m)
Historical Data:					
Year Built	1930		Year of Last Rehab		
Last OSIM Inspection	5/15/2018		Last Evaluation		
Last Enhanced OSIM Inspection			Current Load Limit		(tonnes)
Enhanced Access Equipment (ladder, boat,			Load Limit By Law		
lift, etc)			By Law expiry Date		
Last Condition Survey			Last underwater Inspection	1	

Rehabiliation History:

Ontario Structure	e Inspection	MTO Site Number: 07					
Structure Name 19th	Street West at 5th	Avenue Culvert			Struct	ure ID: OS-07	
Field Inspection In	formation:						
Date of Inspection:	06/17/2020	Insn	ection Type:	OSIM			
(mm/dd/yyyy)	00/11/2020	ШЭР	collon Type.	OOM			
Inspector:	Zak Stewart, P.E	Eng.					
Others in Party:	Travis Denley, F	P.Eng.					
Equipment Used:	Tape measure,	digital camera					
Weather:	Sunny						
Temperature °C:	11						
Additional Investig	ations Require	ed:					
				Priority			
			None	Normal	Urgent	Estimated Cost	
Detailed Deck Cond	lition Survey		✓			\$0	
Non-destructive Del	am. Survey of Asp	halt-Covered Deck	✓			\$0	
Concrete Substructu	ure Condition Surv	еу	✓			\$0	
Detailed Coating Co	ndition Survey		✓			\$0	
Detailed Timber Inve	estigation		✓			\$0	
Post-Tensioned Stra	and Investigation		✓			\$0	
Underwater Investig	ation		✓			\$0	
Fatigue Investigation	n		✓			\$0	
Seismic Investigatio	n		✓			\$0	
Structure Investigati	on		✓			\$0	
Monitoring Deforma	tions, Settlements	, Movements	✓			\$0	
Monitoring Crack W	idths		✓			\$0	
lavantination Natara				To	otal Cost:	\$0	
Investigation Notes:							
Overall Structure N	Notes:						
Overall Comments:	concrete shoul culvert. The st structure is sho a review of the	overall good condition. We do be removed and replace ructure currently outlets in owing significant signs of underground infrastructure.	ced. Sediment a into a cistern a deterioration v	and debris sh t the south er	nould be remove and of the struct	ed from bottom of ure. The cistern	
Next Inspection:	06/17/2022		Recomm	ended Work	Time: 1-5yr		
Suspected Performance Deficiencies 00 None 01 Load carrying capacity 02 Excessive deformations (deflections & rotations) 03 Continuing settlement 04 Continuing movements 05 Seized bearings Maintenance Needs 01 Lift & Swing Bridge Maintenance 02 Bridge Cleaning 03 Bridge Handrail Maintenance 04 Painting Steel Bridge Structures 05 Bridge Deck Joint Repair		06 Bearing not uniformly loa 07 Jammed expansion joint 08 Pedestrian/vehicular haz 09 Rough riding surface 10 Surface ponding 11 Deck drainage	13 Floodin 14 Undern	12 Slippery surface 13 Flooding/channel blockage 14 Undermining of foundation 15 Unstable embankments 16 Other 13 Erosion Control at Bridges 14 Concrete Sealing 15 Rout and Seal 16 Bridge Deck Drainage 17 Scaling (Loose Concrete or ACR Steel)			

Ontario Structure	Insp	ection Ma	anual -	Inspection	Form		MTO Site	Number: <mark>07</mark>	
Structure Name 19th	Street W	est at 5th Av	enue Cul	lvert			Stru	cture ID: OS-07	
Element Data:									
Element Group:	Approa	iches				Length:		10).10
Element Name:	Barrier	S				Width:		0	0.00
Location:	North c	orners				Height:		0	0.00
Material:	Steel					Count:			2.0
Element Type:	-					Total Quar	ntity:	2	20.2
Environment:	Severe				Limited Ins	spection			
Protection System:	None								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performand	ce Deficienc	es:	
	m	0.0	20.2	0.0	0.0				
							7 		
Recommended Work:	N. 1			Maint. Needs			Maint. Prio	rity:	
Recommended Timing	: None	9 		Maint. Desc.	:				
Work Details:									
Element Group:	Approa	iches				Length:		5	5.00
Element Name:	Wearin	g Surface				Width:		8	3.00
Location:	Each E	nd				Height:		0	0.00
Material:	Asphalt					Count:			2.0
Element Type:	-					Total Quar	ntity:	8	30.0
Environment:	Severe					Limited Ins	spection		
Protection System:	None								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performand	ce Deficienc	es:	
	sq.m.	0.0	0.0	0.0	0.08				
Comments:	Severe	alligator crad	cking alon	ng north and so	uth sides,	wide longitudin	al crack alor	ng centreline of road.	
Recommended Work:	Repl	ace		Maint. Needs	:		Maint. Prio	rity:	
Recommended Timing	: 1-5	Years		Maint. Desc.	:				
Work Details:	Resu	urface appro	aches.						

Ontario Structur	e Insp	ection M	anual -	Ins	spection	Form	MT	O Site Numb	per: 07
		Vest at 5th A						Structure	ID: OS-07
Element Group:	Barrie	rs					Length:		0.20
Element Name:	Posts						Width:		0.20
Location:	North :	Side					Height:		6.90
Material:	Wood						Count:		3.0
Element Type:	Wood	Post					Total Quantity:		3.0
Environment:	Severe)					Limited Inspect	ion	
Protection System:									
Condition Data:	Units:	Exc.	Good:		Fair:	Poor:	Performance De	eficiencies:	
	Each	0.0	2.0		1.0	0.0			
Comments:	In ove	all good con	diton, sing	gle p	ost with mo	derate rot			
Recommended Work:	Rep	olace		M	laint. Needs	:	Ма	int. Priority:	
Recommended Timing	g: 1-5	Years		N	Maint. Desc.	:			
Work Details:	Rep	olace rotten p	ost.						
Element Group:	Barrie	rs					Length:		1.90
Element Name:	Railin	g Systems					Width:		0.00
Location:	North:	-					Height:		0.00
Material:	Steel						Count:		2.0
Element Type:	Steel F	lex Beam on	Wood Po	ost			Total Quantity:		3.8
Environment:	Severe	;					Limited Inspect	ion \Box	
Protection System:									
Condition Data:	Units:	Exc.	Good:		Fair:	Poor:	Performance De	eficiencies:	
	m	0.0	3.8		0.0	0.0			
Comments:	In ove	all good con	dition.						
Recommended Work:				M	laint. Needs	•	Ма	int. Priority:	
Recommended Timing	g: Nor	ne		N	Maint. Desc.				
Work Details:									

	re Inspection Manual	•	<u>'' </u>	e Number: 07
ructure Name 19th	n Street West at 5th Avenue C	Culvert	S	tructure ID: OS-07
Element Group:	Culverts		Length:	3.70
lement Name:	Barrels		Width:	16.00
ocation:			Height:	1.50
laterial:	Precast Concrete		Count:	1.0
lement Type:	Box (Closed Bottom)		Total Quantity:	129.5
nvironment:	Moderate		Limited Inspection	✓
rotection System:	None			
ondition Data:	Units: Exc. Good	d: Fair: Poor	Performance Deficie	ncies:
	sq.m. 0.0 64.8	32.4		
Recommended Work	:: Rehab	Maint. Needs:	Maint. P	riority:
		Maint. Needs: Maint. Desc.:	Maint. P	riority:
Recommended Timir			l accidle acciding	
Vork Details:	Remove and replace all	poor concrete in origina	i south section.	
lement Group:	Culverts		Length:	0.00
lement Name:	Inlet Components		Width:	0.00
ocation:	North End		Height:	0.00
laterial:	Precast Concrete		Count:	1.0
lement Type:			Total Quantity:	1.0
Environment:	Moderate		Limited Inspection	
rotection System:	None			
Condition Data:	Units: Exc. Good	d: Fair: Poor	: Performance Deficie	ncies:
	Each 0.0 1.0	0.0		
comments:	Grate over upstream end o	f structure has deformed	l vertical bars. In overall goo	d condition.
Recommended Work	:	Maint. Needs:	Maint. P	riority:
Recommended Timir		Maint. Desc.:		,
Vork Details:				

Ontario Structur	e Insp	ection N	lanual -	Inspection	on Form	MTO S	ite Number: <mark>07</mark>	
Structure Name 19th	Street W	est at 5th /	Avenue Cu	lvert			Structure ID: OS-07	
Element Group:	Decks					Length:	3.70	
Element Name:	Deck T	ор				Width:	16.00	
Location:						Height:	0.00	
Material:	Cast-in-	-Place Con	crete			Count:	1.0	
Element Type:	Cast-in-	place Con	crete on Su	ıpports		Total Quantity:	59.2	
Environment:	Benign					Limited Inspection	✓	
Protection System:								
Condition Data:	Units: Exc. Good: Fair: Poor:				Poor:	Performance Defici	encies:	
	sq.m.	0.0	59.2	0.0	0.0			
Comments:	NOL VISI	ble, but ap _l	pears stabi	e.				
Recommended Work:				Maint. Nee		Maint.	Priority:	
Recommended Timing	g: None	e		Maint. De	sc.:			
Work Details:								
Element Group:	Decks					Length:	3.70	
Element Name:	Wearin	g Surface				Width:	8.00	
Location:						Height:	0.00	
Material:	Asphalt					Count:	1.0	
Element Type:	-					Total Quantity:	29.6	
Environment:	Severe					Limited Inspection		
Protection System:	None							
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Defici	encies:	
	sq.m.	0.0	0.0	0.0	29.6			
Comments:	Severe	alligator cr	acking with	settlement a	it edges of pa	avement. 0.5m2 pothole	•	
Recommended Work:				Maint. Nee		Maint. Priority:		
Recommended Timing		rears		Maint. De	sc.:			
Work Details:	Resurface roadway.							

Ontario Structure	e Insp	ection N	lanual -	Inspection	Form		MTO Site	e Number: <mark>07</mark>	
Structure Name 19th	Street W	est at 5th A	Avenue Cul	vert			St	ructure ID: OS-07	
Element Group:	Emban	kments &	Streams			Length:		0.00	
Element Name:	Emban	kments				Width:		0.00	
Location:	Each C	orner				Height:		0.00	
Material:	Vegetat	tion				Count:		2.0	
Element Type:	-					Total Quant	tity:	2.0	
Environment:	Modera	te			Limited Insp	ection			
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance	e Deficier	ncies:	
	Each	0.0	2.0	0.0	0.0				
Comments: Heavily vegetated with no signs or erosion.									
Recommended Work:		•		Maint. Needs Maint. Desc			Maint. Pr	riority:	
Recommended Timing Work Details:	g. INOIN			Maint. Desc	••				
Work Details.									
Element Group:	Emban	kments &	Streams			Length:		0.00	
Element Name:	Stream	s and Wat	erways			Width:		0.00	
Location:						Height:		0.00	
Material:						Count:		1.0	
Element Type:	-					Total Quant	tity:	1.0	
Environment:	Modera	te				Limited Insp	pection	✓	
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance	e Deficier	ncies:	
	Each	0.0	0.0	0.0	1.0				
Comments:	Sedime	ent and deb	ris accumu	lation within bo	ttom of st	ructure is restictir	ng flow.		
Recommended Work:				Maint. Needs			Maint. Priority:		
Recommended Timing	g: 1-5 \	Years		Maint. Desc	.:				
Work Details:	Rem	ove sedime	ent and deb	ris.					

Ontario Structure	Inspe	ection M	lanual - I	nspectio	n Form		MTO Site	e Number: <mark>0</mark>)7
Structure Name 19th S	Street W	est at 5th A	venue Culv	ert			St	ructure ID: 0	OS-07
Element Group:	Founda	tions				Length:			0.00
Element Name:	Founda	tion (belov	w ground le	evel)		Width:			0.00
Location:	Each En	ıd				Height:			0.00
Material:	Cast-in-l	Place Cond	crete			Count:			1.0
Element Type:	Spread					Total Quan	ntity:		1.0
Environment:	Moderat	е				Limited Ins	pection	✓	
Protection System:	None								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performand	ce Deficier	ncies:	
	Each	0.0	1.0	0.0	0.0				
Comments:	Not visib	ole but stru	cture appea	rs stable.					
Recommended Work:				Maint. Need	s:		Maint. Pr	riority:	
Recommended Timing:	: None Maint. Desc.:								
Work Details:									

Ontario Struc	ture Inspection	n Manual - Inspection Form	MTO Site Number: 07	
Structure Name	19th Street West at 5	th Avenue Culvert	Structure ID: OS	-07
Repair / Rehab	oilitation Require	ed		
Element Group	Element	Repair / Rehabilitation	Priority	Const Cost
Approaches	Wearing Surface	Resurface approaches.	1-5 Years	\$4,500
Barriers	Posts	Replace rotten post.	1-5 Years	\$750
Culverts	Barrels	Remove and replace all poor concrete in original s section.	outh 1-5 Years	\$36,500
Decks	Wearing Surface	Resurface roadway.	1-5 Years	\$1,800
Embankments & Streams	Streams and Waterways	Remove sediment and debris.	1-5 Years	\$3,000
		Total Repair/Rehal	bilitation Cost	\$46,550
Associated Wo	ork			
	Comments		<u>E</u>	stimated Cos
Approaches				\$0
Detours				\$0
Traffic Control	Partial road	closure may be required.		\$2,500
Utilities				\$0
Right-of-Way				\$0
Environmental St	tudy			\$0
Other	none			\$0
		Contingencies	10.00%	\$5,000
		Engineering	20.00%	\$10,000
		Total Associate	ed Work Cost	\$17,500
		Total Repair / Re	ehabilitation Cost	\$46,550
		Total Cost		\$64,050

<u>Justification</u>

The recommended repairs are intended to extend the useful life cycle of the structure and maintain pedestrian and motorist safety.

Structure Name 19th Street West at 5th Avenue Culvert

Structure ID: OS-07

Inspection Photos



View of structure facing south.



View of structure facing west.



View of soffit.



View of sediment buildup in barrel.

Structure ID: OS-07

Structure Name

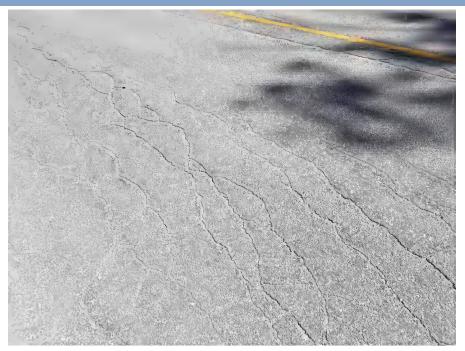
19th Street West at 5th Avenue Culvert



View of barrier post rot.



View of minor barrier corrosion.



View of wearing surface alligator cracking.



View of wearing surface potholes.

Structure Name

19th Street West at 5th Avenue Culvert



View of curb scour.

Ontario Structure Inspection Manual - Inspection Form Structure Name 20th Street West at 5th Avenue Culvert MTO Site Number: 08 Structure ID: OS-08

Summary Action Report

Inspection Date: 6/17/2020 Bridge Condition Value (BCI) 75

Next Biennial Inspection: 6/17/2022

Performance Deficiencies

Maintenance Needs

Repair/Rehabilitation

Element Group	Element Name	Repair/Rehabilitation	Priority	Est. Cost
Approaches	Wearing Surface	Resurface and repair granular base during major road works.	6-10 Years	\$1,500
		Total Repair/	Rehabilitation Cost	\$1,500
		Total Ass	\$0	
			Total Cost	\$1.500

Overall Comments

In overall good condition. Approaches should be resurfaced.

Additional Investigations

\$0.00

	mspection wantar - ms	•					ID 00 5	2
Structure Name 20th S	treet West at 5th Avenue Culver	τ				Struct	ure ID: <mark>OS-08</mark>	<u> </u>
nventory Data:								
Structure Name	20th Street West at 5th Avenue Cu	llvert						
Main Hwy/Road #		C	On Under Crossing Type: Nav Water Non Nav Water					
Hwy/Road Name	20th Street West				Rai	I	✓ Ped	Other
Structure Location								
Latitude (decimal degrees)		Loi	ngitude (decimal d	egrees)				
Owner(s)	City of Owen Sound		Heritage:	Not Co	ns 🗌	Cons Not/A	op List/Not	Desig
Region	Southwestern		Designation:			Desig Not L	ist Des	sig List
District	Owen Sound		Road Class:	Freew	ay 🗌	Arterial	Collector	Local 🗹
Old County	Grey		No. of Lanes		2 Pos	sted Speed		50 (km/h)
Geographic Twp	Sarawak - 402		AADT		500	Trucks		0 (%)
Structure Type	Cast-in-place (open footing) culver	t						
Total Deck Length	3.6	(m)						
Overall Str Width	30	(m)						
Total Deck Area	108	(sq m)	Min. Vertical Clea	arance				(m)
Roadway Width	6.4		Special Routes:	Transit		Truck	School B	icycle
Skew Angle		(deg)	Detour Length					(km)
No. of Spans	1		Direction of Struc	ture	East/	West		
Span Lengths	3.2	(m)	Fill on Structure					(m)
Historical Data:								
Year Built	N/A		Year of Last Reha	ıb				
Last OSIM Inspection	5/15/2018		Last Evaluation					
Last Enhanced OSIM Inspection			Current Load Limi	t			(tonnes)
Enhanced Access Equipment (ladder, boat,			Load Limit By Law	/				
lift, etc)			By Law expiry Dat	te				
Last Condition Survey			Last underwater In	nspection				

Rehabiliation History:

Ontario Structure	e Inspection	Manual	- Inspection	Form	MTO Site Number: 08			
Structure Name 20th	Street West at 5th	n Avenue C	ulvert			Struct	ure ID: OS-08	
Field Inspection In	formation:							
Date of Inspection:	06/17/2020		Inspect	ion Type:	OSIM			
(mm/dd/yyyy)	7	_						
Inspector:	Zak Stewart, P.I							
Others in Party:	Travis Denley, F							
Equipment Used:	Tape measure,	digital cam	era, chain					
Weather:	Sunny							
Temperature °C:	25							
Additional Investig	ations Requir	ed:						
					Priority			
				None	Normal	Urgent	Estimated Cost	
Detailed Deck Cond	ition Survey			✓			\$0	
Non-destructive Dela	am. Survey of Asp	halt-Cover	ed Deck	✓			\$0	
Concrete Substructu				<u> </u>			\$0	
Detailed Coating Co		- ,		<u> </u>			\$0	
	Detailed Timber Investigation						\$0	
	Post-Tensioned Strand Investigation						\$0	
Underwater Investig							\$0	
Fatigue Investigation				<u> </u>			\$0	
Seismic Investigation				<u> </u>			\$0	
Structure Investigation							\$0	
Monitoring Deformat		Mayaman	ıta.	V				
		, woverner	its				\$0	
Monitoring Crack W	เฉเกร			✓		4-10-4-	\$0	
Investigation Notes:					10	otal Cost:	\$0	
gaa								
Overall Structure N	lotes:							
Overall Comments:		I condition.	Approaches sho	uld be resu	rfaced.			
Recommended Work	•							
Next Inspection:	06/17/2022			Recomm	nended Work ⁻	Time: 6-10yr		
	33,11,232							
Suspected Performance Deficier 00 None	ncies	06 Poorin	g not uniformly loaded	/unatable	12 Slipper	v ourfood		
01 Load carrying capacity		07 Jamm	ed expansion joint	unstable	13 Floodin	, g/channel blockag		
02 Excessive deformations (deflections & rotations) 03 Continuing settlement			trian/vehicular hazard riding surface			nining of foundation le embankments	1	
04 Continuing movements 05 Seized bearings		10 Surfac 11 Deck o			16 Other			
Maintenance Needs			-					
01 Lift & Swing Bridge Maintena	nce		to Structural Steel			Control at Bridges	3	
02 Bridge Cleaning03 Bridge Handrail Maintenance		09 Repair	to Bridge Concrete to Bridge Timber		14 Concret 15 Rout an			
04 Painting Steel Bridge Structu 05 Bridge Deck Joint Repair	res		Bridges - Maintenance	е		Deck Drainage (Loose Concrete	or ACR Steel)	
06 Bridge Bearing Maintenance			Surface Repair	17 Scaling (Loose Concrete or ACR Steel) 18 Other				

Ontario Structure	e Inspe	ection M	lanual -	Inspectio	n Form	MTO Site	Number: 08		
		est at 5th A				Stru	icture ID: OS-08		
Element Data:									
Element Group:	Approa	ches				Length:	5.00		
Element Name:	Wearing	g Surface				Width:	6.40		
Location:	Each Er	nd				Height:	0.00		
Material:	Asphalt	Exc. Good: Fair: Poor: 29.0 30.0 0.0 5.0 Shalt over portion of west wearing surface in exwearing surface in good overall condition with				Count:	2.0		
Element Type:	-	e Exc. Good: Fair: Poor: 29.0 30.0 0.0 5.0 asphalt over portion of west wearing surface in ex				Total Quantity:	64.0		
Environment:	Severe	one				Limited Inspection			
Protection System:	None								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficienc	ies:		
	sq.m.	29.0	30.0	0.0	5.0				
December ded Works									
Recommended Work:	Repl					Maint. Priority:			
Recommended Timing Work Details:			onoir aron	ular base durii		d works			
Work Details.	Nest	iliace allu i	epaii graiii	ulai base uulii	ig major roa	u works.			
Element Group:	Culvert	s				Length:	3.60		
Element Name:	Barrels					Width:	30.00		
Location:						Height:	1.00		
Material:	Reinford	ced Concre	te			Count:	1.0		
Element Type:	Frames	- Rigid (3-9	Sided)			Total Quantity:	168.0		
Environment:	Modera	te				Limited Inspection			
Protection System:	None								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficienc	ies:		
	sq.m.	0.0	168.0	0.0	0.0				
Comments:	1 m2 of	honeycoml	oing. In ove	erall good con	dition.				
Recommended Work:				Maint. Need	s:	Maint. Pric	prity:		
Recommended Timing	: None	Э		Maint. Des	p.:				
Work Details:									

Ontario Structur	e Inspection Ma	nual - Inspection	Form	MTO Site	Number: 08
Structure Name 20th	Street West at 5th Ave	enue Culvert		Str	ructure ID: OS-08
Element Group:	Culverts			Length:	0.00
Element Name:	Inlet Components			Width:	3.60
Location:	North end			Height:	1.00
Material:	Reinforced Concrete			Count:	1.0
Element Type:	-			Total Quantity:	3.6
Environment:	Moderate			Limited Inspection	
Protection System:	None				
Condition Data:	Units: Exc.	Good: Fair:	Poor:	Performance Deficien	cies:
	sq.m. 0.0	3.6 0.0	0.0		
Comments:	Minor honeycombing	. In overall good conditi	on.		
December de d'Mente		Maint Na ada		W : 4 B	,
Recommended Work Recommended Timin		Maint. Needs Maint. Desc.		Maint. Pr	iority:
Work Details:	ig. 110110	Wallit. Boos.	•		
Element Group:	Culverts			Length:	0.00
Element Name:	Outlet Components			Width:	3.60
Location:	South End			Height:	0.00
Material:	Reinforced Concrete			Count:	1.0
Element Type:	-			Total Quantity:	3.6
Environment:	Moderate			Limited Inspection	
Protection System:	None				
Condition Data:	Units: Exc.	Good: Fair:	Poor:	Performance Deficien	cies:
	sq.m. 0.0	3.6 0.0	0.0		
Comments:	Hairline cracks in col	d joints at haunches.			
D		NA			,
Recommended Work Recommended Timin		Maint. Needs Maint. Desc.		Maint. Pr	iority:
Work Details:	y. INOTIC	Maill. Desc.	•		

Ontario Structure	e Inspection Manua	l - Inspection Form	MTO Site	e Number: <mark>08</mark>
	Street West at 5th Avenue		St	ructure ID: <mark>OS-08</mark>
Element Group:	Decks		Length:	3.60
Element Name:	Deck Top		Width:	30.00
Location:			Height:	0.00
Material:	Reinforced Concrete		Count:	1.0
Element Type:	Cast-in-place Concrete on	Supports	Total Quantity:	108.0
Environment:	Moderate		Limited Inspection	✓
Protection System:				
Condition Data:	Units: Exc. Goo	d: Fair: Poor:	Performance Deficier	ncies:
	sq.m. 0.0 108	0.0		
Comments:	Exposed concrete at each	end in good condition.		
Recommended Work:		Maint. Needs:	Maint. Pr	riority:
Recommended Timing	g: None	Maint. Desc.:		
Work Details:				
Element Group:	Decks		Length:	3.60
Element Name:	Wearing Surface		Width:	6.40
Location:			Height:	0.00
Material:	Asphalt		Count:	1.0
Element Type:	-		Total Quantity:	23.0
Environment:	Severe		Limited Inspection	
Protection System:	None			
Condition Data:	Units: Exc. Goo	d: Fair: Poor:	Performance Deficier	ncies:
	sq.m. 0.0 23.0	0.0		
Comments:	Minor cracking along edge	s. In overall good condition.		
Recommended Work:		Maint. Needs:	Maint. Pr	riority:
Recommended Timing	g: None	Maint. Desc.:		
Work Details:				

Ontario Structure	e Inspecti	on Manual	- Inspectio	n Form	MTO Site	e Number: <mark>08</mark>
Structure Name 20th	Street West a	at 5th Avenue C	ulvert		Sti	ructure ID: OS-08
Element Group:	Embankme	nts & Streams			Length:	0.00
Element Name:	Embankme	nts			Width:	0.00
Location:	Each corner	•			Height:	0.00
Material:	Vegetation				Count:	4.0
Element Type:	-				Total Quantity:	4.0
Environment:	Moderate				Limited Inspection	
Protection System:	None					
Condition Data:	Units: E	xc. Good	: Fair:	Poor:	Performance Deficien	icies:
	Each 0.	.0 4.0	0.0	0.0		
Comments:	In overall go	od condition				
Recommended Work:			Maint. Need		Maint. Pr	iority:
	y. INOTIC		Iviairit. Desc	,		
Work Details:						
Element Group:	Embankme	nts & Streams			Length:	0.00
Element Name:		d Waterways			Width:	0.00
Location:		•			Height:	0.00
Material:					Count:	1.0
Element Type:	-				Total Quantity:	1.0
Environment:	Moderate				Limited Inspection	
Protection System:	None					
Condition Data:	Units: E	xc. Good	: Fair:	Poor:	Performance Deficien	icies:
	Each 0.	.0 1.0	0.0	0.0		
Comments:	Moderate ve	egetation at outle	et. In overall god	d condition		
Recommended Work:			Maint. Need		Maint. Pr	iority:
Recommended Timing			Maint. Desc			

Ontario Structure	e Inspe	ction M	anual - Ir	nspection	n Form		MTO Site	e Number: <mark>08</mark>	
Structure Name 20th	Street We	est at 5th A	venue Culve	ert			Str	ructure ID: <mark>OS-</mark>	08
Element Group:	Founda	tions				Length:			0.00
Element Name:	Founda	undation (below ground leve				Width:			0.00
Location:	Each En	d				Height:			0.00
Material:	Concrete	9				Count:			1.0
Element Type:	-					Total Quar	ntity:		1.0
Environment:	Moderate			Limit			spection	✓	
Protection System:	None								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performand	ce Deficien	ncies:	
	Each	0.0	1.0	0.0	0.0				
Comments:	Not visib	le but strud	cture appear	s stable.					
Recommended Work:				Maint. Need:			Maint. Pr	riority:	
Recommended Timing	g: None			Maint. Desc	.:				
Work Details:									

Ontario Struct	u <mark>re Inspectio</mark> r	n Manual - Inspection Form MTO Site Number: <mark>08</mark>	
Structure Name 20	oth Street West at 5	th Avenue Culvert Structure ID: OS	S-08
Repair / Rehabil	litation Require	ed	
Element Group	<u>Element</u>	Repair / Rehabilitation Priority	Const Cos
Approaches	Wearing Surface	Resurface and repair granular base during major road 6-10 Year works.	s \$1,500
		Total Repair/Rehabilitation Cost	\$1,500
Associated Wor	k		
	Comments	<u> </u>	Estimated Co
Approaches			\$0
Detours			\$0
Traffic Control			\$0
Utilities			\$0
Right-of-Way			\$0
Environmental Stu	dy		\$0
Other	none		\$0
		Contingencies 10.00%	\$0
		Engineering 20.00%	\$0
		Total Associated Work Cost	\$0
		Total Repair / Rehabilitation Cost	\$1,500
		Total Cost	\$1,500
<u>Justification</u>			

Structure Name 20th Street West at 5th Avenue Culvert

Structure ID: OS-08

Inspection Photos



View of structure facing south.



View of structure facing east.

Structure Name

20th Street West at 5th Avenue Culvert



View of barrel.



View of debris buildup in barrel.



View of asphalt cracking along northwest approach.



View of alligator cracking near southwest.

Structure Name

20th Street West at 5th Avenue Culvert



View of transverse crack in southeast approach.



View of alligator cracking.

Ontario Structure Inspection Manual - Inspection Form

21st Street West and 6th Avenue Culvert

MTO Site Number: 09a

Bridge Condition Value (BCI)

Structure ID: OS-09a

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Summary Action Report

Structure Name

Inspection Date: 6/17/2020

Next Biennial Inspection: 6/17/2022

Performance Deficiencies

Maintenance Needs

Repair/Rehabilitation

Element Group	Element Name	Repair/Rehabilitation	Priority	Est. Cost
Abutments	Abutment Walls	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$15,000
Abutments	Wingwalls	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$5,000
Approaches	Wearing Surface	Replace structure 9a in conjunction with 9b and 9c.	1-5 Years	\$4,500
Barriers	Posts	Replace structure 9a in conjunction with 9b and 9c.	1-5 Years	\$2,000
Barriers	Railing Systems	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$4,000
Decks	Soffit - Inside Boxes	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$32,000
Decks	Wearing Surface	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$2,700
Embankments & Strea	Streams and Waterways	Reslope stream bed 9a in conjunction with 9b and 9c.	1-5 Years	\$2,700
Foundations	Foundation (below ground level)	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$40,000
Sidewalks/Curbs	Curbs	Replace structure 9a in conjunction with 9b and 9c.	1-5 Years	\$1,300
		Total Repair/Re	ehabilitation Cost	\$109,200

Total Associated Work Cost \$77,000

> **Total Cost** \$186,200

Overall Comments

The structure is in overall fair to poor condition with several elements requiring major rehabilitation. It is our understanding that the City intends to replace structure 9c in the near future. Given the condition of the structure we recommend it be replaced entirely in conjunction with structure 9c and 9b.

Additional Investigations

Ontario Structu <u>re</u> l	nspection Manual - Ins	spect	ion Form			MTO Site N	umber: <mark>09</mark>	a
Structure Name 21st Str	reet West and 6th Avenue Culve	ert				Struc	ture ID: <mark>OS</mark>	S-09a
nventory Data:								
Structure Name	21st Street West and 6th Avenue (Culvert						
Main Hwy/Road #		C	On Under	Cross	sing Ty	/pe: Nav Wa	ter No	on Nav Water 🗸
Hwy/Road Name	21st Street				Rai	I Road	✓ Ped [Other
Structure Location								
Latitude (decimal degrees)		Loi	ngitude (decimal de	grees)				
Owner(s)	City of Owen Sound		Heritage:	Not Co	ns 🗌	Cons Not/A	.pp List/	Not Desig
Region	Southwestern	Designation:			Desig Not L	ist 🗌	Desig List	
District	Owen Sound	Road Class: Freeway Arterial Collector				Local 🗹		
Old County	Grey		No. of Lanes		2 Pos	sted Speed		40 (km/h)
Geographic Twp	Sarawak - 402		AADT			Trucks		(%)
Structure Type	Open Footing CIP Culvert							
Total Deck Length	3.8	(m)						
Overall Str Width	16	(m)						
Total Deck Area	60.8	(sq m)	Min. Vertical Clear	ance				(m)
Roadway Width	7.8		Special Routes:	Transit	✓	Truck 🗹	School 🗸	Bicycle 🗸
Skew Angle		(deg)	Detour Length					(km)
No. of Spans	1		Direction of Structo	ure	East/\	West		
Span Lengths	3.8	(m)	Fill on Structure					(m)
Historical Data:								
Year Built	1920		Year of Last Rehab)				
Last OSIM Inspection	5/15/2018		Last Evaluation					
Last Enhanced OSIM Inspection			Current Load Limit					(tonnes)
Enhanced Access Equipment (ladder, boat,			Load Limit By Law					
lift, etc)			By Law expiry Date	•				

Last underwater Inspection

Last Condition Survey

Rehabiliation History:

Ontario Structure	Ontario Structure Inspection Manual - Inspection Form MTO Site Number: 09a								
	treet West and 6tl		•			Struct	ure ID: OS-09a		
Field Inspection Info	ormation:								
Date of Inspection:	06/17/2020		Inspect	ion Type:	OSIM				
(mm/dd/yyyy)									
Inspector:	Zak Stewart, P.E.								
Others in Party:	Travis Denley, P.								
Equipment Used:	Measuring tape,	digital camera, h							
Weather:	Sunny								
Temperature ^o C:	15								
Additional Investiga	tions Require	d:							
					Priority				
				None	Normal	Urgent	Estimated Cost		
Detailed Deck Condit	ion Survey			✓			\$0		
Non-destructive Dela	m. Survey of Asph	alt-Covered De	ck	✓			\$0		
Concrete Substructur	e Condition Surve	у		✓			\$0		
Detailed Coating Con	dition Survey			✓			\$0		
Detailed Timber Inves	stigation			✓			\$0		
Post-Tensioned Strar	nd Investigation			✓			\$0		
Underwater Investiga	tion			✓			\$0		
Fatigue Investigation				✓			\$0		
Seismic Investigation				~			\$0		
Structure Investigatio	n			✓			\$0		
Monitoring Deformation	ons, Settlements,	Movements					\$0		
Monitoring Crack Wid	Iths			<u> </u>			\$0		
					То	otal Cost:	\$0		
Investigation Notes:									
Overall Structure No	otes:								
Overall Comments:							ojor rehabilitation. It is		
	the structure we						Given the condition of cand 9b.		
Recommended Work:	Replace			•	-				
Next Inspection:	06/17/2022			Recomm	ended Work	Γime: 1-5yr			
Suspected Performance Deficience 00 None	cies	06 Bearing not un	iformly loaded	l/unstable	12 Slippery	surface			
01 Load carrying capacity 02 Excessive deformations (deflect	ctions & rotations)	07 Jammed expar 08 Pedestrian/veh			13 Flooding	g/channel blockage iining of foundatior	e 1		
03 Continuing settlement 04 Continuing movements	,	09 Rough riding so	urface			e embankments			
05 Seized bearings		11 Deck drainage			10 Outel				
Maintenance Needs		07.0			40 = .	0 1 1 15 11			
01 Lift & Swing Bridge Maintenand 02 Bridge Cleaning	ce	07 Repair to Struct 08 Repair to Bridg	ge Concrete		14 Concret				
03 Bridge Handrail Maintenance04 Painting Steel Bridge Structure	es	09 Repair to Bridg10 Bailey Bridges	- Maintenance	е	15 Rout an 16 Bridge [d Seal Deck Drainage			
05 Bridge Deck Joint Repair 06 Bridge Bearing Maintenance	11 Animal/Pest Co 12 Bridge Surface			17 Scaling 18 Other	(Loose Concrete of	or ACR Steel)			

Ontario Structure Inspection Manual - Inspection Form MTO Site Number: 09a										
Structure Name 21st S	Street We	est and 6th	Avenue C	ulvert				Struc	cture ID:	OS-09a
Element Data:										
Element Group:	Abutme	ents					Length:			16.00
Element Name:	Abutme	nt Walls				,	Width:			0.00
Location:	Each Si	de				Height:			1.10	
Material:	Reinford	ed Concret	te			Count:			2.0	
Element Type:	Integral						Total Quantity:			35.2
Environment:	Moderat	:e					Limited Inspec	tion		
Protection System:										
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	F	Performance Deficiencies:			
	sq.m.	0.0	0.0	31.7	3.5					
Comments: 1 m2 spall on west abutment, 6m north of opening. 8m long narrow crack on west abutment. West abutment is undermined at southern end. 1.2m narrow vertical crack at west wingwall joint. 2.2m medium vertical crack on both abutments connected by soffit. 1.5 m2 of delamination throughout.										
Recommended Work:	Repla	ace		Maint. Need	ls:		Ma	int. Prio	rity:	
Recommended Timing				Maint. Des	o.:				,	
Work Details:	Repla	ace structur	e 9a in co	njunction with	9b and 9)c				
Element Group:	Abutme	ents					Length:			2.30
Element Name:	Wingwa	alls					Width:		0.00	
Location:	South E	nd					Height:			2.30
Material:	Reinford	ed Concret	te				Count:		2.0	
Element Type:	Reinford	ed Concret	te				Total Quantity:			10.6
Environment:	Moderat	:e					Limited Inspec	tion		
Protection System:										
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	F	Performance D	eficienci	es:	
	sq.m.	0.0	9.1	0.5	1.0					
Comments:	delamin	ation, 0.5 m	n2 spalling		at base a	and 0.25	5 m2 spall on b			25 m2 of minor west wingwall.
Recommended Work:	Repla	ace		Maint. Need	ls:		Ma	int. Prio	rity:	
Recommended Timing	: 1-5 Y	'ears		Maint. Des	o.:				-	
Work Details:	Replace structure 9a in conjunction with 9b and 9c									

Structure Name 21st Street West and 6th Avenue Culvert Structure ID: OS-09a Element Group: Approaches Length: 5. Element Name: Wearing Surface Width: 7. Location: Height: 0. Material: Asphalt Count: 3. Element Type: - Total Quantity: 76 Environment: Severe Limited Inspection Protection System: Condition Data: Units: Exc. Good: Fair: Poor: Performance Deficiencies: Gomments: Map cracking and rutting throughout. Recommended Work: Replace Maint. Needs: Maint. Priority: Recommended Timing: To Years Maint. Desc.: Work Details: Replace structure 9a in conjunction with 9b and 9c.
Element Name: Location: Material: Asphalt Count: Total Quantity: Finvironment: Severe Condition Data: Units: Exc. Good: Fair: Poor: Performance Deficiencies: Comments: Map cracking and rutting throughout. Recommended Work: Recommended Timing: Width: 7. Count: 7. Total Quantity:
Location: Material: Asphalt Count: Element Type: Environment: Severe Limited Inspection Protection System: Condition Data: Units: Exc. Good: Fair: Poor: Performance Deficiencies: sq.m. 0.0 0.0 0.0 78.0 Comments: Map cracking and rutting throughout. Recommended Work: Recommended Timing: Recommended Timing: Height: Count: 2 Total Quantity: Performance Deficiencies: Maint. Needs: Maint. Needs: Maint. Needs: Maint. Desc.:
Material: Asphalt Count: 2 Element Type: - Total Quantity: 78 Environment: Severe Limited Inspection Condition Data: Units: Exc. Good: Fair: Poor: Performance Deficiencies: sq.m. 0.0 0.0 78.0 Comments: Map cracking and rutting throughout. Recommended Work: Replace Maint. Needs: Maint. Priority: Recommended Timing: 1-5 Years Maint. Desc.:
Element Type: Environment: Severe Protection System: Condition Data: Units: Exc. Good: Fair: Poor: Performance Deficiencies: sq.m. 0.0 0.0 0.0 78.0 Comments: Map cracking and rutting throughout. Recommended Work: Replace Maint. Needs: Maint. Priority: Recommended Timing: 1-5 Years Maint. Desc.:
Environment: Protection System: Condition Data: Units: Exc. Good: Fair: Poor: Performance Deficiencies: sq.m. 0.0 0.0 0.0 78.0 Comments: Map cracking and rutting throughout. Recommended Work: Replace Maint. Needs: Maint. Priority: Recommended Timing: 1-5 Years Maint. Desc.:
Protection System: Condition Data: Units: Exc. Good: Fair: Poor: Performance Deficiencies: sq.m. 0.0 0.0 0.0 78.0 Comments: Map cracking and rutting throughout. Recommended Work: Replace Maint. Needs: Maint. Priority: Recommended Timing: 1-5 Years Maint. Desc.:
Condition Data: Units: Exc. Good: Fair: Poor: Performance Deficiencies: sq.m. 0.0 0.0 0.0 78.0 Comments: Map cracking and rutting throughout. Recommended Work: Replace Maint. Needs: Maint. Priority: Recommended Timing: 1-5 Years Maint. Desc.:
Sq.m. 0.0 0.0 78.0 Comments: Map cracking and rutting throughout. Recommended Work: Replace Maint. Needs: Maint. Priority: 1-5 Years Maint. Desc.:
Comments: Map cracking and rutting throughout. Recommended Work: Recommended Timing: Recommended Timing: Maint. Needs: Maint. Priority: Maint. Desc.:
Recommended Work: Replace Maint. Needs: Maint. Priority: Recommended Timing: 1-5 Years Maint. Desc.:
Recommended Timing: 1-5 Years Maint. Desc.:
Recommended Timing: 1-5 Years Maint. Desc.:
Recommended Timing: 1-5 Years Maint. Desc.:
Work Details: Replace structure 9a in conjunction with 9b and 9c.
Element Group: Barriers Length: 0.
Element Name: Posts Width: 0.
Location: South End Height: 0.
Material: Reinforced Concrete Count:
Element Type: Concrete Total Quantity:
Environment: Severe Limited Inspection
Protection System:
Condition Data: Units: Exc. Good: Fair: Poor: Performance Deficiencies:
Each 0.0 0.0 4.0
Comments: All posts have narrow cracks and light spalling throughout. 0.4 m2 of moderate delamination on east post. Minor delamination on centre post.
will of detaillination on centre post.
Recommended Work: Replace Maint. Needs: Maint. Priority: Recommended Timing: 1-5 Years Maint. Desc.:

Ontario Structure	Ontario Structure Inspection Manual - Inspection Form MTO Site Number: 09a									
Structure Name 21st 9	Street W	est and 6th	Avenue C	ulvert			Str	ucture ID: <mark>OS-09a</mark>		
Element Group:	Barriers	S					Length:	2.20		
Element Name:	Railing	Systems					Width:	0.00		
Location:	South E	ind				Height:	0.00			
Material:	Reinford	ced Concre	te				Count:	3.0		
Element Type:	Concret	te Post and	Bars				Total Quantity:	6.6		
Environment:	Severe						Limited Inspection			
Protection System:										
Condition Data:	Units:	Exc.	Good:	Fair:	Po	or:	Performance Deficiencies:			
	m	0.0	0.0	0.0	6.6	3				
Comments: Eastern barrier replaced with painted steel, the remaining sections are concrete in fair condition. Non code compliant.										
Recommended Work:	Repl	ace		Maint. Ne	eds:		Maint. Pri	ority:		
Recommended Timing	j: 1-5 Y	/ears		Maint. De	sc.:					
Work Details:	Repl	ace structu	re 9a in co	njunction wit	h 9b an	d 9c				
Element Group:	Decks						Length:	3.80		
Element Name:		Inside Box	res				Width:	16.90		
Location:	Conne	morao Box					Height:	0.00		
Material:	Reinford	ced Concre	te				Count:	1.0		
Element Type:	_						Total Quantity:	64.2		
Environment:	Modera	te					Limited Inspection			
Protection System:							·			
Condition Data:	Units:	Exc.	Good:	Fair:	Po	or:	Performance Deficien	cies:		
	sq.m.	0.0	45.2	10.0	9.0)				
Comments:		spalling wit nt wall crac		corroded rel	oar. 5 m	2 of dela	amination's. 4m long mo	edium crack connecting		
Recommended Work:	Repl	ace		Maint. Ne	eds:		Maint. Pri	ority:		
Recommended Timing	j: 1-5 Y	/ears		Maint. De	sc.:					
Work Details:	Repl	ace structu	re 9a in co	niunction wit	h 9b an	d 9c				

Ontario Structure	e Insp	ection N	lanual -	Inspection	n Form	MTO Site	e Number: <mark>09a</mark>		
			n Avenue C			Stı	ructure ID: <mark>OS-09a</mark>		
Element Group:	Decks					Length:	6.00		
Element Name:	Wearin	g Surface				Width:	7.80		
Location:					Height:	0.00			
Material:	Asphalt	t			Count:	1.0			
Element Type:	-				Total Quantity:	46.8			
Environment:	Severe				Limited Inspection				
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficiencies:			
	sq.m.	0.0	0.0	0.0	46.8				
Comments:	Map cra	acking throu	ughout.						
Recommended Work:	Ren	lace		Maint. Need	ş.	Maint. Pr	iority:		
Recommended Timing		Years		Maint. Desc		Ivianit. I I	ionty.		
Work Details:		lace structu	ıre 9a in coı	njunction with	9b and 9c				
Element Group:	Emban	kments &	Streams			Length:	0.00		
Element Name:	Emban	kments				Width:	0.00		
Location:	South E	End				Height:	0.00		
Material:	Soil					Count:	2.0		
Element Type:	-					Total Quantity:	2.0		
Environment:	Modera	ite				Limited Inspection			
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficien	cies:		
	Each	0.0	2.0	0.0	0.0				
Comments:	Overall	in good co	ndition with	minor erosion	behind So	uthwest wingwall.			
Recommended Work:				Maint. Need		Maint. Pr	iority:		
Recommended Timing	g: Non	e		Maint. Desc	:-				
Work Details:									

Ontario Structure	Inspec	tion Ma	nual - I	Inspection	Form	MTO Site	e Number: <mark>09a</mark>	
Structure Name 21st S	Street Wes	t and 6th A	venue Cu	ulvert		St	ructure ID: <mark>OS-09a</mark>	
Element Group:	Embankm	nents & Sti	reams			Length:	0.00	
Element Name:	Streams a	and Water	ways			Width:	0.00	
Location:						Height:	0.00	
Material:						Count:	1.0	
Element Type:	-					Total Quantity:	1.0	
Environment:	Benign				Limited Inspection			
Protection System:								
Condition Data:	Units:	Exc.	Good:	Fair:	Performance Deficiencies:			
	Each	0.0	0.0	0.0	1.0			
Recommended Work:	Rehab			Maint. Needs	3:	Maint. Pi	riority:	
Recommended Timing	: 1-5 Yea	ars		Maint. Desc	.:			
Work Details:	Reslop	e stream b	ed 9a in d	conjunction wit	h 9b and 9	C.		
Element Group:	Foundation	ons				Length:	0.00	
Element Name:	Foundatio	on (below	ground le	evel)		Width:	0.00	
Location:	Each End					Height:	0.00	
Material:	Reinforced	d Concrete				Count:	2.0	
Element Type:	Spread					Total Quantity:	2.0	
Environment:	Moderate					Limited Inspection	✓	
Protection System:								
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficier	ncies:	
		0.0	1.0	0.0	0.0			
Comments:	Not visible	e, but appea	ars stable					
Recommended Work:	Replac			Maint. Need:	S :	Maint. Pr	riority:	
Recommended Timing	: 1-5 Yea	ars		Maint. Desc	.:			
Work Details:	Replac	e structure	9a in con	niunction with				

Ontario Structure Inspection Manual - Inspection Form MTO Site Number: 09a										
Structure Name 21st	Street We	est and 6th	n Avenue Cu	lvert			Structure ID: <mark>OS-09a</mark>			
Element Group:	Sidewal	lks/Curbs				Length:		8.50		
Element Name:	Curbs	ırbs						0.30		
Location:	North Si	de				Height:		0.30		
Material:	Cast-in-	Place Con	crete			Count:		1.0		
Element Type:	-					Total Quar	ntity:	5.1		
Environment:	Severe					Limited Ins	Limited Inspection			
Protection System:										
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performand	ce Deficiencie	s:		
	sq.m.	0.0	4.1	0.5	0.5					
Comments: Spalling on northwest curb. Scour along road edge.										
Recommended Work:	Repla	асе		Maint. Need	ds:		Maint. Priori	ty:		
Recommended Timing	g: 1-5 Y	ears		Maint. Des	c.:					
Work Details:	Repla	Replace structure 9a in conjunction with 9b and 9c.								

Ontario Stru	cture Inspection Manual - Inspection Form	MTO Site Number: <mark>09a</mark>
Structure Name	21st Street West and 6th Avenue Culvert	Structure ID: OS-09a
Renair / Reha	hilitation Required	

Repail / Reliat	Repail / Renabilitation Required								
Element Group	<u>Element</u>	Repair / Rehabilitation	Priority	Const Cost					
Abutments	Abutment Walls	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$15,000					
Abutments	Wingwalls	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$5,000					
Approaches	Wearing Surface	Replace structure 9a in conjunction with 9b and 9c.	1-5 Years	\$4,500					
Barriers	Posts	Replace structure 9a in conjunction with 9b and 9c.	1-5 Years	\$2,000					
Barriers	Railing Systems	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$4,000					
Decks	Soffit - Inside Boxes	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$32,000					
Decks	Wearing Surface	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$2,700					
Embankments & Streams	Streams and Waterways	Reslope stream bed 9a in conjunction with 9b and 9c.	1-5 Years	\$2,700					
Foundations	Foundation (below ground level)	Replace structure 9a in conjunction with 9b and 9c	1-5 Years	\$40,000					
Sidewalks/Curbs	Curbs	Replace structure 9a in conjunction with 9b and 9c.	1-5 Years	\$1,300					

Associated Work				
	Comments			Estimated Cost
Approaches				\$0
Detours				\$0
Traffic Control				\$10,000
Utilities				\$0
Right-of-Way				\$0
Environmental Study				\$16,500
Other	Site Mob./Demob.			\$7,500
		Contingencies	10.00%	\$14,000
		Engineering	20.00%	\$29,000
		Total Associated W	Total Associated Work Cost	
		Total Repair / Rehab	\$109,200	

Total Repair/Rehabilitation Cost

Total Cost

Justification

We recommend a complete replacement of the structure based on the overall condition of the structure in order to maintain pedestrian and motorist safety.

\$186,200

\$109,200

21st Street West and 6th Avenue Culvert

Structure ID: OS-09a

Inspection Photos



View of structure facing north.



View of structure facing west.

21st Street West and 6th Avenue Culvert



View of soffit.



View of exterior soffit with severe spalling and exposed corroded rebar.

21st Street West and 6th Avenue Culvert



View of narrow crack on southwest wing wall.



View of map cracking on southeast wingwall.

21st Street West and 6th Avenue Culvert



View of delamination on southwest wingwall.



View of barrier rail repairs.

21st Street West and 6th Avenue Culvert



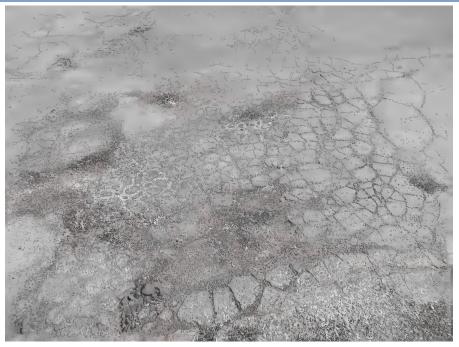
View of east barrier post.



Spalling of barrier rail.

MTO Site Number: 09a

21st Street West and 6th Avenue Culvert



View of wearing surface with map and alligator cracking.



West abutment severe spall.

21st Street West and 6th Avenue Culvert



View of narrow crack in west abutment.



View of a spall at the base of the east abutment.

21st Street West and 6th Avenue Culvert



View of spall and exposed reinforcing in the east abutment at the storm drain penetration.



View of narrow crack in east abutment.

21st Street West and 6th Avenue Culvert



View of delamination on soffit near east abutment interface.



View of severe soffit delamination above storm drain.

21st Street West and 6th Avenue Culvert



View of severe soffit spall with exposed corroded reinforcing and adjacent delamination.



View of small soffit delamination following transverse crack.

21st Street West and 6th Avenue Culvert



View of erosion on southwest embankment.

Ontario Structure Inspection Manual - Inspection Form Structure Name 21st Street West and 6th Avenue Culvert MTO Site Number: 09b Structure ID: OS-09b

Summary Action Report

Inspection Date: 6/17/2020 Bridge Condition Value (BCI) 75

Next Biennial Inspection: 6/17/2022

Performance Deficiencies

Maintenance Needs

Repair/Rehabilitation

Element Group	Element Name	Repair/Rehabilitation	Priority	Est. Cost
Culverts	Barrels	Replace in conjunction with structur	e 9c. 1-5 Years	\$135,000
Culverts	Inlet Components	Replace in conjunction with structur	e 9c. 1-5 Years	\$5,000
Culverts	Outlet Components	Replace in conjunction with structur	\$5,000	
		Total Repa	nir/Rehabilitation Cost	\$145,000
		Total A	ssociated Work Cost	\$93,100
			Total Cost	\$238,100

Overall Comments

The structure is in overall good condition. However, structure 9a and 9c are in poor condition requiring replacement. It would be advantageous for the City to replace structure 9b simultaneously to save on construction costs.

Additional Investigations

\$0.00

Ontario Structure	Inspection Manual - Ins	spect	ion Form	N	//TO Site Νι	ımber: <mark>09b</mark>	
	reet West and 6th Avenue Culve				Struct	ure ID: OS-09b)
nventory Data:							
Structure Name	21st Street West and 6th Avenue C	Culvert					
Main Hwy/Road #		C	On Under Cro	ssing Typ	oe: Nav Wate	er Non Na	v Water 🗸
Hwy/Road Name	21st Street			Rail	Road	Ped 🗌	Other _
Structure Location							
Latitude (decimal degrees)		Lo	ngitude (decimal degrees)				
Owner(s)	City of Owen Sound		Heritage: Not C	ons 🗌	Cons Not/Ap	pp List/Not D	esig
Region	Southwestern	Designation:		Desig Not Li	st Desig	List	
District	Owen Sound		Road Class: Free	way 🗌	Arterial	Collector 🗌	Local 🗹
Old County	Grey		No. of Lanes	2 Pos	ted Speed	40	(km/h)
Geographic Twp	Sarawak - 402		AADT	200	Trucks	0	(%)
Structure Type	Double CSP						
Total Deck Length	3.4	(m)					
Overall Str Width	50	(m)					
Total Deck Area	170	(sq m)	Min. Vertical Clearance				(m)
Roadway Width	6.6		Special Routes: Transi	t 🗸	Truck 🗸 🤸	School 🗹 Bic	ycle 🗸
Skew Angle		(deg)	Detour Length				(km)
No. of Spans	2		Direction of Structure	East/V	Vest		
Span Lengths	1.5/1.5	(m)	Fill on Structure				(m)
Historical Data:							
Year Built	1971		Year of Last Rehab				
Last OSIM Inspection	5/15/2018		Last Evaluation				
Last Enhanced OSIM Inspection			Current Load Limit			(to	nnes)
Enhanced Access Equipment (ladder, boat, lift, etc)			Load Limit By Law				

Last underwater Inspection

Last Condition Survey

Rehabiliation History:

Ontario Structure	Inspection N		MTO Site Number: 09b							
Structure Name 21st S	treet West and 6th	Avenue Culvert				Struct	ure ID: OS-09b			
Field becausetion lef	- w 4: - v- ·									
Field Inspection Info	ormation:		7							
Date of Inspection: (mm/dd/yyyy)	06/17/2020		Inspecti	ion Type:	OSIM					
Inspector:	Zak Stewart, P.Er	ng.								
Others in Party:	Travis Denley, P.I	Eng.								
Equipment Used:	Measuring tape, o	ligital camera, hai	mmer							
Weather:	Sunny									
Temperature °C:	9									
Additional Investiga	tions Paguire	۷٠								
Additional investiga	illoris ixequire	u. 								
				None	Priority Normal	Urgont	Estimated Cost			
Detailed Deals Condit	ion Cumiou			None	INOITIIAI	Urgent	Φ0			
Detailed Deck Condit	<u> </u>	olt Coversed De 1		V			\$0			
Non-destructive Dela	·			V			\$0			
Concrete Substructur		у		V			\$0			
Detailed Coating Con				V			\$0			
Detailed Timber Inves				V			\$0			
Post-Tensioned Strar				V			\$0			
Underwater Investiga	tion			V			\$0			
Fatigue Investigation				V			\$0			
Seismic Investigation				✓			\$0			
Structure Investigatio				✓			\$0			
Monitoring Deformation		Movements		✓			\$0			
Monitoring Crack Wid	Iths			✓			\$0			
Investigation Nates					To	otal Cost:	\$0			
Investigation Notes:										
0 1101 1 11	•									
Overall Structure N	otes:									
Overall Comments:		would be advanta					or condition requiring aneously to save on			
Recommended Work:										
Next Inspection:	06/17/2022			Recomm	ended Work	Time: 1-5yr				
Suspected Performance Deficient 00 None 01 Load carrying capacity 02 Excessive deformations (deflet 03 Continuing settlement 04 Continuing movements 05 Seized bearings		06 Bearing not uniformly loaded/unsta 07 Jammed expansion joint 08 Pedestrianl/vehicular hazard 09 Rough riding surface 10 Surface ponding 11 Deck drainage		/unstable	14 Underm	y surface g/channel blockago nining of foundatior le embankments				
Maintenance Needs Of Repair to Structural Ste Description of Particular Steel Bridge Cleaning All Fridge Concretions All Fridge Control All Fridge Contr				3	14 Concrei 15 Rout an 16 Bridge I					

Ontario Structure	: Inspe	ection N	lanual -	Inspection	Form	MTO Site	Number: <mark>09b</mark>				
Structure Name 21st S	Street W	est and 6th	n Avenue C	ulvert		Str	ucture ID: OS-09b				
Element Data:											
Element Group:	Culverts	S				Length:	50.10				
Element Name:	Barrels					Width:	1.20				
Location:						Height:	1.20				
Material:	Steel					Count:	2.0				
Element Type:	Pipe Ro	und				Total Quantity:	377.7				
Environment:	Moderat	e				Limited Inspection	✓				
Protection System:											
Condition Data:	Units:	nits: Exc. Good: Fair: Poor: Performance Deficiencies:									
	sq.m.	0.0	377.7	0.0	0.0						
Comments:						d debris within culvert bott limited access to Structu					
						7					
Recommended Work: Recommended Timing	Repla			Maint. Needs Maint. Desc.		Maint. Pri	iority:				
Work Details:	` <u> </u>		unction with	n structure 9c.							
Work Details.	Nepia	ace in conj	unction with	i structure 9c.							
Element Group:	Culverts	5				Length:	0.00				
Element Name:	Inlet Co	mponents	3			Width:	1.20				
Location:	North Er	nd				Height:	1.20				
Material:	Steel					Count:	2.0				
Element Type:	-					Total Quantity:	2.9				
Environment:	Moderat	e				Limited Inspection	✓				
Protection System:											
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficien	cies:				
	sq.m.	0.0	2.9	0.0	0.0						
Comments:	Moderat	e corrosio	n throughou	ut. No loss of se	ction. Acc	ess limited by Structure 9	c grating.				
Recommended Work:	Repla	ace		Maint. Needs		Maint. Pri	iority:				
Recommended Timing	: 1-5 Y	ears		Maint. Desc.							
Work Details:	Renla	ace in coni	unction with	n structure 9c							

Ontario Structure	e Inspe	ection M	anual -	Inspection	n Form		MTO Site	e Number: <mark>09b</mark>	
Structure Name 21st S	Street W	est and 6th	Avenue C	ulvert			Sti	ructure ID: OS-09b	
Element Group:	Culvert	s				Length:			0.00
Element Name:	Outlet 0	Component	ts			Width:			1.20
Location:	South E	nd				Height:			1.20
Material:	Steel					Count:			2.0
Element Type:						Total Qua	ntity:		2.9
Environment:	Modera	te				Limited In	spection	✓	
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performan	ce Deficien	icies:	
	sq.m.	0.0	2.9	0.0	0.0				
	spalling been lef	and deterion ft from previ	orating. A v ous patch	vooden supp	ort was also ipport has n	o noticed at the moderate weath	culvert outl	nd Structure No. OS-09 et. This support may ha s beginning to rot. Debri	ive
Recommended Work:	Repl	ace		Maint. Nee	ds:		Maint. Pr	iority:	
Recommended Timing	ı: 1-5 Y	/ears		Maint. Des	sc.:				
Work Details:	Repl	ace in conju	ınction witl	n structure 9) .				
Element Group:	Embani	kments & S	Streams			Length:			0.00
Element Name:	Stream	s and Wate	rways			Width:			0.00
Location:						Height:			0.00
Material:						Count:			1.0
Element Type:	-					Total Qua	ntity:		1.0
Environment:	Benign					Limited In:	spection	✓	
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performan	ce Deficien	icies:	
	Each	0.0	1.0	0.0	0.0				
Comments:	Overall	in good con	dition.						
Recommended Work:				Maint. Nee	ds:		Maint. Pr	iority:	
Recommended Timing	ı: None	9		Maint. Des					
Work Details:									

Ontario Structure	Inspe	ection M	lanual - I	nspectio	n Form		MTO Site	e Number:	09b
Structure Name 21st 3	Street W	est and 6th	n Avenue Cu	lvert			St	ructure ID:	OS-09b
Element Group:	Founda	tions				Length:	Length:		
Element Name:	Founda	tion (belo	w ground le	evel)		Width:			0.00
Location:	Each Er	nd				Height:			0.00
Material:	Concret	е				Count:			2.0
Element Type:	_					Total Quar	ntity:		2.0
Environment:	Moderat	:e				Limited Ins	spection	✓	
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performand	ce Deficier	ncies:	
	Each	0.0	1.0	0.0	0.0				
Comments:	Not visik	ole, but app	pears stable	•					
Recommended Work:				Maint. Need			Maint. Pr	riority:	
Recommended Timing	j: None	•		Maint. Des	c.:				
Work Details:									

Ontario Stru	cturo Inspectio	า Manual - Inspection For	m	MTO Site Number: 09b)			
Structure Name	21st Street West and	·	""	Structure ID: OS				
Olidotale Name	2 13t Offeet West und	Tour Avenue Guivert		Otractare 12.	-000			
Repair / Reha	bilitation Require	ed						
Element Group	<u>Element</u>	Repair / Rehabilitation		<u>Priority</u>	Const Cos			
Culverts	Barrels	Replace in conjunction with str	ucture 9c.	1-5 Years	\$135,000			
Culverts	Inlet Components	Replace in conjunction with str	ucture 9c.	1-5 Years	\$5,000			
Culverts	Outlet Components	Replace in conjunction with str	Replace in conjunction with structure 9c.					
			Total Repair/Reh	abilitation Cost	\$145,000			
Associated W	ork							
	Comments			<u>E</u>	stimated Co			
Approaches					\$0			
Detours					\$0			
Traffic Control					\$10,000			
Utilities					\$0			
Right-of-Way					\$0			
Environmental S	Study				\$16,500			
Other	Site Mob./D	emob.			\$11,600			
			Contingencies	10.00%	\$18,000			
			Engineering	20.00%	\$37,000			
			Total Associa	ted Work Cost	\$93,100			
			Total Repair / I	Rehabilitation Cost	\$145,000			
			Total Cost		\$238,100			

<u>Justification</u>

The recommended repairs are intended to improve the pedestrian and vehicular level of safety and extend the useful life cycle of the structure.

21st Street West and 6th Avenue Culvert

Structure ID: OS-09b

Inspection Photos



View of structure facing north.

Ontario Structure Inspection Manual - Inspection Form

6/17/2022

MTO Site Number: 09c

Structure Name 21st Street West and 6th Avenue Culvert Structure ID: OS-09c

Summary Action Report

Inspection Date: 6/17/2020 Bridge Condition Value (BCI)

8

Performance Deficiencies

Next Biennial Inspection:

Maintenance Needs

Repair/Rehabilitation

Element Group	Element Name	Repair/Rehabilitation	Priority	Est. Cost
Abutments	Abutment Walls	Replace structure.	Urgent	\$25,000
Abutments	Wingwalls	Replace structure.	Urgent	\$2,500
Approaches	Wearing Surface	Replace structure.	Urgent	\$3,500
Decks	Deck Top	Replace structure.	Urgent	\$3,500
Decks	Soffit - Thick Slab	Replace structure.	Urgent	\$12,000
Decks	Wearing Surface	Replace structure.	Urgent	\$1,000
Embankments & Strea	Streams and Waterways	Reslope while replacing structure.	Urgent	\$2,000
Foundations	Foundation (below ground level)	Replace structure.	Urgent	\$45,000
		Total Rep	air/Rehabilitation Cost	\$94,500
		Total A	Associated Work Cost	\$73,800
			Total Cost	\$168,300

Overall Comments

Structure is in overall poor condition with failures of several critical structural elements such as foundations, abutments and the deck. We recommend that the structure be scheduled for replacement within 3 years. Should be replaced simultaneously with structure 9a and 9b to save on replacement costs.

Additional Investigations

\$0.00

Ontario Structure	Inspection Manual - Ins	spect	ion Form	orm MTO Site Number: <mark>09c</mark>				
Structure Name 21st Str	reet West and 6th Avenue Culve	ert		Structure ID: OS-09c				
nventory Data:								
Structure Name	21st Street West and 6th Avenue 0	Culvert						
Main Hwy/Road #		C	On Under Cros	sing Type: Nav Water Non Nav Water				
Hwy/Road Name	21st Street			Rail ☐ Road ✔ Ped ☐ Other ☐				
Structure Location								
Latitude (decimal degrees)		Lo	ngitude (decimal degrees)					
Owner(s)	City of Owen Sound		Heritage: Not Co	ns Cons Not/App List/Not Desig				
Region	Southwestern		Designation:	Desig Not List Desig List				
District	Owen Sound		Road Class: Freew	ay 🗌 Arterial 🗌 Collector 🔲 Local 🗹				
Old County	Grey		No. of Lanes	2 Posted Speed 40 (km/h)				
Geographic Twp	Sarawak - 402		AADT	200 Trucks 0 (%)				
Structure Type	Open Footing CIP Culvert							
Total Deck Length	3	(m)						
Overall Str Width	8.5	(m)						
Total Deck Area	25.5	(sq m)	Min. Vertical Clearance	(m)				
Roadway Width	6.2		Special Routes: Transit	☐ Truck ☐ School ✔ Bicycle ✔				
Skew Angle		(deg)	Detour Length	(km)				
No. of Spans	1		Direction of Structure	North/South				
Span Lengths	2.7	(m)	Fill on Structure	(m)				
Historical Data:								
Year Built	1920		Year of Last Rehab					
Last OSIM Inspection	05/15/2018		Last Evaluation					
Last Enhanced OSIM Inspection			Current Load Limit	6 (tonnes)				
Enhanced Access Equipment (ladder, boat, lift, etc)			Load Limit By Law					

Last underwater Inspection

Last Condition Survey

Rehabiliation History:

Ontario Structure	Inspection N		MTO Site Number: 09c							
Structure Name 21st S	Street West and 6th	n Avenue Culvert				Struct	ure ID: OS-09c			
E: 111 (: 1.6										
Field Inspection Inf	ormation:		,							
Date of Inspection: (mm/dd/yyyy)	06/17/2020		Inspecti	on Type:	OSIM					
Inspector:	Zak Stewart, P.E.	ng.								
Others in Party:	Travis Denley, P.	Eng.								
Equipment Used:	Digital camera, m	easuring tape, hai	mmer							
Weather:	Sunny									
Temperature ^o C:	5									
Additional Investiga	tions Poquiro	d:								
Additional investiga	illoris Require	u.								
				Nana	Priority	Llumant	Estimated Cost			
Datailad Dada Oandi	ii O			None	Normal	Urgent	Φ0			
Detailed Deck Condit		olt Covered Devi		V			\$0			
Non-destructive Dela	· ·			V			\$0			
Concrete Substructur		У		V			\$0			
Detailed Coating Cor	•			V			\$0			
Detailed Timber Inve							\$0			
Post-Tensioned Strai				V			\$0			
Underwater Investiga							\$0			
Fatigue Investigation				V			\$0			
Seismic Investigation				V			\$0			
Structure Investigation				V			\$0			
Monitoring Deformati		Movements		V		Ш	\$0			
Monitoring Crack Wid	dths			✓			\$0			
Investigation Notes:					Тс	otal Cost:	\$0			
investigation reces.										
O	-4									
Overall Structure N	otes:									
Overall Comments:	foundations, abu		eck. We	recommen	d that the stru	icture be sche	duled for replacement			
Recommended Work:		Should be replaced	d simulta	neously with	n structure 9a	and 9b to sav	e on replacement costs.			
Necommended Work.	Replace									
Next Inspection:	06/17/2022			Recomm	ended Work	Time: 1-5yr				
Suspected Performance Deficient	cies									
00 None 01 Load carrying capacity 02 Excessive deformations (defle	06 Bearing not uniform 07 Jammed expansion 08 Pedestrian/vehicu	on joint	unstable/		y surface g/channel blockage nining of foundatior					
03 Continuing settlement 04 Continuing movements 05 Seized bearings	g settlement 09 Rough riding surfa g movements 10 Surface ponding				15 Unstabl 16 Other	le embankments				
Maintenance Needs 01 Lift & Swing Bridge Maintenan 02 Bridge Cleaning	ce	07 Repair to Structura 08 Repair to Bridge C			13 Erosion 14 Concrei	ı Control at Bridges te Sealing				
03 Bridge Handrail Maintenance 04 Painting Steel Bridge Structure 05 Bridge Deck Joint Repair 06 Bridge Bearing Maintenance	es	09 Repair to Bridge C 09 Repair to Bridge T 10 Bailey Bridges - M 11 Animal/Pest Contr 12 Bridge Surface Re	Timber faintenance rol		15 Rout an 16 Bridge I		or ACR Steel)			

Ontario Structure	Inspe	ction M	anual -	Inspection	Fo	rm	MTO Site	Number: 09c		
Structure Name 21st S	Street We	est and 6th	Avenue C	ulvert			Stru	ucture ID: OS-09c		
Element Data:										
Element Group:	Abutme	nts					Length:	8.50		
Element Name:	Abutme						Width:	0.00		
Location:	Each Sic	de					Height:	1.30		
Material:	Reinforc	ed Concre	te				Count:	2.0		
Element Type:	Legs of F	Rigid Fram	е				Total Quantity:	22.1		
Environment:	Moderate	е					Limited Inspection	✓		
Protection System:										
Condition Data:	Units:	Exc.	Good:	Performance Deficienc	cies:					
	sq.m.	0.0	0.0	0.0	22	.1				
Comments: 50mm wide crack full height of both north and south abutment walls. South wall has 0.5m of scour at base along full length. Both walls are undermined approximately 200mm up to 300mm. 2.3m of north wall at east end is completely disintegrated with washout of backfill. Grating limited access to the inlet of the structure only.										
Recommended Work:	Repla	ice		Maint. Needs	s:		Maint. Prid	ority:		
Recommended Timing	: Urger	nt		Maint. Desc	.:					
Work Details:	Repla	ice structui	re.							
Element Group:	Abutme	-4-					Longth	2.30		
Element Name:							Length: Width:	0.00		
Location:	Wingwa West Sid						Height:	1.10		
Material:		ed Concre	to				Count:	2.0		
Element Type:		ed Concre					Total Quantity:	5.1		
Environment:	Moderate						Limited Inspection	0.1		
Protection System:	Wodorat						Zimitod mopodion			
Condition Data:	Units:	Exc.	Good:	Fair:	Pc	or:	Performance Deficienc	sies.		
201141101124141	sq.m.	0.0	0.0	3.1	2.0		1 chomianos Denoismo	, inco.		
Comments:	4m of na	ırrow crack					ing on northwest. 0.2 mall with undermining.	2 of delamination on		
Recommended Work:	Repla	ice		Maint. Needs	s:		Maint. Prid	ority:		
Recommended Timing	: Urger	nt		Maint. Desc	.:					
Work Details:	Renla	ice structui	re							

Ontario Struc	ture Ins	pection N	lanual -	Inspectio	n Form	MTO Site Number: 09c			
Structure Name	21st Street	West and 6th	n Avenue C	ulvert		St	ructure ID: <mark>OS-09c</mark>		
Element Group:	Арр	oaches				Length:	5.00		
Element Name:	Wea	ring Surface				Width:	6.20		
Location:	Each	End				Height:	0.00		
Material:	Asph	alt				Count:	2.0		
Element Type:	-					Total Quantity:	62.0		
Environment:	Seve	re				Limited Inspection			
Protection System	n:								
Condition Data:	Units	Exc.	Good:	Fair:	Poor:	Performance Deficiencies:			
	sq.m	. 62.0	0.0	0.0	0.0				
Recommended W	Vork: R	eplace	ds:	Maint. P	riority:				
Recommended T		rgent		Maint. Des	C.:	Walle			
Work Details:	R	eplace structu	ire.						
Element Group:	Decl	(S				Length:	2.70		
Element Name:	Decl	Тор				Width:	8.50		
Location:						Height:	0.00		
Material:	Cast	-in-Place Con	crete			Count:	1.0		
Element Type:	Cast	-in-place Con	crete on Su	pports		Total Quantity:	23.0		
Environment:	Mode	erate				Limited Inspection	✓		
Protection System	n:								
Condition Data:	Units	: Exc.	Good:	Fair:	Poor:	Performance Deficier	ncies:		
	sq.m	. 0.0	0.0	8.0	15.0				
Comments:						ing has covered exposed urrent soffit condition.	d sections. Deck assumed		
Recommended W	Vork: R	eplace		Maint. Need	ds:	Maint. P	riority:		
Recommended T		rgent		Maint. Des		manaomy.			
Work Details:	R	eplace structu	ıre.						

Ontario Structui	re Inspe	ection N	lanual -	Inspection	МТО	MTO Site Number: 09c			
Structure Name 21s	t Street W	est and 6th	Avenue C	ulvert			Structure ID: OS-09c		
Element Group:	Decks				Length:	2.70			
Element Name:	Soffit -	Thick Slab	•		Width:	8.50			
Location:					Height:	0.00			
Material:	Reinford	ced Concre	te		Count:	1.0			
Element Type:	-				Total Quantity:	22.9			
Environment:	Modera	te			Limited Inspection	n 🔽			
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Defic	ciencies:		
	sq.m.	0.0	0.0	6.9	16.0				
Comments:	m2 of d	elaminatior	n. 175mm d		ear mid spa	an with substantial day	exposed corroded rebar. 10 rlight visible through the deck.		
Recommended Work	Recommended Work: Replace Maint. Needs:						Maint. Priority:		
Recommended Timir	ng: Urge	nt		Maint. Desc					
Work Details:	Repl	ace structu	re.						
Element Group:	Decks				Length:	2.30			
Element Name:	Wearing	g Surface			Width:	6.20			
Location:					Height:	0.00			
Material:	Asphalt				Count:	1.0			
Element Type:	-				Total Quantity:	14.3			
Environment:	Severe				Limited Inspection				
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Defic	ciencies:		
	sq.m.	13.1	0.0	0.0	1.2				
Comments:	Area red	cently repa	ved, full wid	dth longitudinal	crack at so	outh abutment.			
Recommended Work	: Repl	ace	Maint. Needs	;;	Maint	Maint. Priority:			
Recommended Timir				Maint. Desc.:					
Work Details:	Repl	ace structu	re.						

Ontario Structu	re Insp	ection N	lanual -	Inspection	on Form	MTO Site	e Number: <mark>09c</mark>		
			n Avenue C			Str	ructure ID: OS-09c		
Element Group:	Emban	kments &	Streams			Length:	0.00		
Element Name:	Emban	kments				Width:	0.00		
Location:	West S	ide				Height:	0.00		
Material:	Vegetat	tion				Count:	2.0		
Element Type:	-				Total Quantity:	2.0			
Environment:	Modera	te			Limited Inspection				
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficiencies:			
	Each	0.0	2.0	0.0	0.0				
Comments:		all good coi							
Recommended Work				Maint. Nee		Maint. Pr	Maint. Priority:		
Recommended Timir	ng: None	e		Maint. De					
Work Details:									
Element Group:	Emban	kments &	Streams		Length:	0.00			
Element Name:	Stream	s and Wat	erways		Width:	0.00			
Location:					Height:	0.00			
Material:	Other				Count:	1.0			
Element Type:	-				Total Quantity:	1.0			
Environment:	Benign				Limited Inspection				
Protection System:									
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performance Deficien	cies:		
	Each	0.0	0.0	0.0	1.0				
Comments:	Overall	in fair cond	dition. Debri	is and sedim	ent within cu	ulvert bottom is restricting f	low.		
Recommended Work	c: Reh	Rehab			ds:	Maint. Pr	Maint. Priority:		
Recommended Timir	nended Timing: Urgent			Maint. De	sc.:				
Work Details:	Resl	ope while r	eplacing st	ructure.					

Ontario Structure	Inspe	ection N	lanual - I	nspection	Form		MTO Site	e Number:	09c	
Structure Name 21st S	Street We	reet West and 6th Avenue Culvert					St	ructure ID:	OS-09c	
Element Group:	Founda	tions				Length:				0.00
Element Name:	Founda	oundation (below ground level)			Width:				0.00	
Location:	Each Er	nd				Height:				0.00
Material:	Cast-in-	Place Con	crete			Count:				2.0
Element Type:	Spread	Spread				Total Quar	ntity:			2.0
Environment:	Moderat	:e				Limited Ins	spection	✓		
Protection System:										
Condition Data:	Units:	Exc.	Good:	Fair:	Poor:	Performan	ce Deficier	ncies:		
	Each	0.0	0.0	0.0	2.0					
Comments:	Full leng	th of found	lation is und	ermined. Grat	ing limited	access to the	inlet of the	structure	only.	
Recommended Work:	Repla	ace		Maint. Needs	:		Maint. Pr	riority:		
Recommended Timing:	Urge	nt		Maint. Desc.	:					
Work Details:	Repla	ace structu	re.							

Ontario Struc	cture Inspection	Manual - Inspection Form		MTO Site Number:)9c
Structure Name	21st Street West and		Structure ID:	OS-09c	
Repair / Reha	bilitation Require	d			
Element Group	Element	Repair / Rehabilitation		Priority	Const Cos
Abutments	Abutment Walls	Replace structure.		Urgent	\$25,000
Abutments	Wingwalls	Replace structure.		Urgent	\$2,500
Approaches	Wearing Surface	Replace structure.		Urgent	\$3,500
Decks	Deck Top	Replace structure.		Urgent	\$3,500
Decks	Soffit - Thick Slab	Replace structure.		Urgent	\$12,000
Decks	Wearing Surface	Replace structure.		Urgent	\$1,000
Embankments & Streams	Streams and Waterways	Reslope while replacing structure		Urgent	\$2,000
Foundations	Foundation (below ground level)	Replace structure.		Urgent	\$45,000
		То	tal Repair/Reha	abilitation Cost	\$94,500
Associated W	ork				
	Comments				Estimated Co
Approaches					\$0
Detours					\$0
Traffic Control					\$10,000
Utilities					\$0
Right-of-Way					\$0
Environmental S	•				\$16,500
Other	Site Mob./De	emob.			\$8,300
			Contingencies	10.00%	\$13,000
			Engineering	20.00%	\$26,000
			Total Associat	ted Work Cost	\$73,800
			Total Repair / F	Rehabilitation Cost	\$94,500
					\$400.000
			Total Cost		\$168,300

21st Street West and 6th Avenue Culvert

Structure ID: OS-09c

Inspection Photos



View of structure facing east.



View of structure facing north.

21st Street West and 6th Avenue Culvert



View of soffit



View of severe soffit spall near midspan.

21st Street West and 6th Avenue Culvert



View of severely deteriorated north abutment.



View of north abutment undermining.

21st Street West and 6th Avenue Culvert



View of south abutment undermining.



View of southwest wingwall undermining.

21st Street West and 6th Avenue Culvert



View of severe crack in north abutment wall.



View of severe crack in south abutment wall.



View of severe spall at inlet.



View of delamination on northwest wingwall.

21st Street West and 6th Avenue Culvert



View of narrow crack in deck wearing surface.



Defect Grade Description

	Beleat Glade Beschiption								
ĺ	Project Name :	Project number:	Contact :	Date :					
	BROOK BASIN STUDY			04/04/2020					

	d V
<u>1:</u>	Excellent Condition
	Minor Defects- Failure unlikley in the foreseeable future
<u>2:</u>	Good Conditiion
	Defects that have not begun to deteriorate- Pipe unlikely to fail for at least 20 years.
<u>3:</u>	Fair Condition
	Moderate defects that will continue to deteriorate- Pipe may fail in 10-20 years.
<u>4:</u>	Poor condition
	Severe Defects that will become Grade 5 defects within the foerseeable future- Pipe will probably fail in 5-10 years
<u>5:</u>	Immediate Attention
	Defects require immediate attention- Pipe has failed or will likely fail within the next 5 years or sooner.



Inspection Report

Date 01/04/2020	P/O. No.	Weather Dry	Surveyor's Name BRIAN	Pipe Segment Reference	Section No. 1
Certificate No.	Survey Customer	System Owner OWEN SOUND	Date Cleaned	Pre-Cleaning No Pre-Cleaning	Sewer Category

Street	19th st west	Use of Sewer S	Storm	water	Upstream MH	STM MH 2 W19SO4
City	OWEN SOUND	Drainage Area			Dowstream MH	STM CB 2 W19S04
Loc. details		Flow Control			Dir. of Survey	Downstream
Location Code		Length surveyed 3	34.93	m	Section Length	34.93 m
Purpose of Survey	y Routine Assessment			Joint Length		
Year Laid				Dia./Height	900 mm	
Year Rehabilitated	0			Material	Corrugated Metal	Pipe

Lining Method

Tape / Media No.
Add. Information:

1:285 Position Code Observation Grade

STM NH 2 W 9504

8.69

Obstacles Inuding Thru Wall, 5 % of cross sectional area, from 12 o'clock, to 1 o'clock

M 2

STM CB 2 W19304 34.90 ACB Catch Basin

34.93

MGO General Observation, END SURVEY



Inspection Re	port
---------------	------

Date P/O. No. 01/04/2020		Weather Dry			Section No. 2
Certificate No.	Survey Customer	System Owner OWEN SOUND	Date Cleaned	Pre-Cleaning No Pre-Cleaning	Sewer Category

Street	19th st west	Use of Sewer Sto	rmwater	Upstream MH	STM CB 2 W19S04
City	OWEN SOUND	Drainage Area		Dowstream MH	STM CBMH W19S04
Loc. details		Flow Control		Dir. of Survey	Downstream
Location Code		Length surveyed 39.	81 m	Section Length	39.81 m
Purpose of Survey	Poutine Accessment		Joint Length	-	

Routine Assessment Purpose of Survey Dia./Height 975 mm Year Laid Material Corrugated Metal Pipe Year Rehabilitated 0 Tape / Media No. Lining Method

Add. Information :

STM CB 2 W 19804

Grade 1:315 Position Code Observation





	17.14	SCP	Surfac 8 o'clo	e Corrosion Metal ck	Pipe, from 5 o'do	ck, to S	3	37.18 m
	31.55	SRIZ	Surfac o'clock	e Roughness Incr	reased Unknown, a	at 11 S	1	
	37.18	SRIZ	Surfac o'cloc	ce Roughness Inci	reased Unknown, f	from 3 S	1	
STM СВМН V	19504 38.03	MGO	Gene	al Observation, E	ND SURVEY			
	38.23	SRIZ	o'clocl	k, to 8 o'clock	reased Unknown, t		1	
	\ 39.81 QMR		comn	W19SU4MPR	OPR	SPRI	MPRI	OPRI
QSR								



Inspection photos

City:	Street :	Date :	Pipe Segment Reference ;	Section No :
OWEN SOUND	19th st west			2



Photo: 2_1A 17.14m, Surface Corrosion Metal Pipe, from 5 o'clock, to 8 o'clock



Photo: 2_3A 37.18m, Surface Roughness Increased Unknown, from 3 o'clock, to 8 o'clock



City of Owen Sound



Legend

Inlet IDs

Manhole

Inlet

Catch Basin

Double Catch Basin

Manhole

Catch Basin Manhole

Double Catch Basin Manhole

Storm Main

Storm Lead

PARCELS

Notes

Brook Basin Asset ID 1

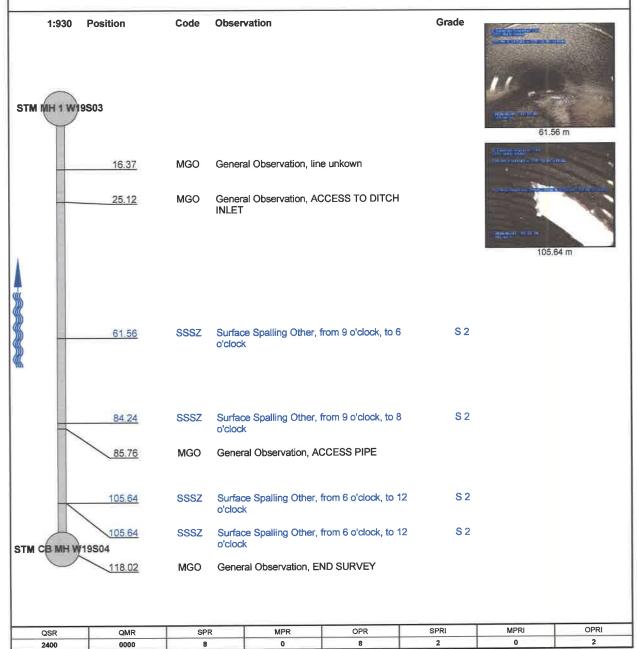


Inspection Report

Date 01/04/2020	P/O. No.	Weather Dry	Surveyor's Name BRIAN	Pipe Segment Reference	Section No. 3
Certificate No.	Survey Customer	System Owner OWEN SOUND	Date Cleaned	Pre-Cleaning No Pre-Cleaning	Sewer Category

Street City Loc. details Location Code	19th st west OWEN SOUND	Drainage Area Flow Control	Storm		Upstream MH Dowstream MH Dir. of Survey Section Length	STM MH 1 W19S03 STM CB MH W19S04 Upstream 118.02 m
Location Code		Lengin surveyed	110.02	THE STATE OF THE S	Section Length	110.02 111
Purpose of Survey	y Routine Assessment			Joint Length		
Year Laid			1	Dia./Height	1650 mm	
Year Rehabilitated	d 0			Material	Corrugated Metal	Pipe
Tape / Media No.				Lining Method		

Add. Information:





Inspection photos

City:	Street :	Date :	Pipe Segment Reference:	Section No:
OWEN SOUND	19th st west			3



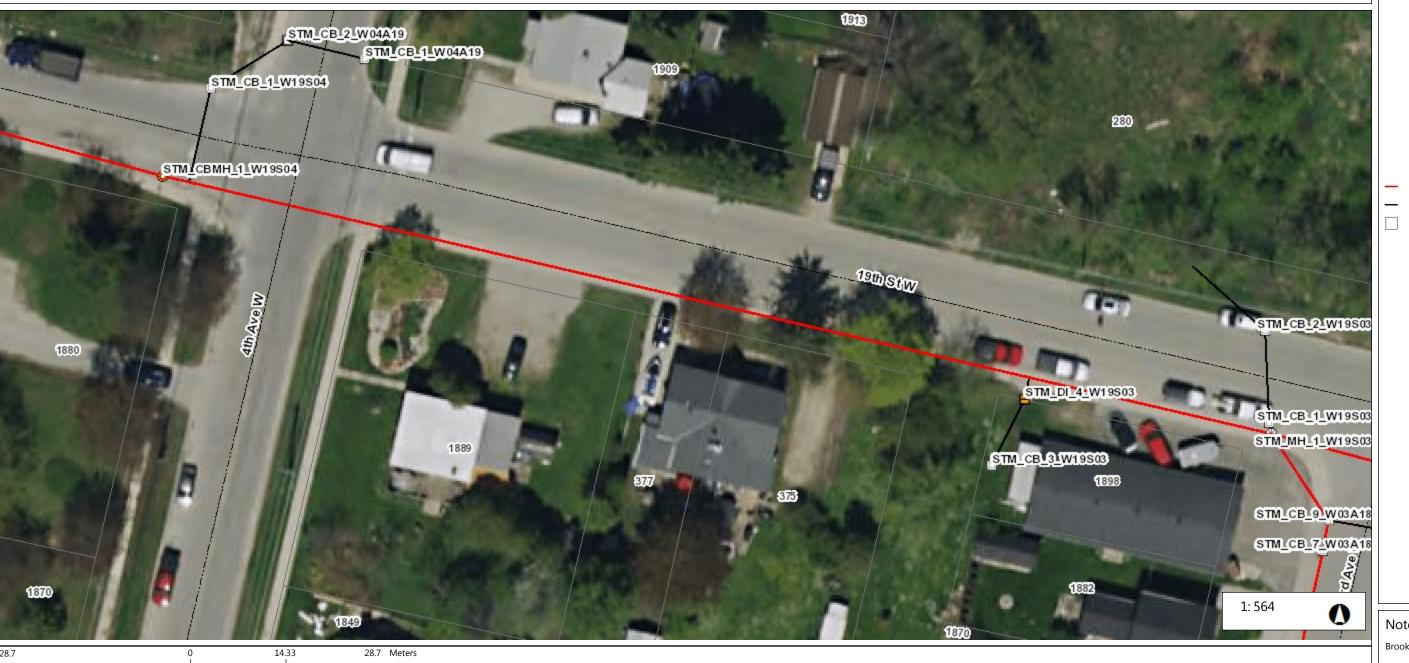
Photo: 3_3A 61.56m, Surface Spalling Other, from 9 o'clock, to 6 o'clock



Photo: 3_7A 105.64m, Surface Spalling Other, from 6 o'clock, to 12 o'clock



City of Owen Sound



Legend

Inlet IDs

Manhole

Inlet

Catch Basin

Double Catch Basin

Manhole

Catch Basin Manhole

Double Catch Basin Manhole

Storm Main

Storm Lead

PARCELS

Notes

Brook Basin Asset ID 1



B EDWARDS TRANSFER LTD 554660 RD 55 FEVERSHAM

Tel: 519 922-2385 Fax: 519 922-2678 E-mail: xxx

Inspection Report

Date 01/04/2020	P/O. No.	Weather Dry	Surveyor's Name BRIAN	Pipe Segment Reference	Section No.
Certificate No.	Survey Customer	System Owner OWEN SOUND	Date Cleaned	Pre-Cleaning No Pre-Cleaning	Sewer Category

I	Street	19th st west	Use of Sewer	Stormwater	Upstream MH	STM MH 1 W19S03
ı	City	OWEN SOUND	Drainage Area		Dowstream MH	STM MH 1 W1PSE SP
ı	Loc. details		Flow Control		Dir. of Survey	Downstream
ı	Location Code		Length surveyed	34.49 m	Section Length	34.49 m

Joint Length

Purpose of Survey

Year Laid

Routine Assessment

Dia./Height

1650 mm

Year Rehabilitated Tape / Media No.

0

Material Lining Method Corrugated Metal Pipe

Add, Information:

1:285 Position

Observation Code

Grade



15.26 m



Deformed, 5 % changed

S 4

27.43

MGO

General Observation, line toward CB at

house1893

STM MH 1 W1PSE SP 34.49

MCU

Camera Underwater

M 4

34.49

MGO

General Observation, END SURVEY



Inspection photos

City:	Street :	Date :	Pipe Segment Reference ;	Section No:
OWEN SOUND	19th st west			4



Photo: 4_1A 15.26m, Deformed, 5 % changed



City of Owen Sound



Legend

Inlet IDs

Manhole

Inlet

Catch Basin

Double Catch Basin

Manhole

Catch Basin Manhole

Double Catch Basin Manhole

Storm Main

Storm Lead

PARCELS

Notes

Brook Basin Asset ID 1

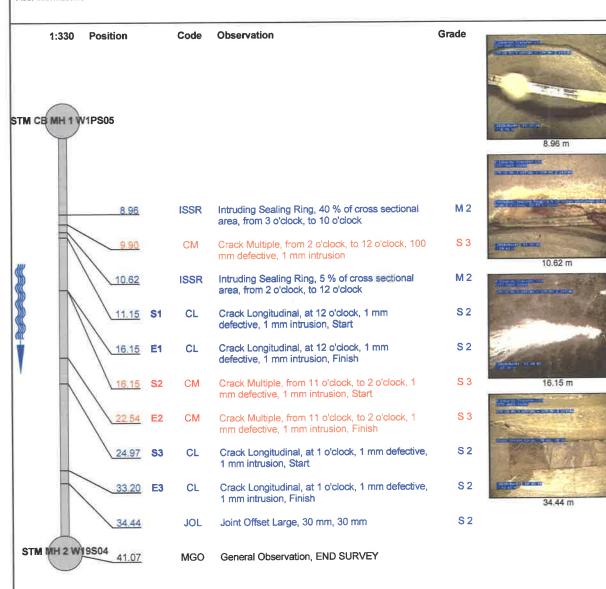


Insi	pection	Report
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1									
Date 01/04/2020	P/O. No.	Weather Dry	Surveyor's Name BRIAN	Pipe Segment Reference	Section No. 5				
Certificate No.	Survey Customer	System Owner OWEN SOUND	Date Cleaned	Pre-Cleaning No Pre-Cleaning	Sewer Category				

Street City Loc. details Location Code	19th st west OWEN SOUND	Use of Sewer Drainage Area Flow Control Length surveyed	Storm 41.07		Upstream MH Dowstream MH Dir. of Survey Section Length	STM CB MH 1 W1PS05 STM MH 2 W19S04 Downstream 41.07 m
Purpose of Survey	Routine Assessment			Joint Length Dia./Height	600 mm	
Year Laid					Concrete Seamen	to (unhalted)
Year Rehabilitated	1 0				Concrete Segmen	us (unbolled)
Tape / Media No.				Lining Method		

Add. Information:



QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
3529	2200	33	4	37	2.36	2	2.31



Inspection photos

City:	Street	Date :	Pipe Segment Reference	Section No:
OWEN SOUND	19th st west			5



Photo: 5_1A 8.96m, Intruding Sealing Ring, 40 % of cross sectional area, from 3 o'clock, to 10 o'clock



Photo: 5_3A 10.62m, Intruding Sealing Ring, 5 % of cross sectional area, from 2 o'clock, to 12 o'clock



Photo: 5_6A 16.15m, Crack Multiple, from 11 o'clock, to 2 o'clock, 1 mm defective, 1 mm intrusion, Start



Photo: 5_10A 34.44m, Joint Offset Large, 30 mm, 30 mm



City of Owen Sound



Legend

Inlet IDs

Manhole

Inlet

Catch Basin

Ditch Inlet Catch Basin

■ Double Catch Basin

Side Inlet Catch Basin

Manhole

Manhole

D

Catch Basin Manhole

Double Catch Basin Manhole

Storm Main

Storm Lead

PARCELS

Notes

WGS_1984_Web_Mercator_Auxiliary_Sphere

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

APPENDIX H: INITIAL CONSULTATION (PIC NO.1)

To be included in Version 2

APPENDIX I: COMMENTS AND FEEDBACK

To be included in Version 2