



APPENDIX C4
Archaeological Resources

This page intentionally left blank
for 2-sided printing purposes



APPENDIX C4.1

Existing Conditions Memorandum

This page intentionally left blank
for 2-sided printing purposes



Archaeological & Cultural
Heritage Services

528 Bathurst Street Toronto, ONTARIO M5S 2P9
416-966-1069 F 416-966-9723 asiheritage.ca

6 March 2017

TO: Schaeffers Consulting Engineers

**FROM: Eliza Brandy, ASI
Lisa Merritt, ASI
David Robertson, ASI**

**RE: Kirby Road Extension
Archaeological Resources Existing Conditions Memorandum**

ASI File: 15EA-178

In advance of Archaeological Services Inc.'s (ASI) Stage 1 Archaeological Assessment report, please find below ASI's review of the existing conditions for archaeological resources captured within the Kirby Road Extension Municipal Class Environmental Assessment (MCEA) Study Area. ASI understands that the contents of this existing conditions memorandum will be used to help inform the project design. ASI will undertake a comprehensive Stage 1 assessment, including a detailed property inspection, once a preferred alternative has been chosen for the Project.

Memorandum

1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by Schaeffers Consulting Engineers to conduct a Stage 1 Archaeological Assessment as part of the Kirby Road Extension MCEA, connecting Kirby Road between Dufferin Street and Bathurst Street in the City of Vaughan (Figure 1). The extension will allow for continuous east-west traffic along Kirby Road in Vaughan and Gamble Road in the Town of Richmond Hill. The Study Area is approximately 166 hectares.

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (2005), the 2011 *Standards and Guidelines for Consultant Archaeologists (S & G)*, administered by the Ministry of Tourism, Culture and Sport (MTCS) and Schedule 'C' of the Municipal Class Environmental Assessment process (2000, as amended in 2007 and 2011). The City of Vaughan Official Plan Archaeological and First Nations Policy Study (ASI 2010) and the Archaeological Management Plan for the Region of York (ASI 2012) were also consulted.

In the S & G, Section 1, the objectives of a Stage 1 archaeological assessment are discussed as follows:

- To provide information about the history, current land conditions, geography, and previous archaeological fieldwork of the Study Area; and,
- To evaluate in detail the archaeological potential of the Study Area that can be used, if necessary, to support recommendations for Stage 2 archaeological assessment for all or parts of the Study Area;

This memorandum describes the existing conditions for this project and is organized as follows: Section 2.0 summarizes the background study that was conducted to provide the archaeological and historical context for the project Study Area; Section 3.0 analyses the characteristics of the project Study Area and evaluates the presence of criteria indicating archaeological potential; Section 4.0 provides an existing conditions summary; Section 5.0 provides advice on compliance with legislation; and, Section 6.0 outlines references cited. All mapping is provided at the end of the memorandum.

Authorization to carry out the activities necessary for the completion of the existing conditions memorandum was granted to ASI by Schaeffers Consulting Engineers on January 10, 2017.

2.0 EXISTING CONDITIONS: BACKGROUND RESEARCH

The following section provides a summary of archaeological existing conditions within the Study Area.

A review of the land use of the Kirby Road Extension Study Area indicates that it has been occupied by Indigenous peoples for thousands of years. It is situated within the traditional territory of the Huron-Wendat First Nation, the Seneca First Nation, and the Mississauga First Nation.

The background research also acknowledges that, since the eighteenth century, the Métis have lived throughout Ontario, and in southern Ontario by the nineteenth century (MNC n.d.; Stone and Chaput 1978:607,608).

Since 1796, the Study Area has been occupied by Euro-Canadian peoples. The Study Area is situated on part of Lots 30 and 31, Concession 2, within the former Township of Vaughan, County of York. Review of historic mapping indicates that the Study Area include historic features, settlements, and transportation routes (Tremaine



1860; Miles & Co. 1878) (Figures 2 and 3). The 1917 and the 1963 National Topographic Series Markham Sheets were also examined to determine the extent of twentieth-century development within the Study Area (Department of Militia and Defence 1917; Department of National Defence 1963). The Study Area is shown to have remained within a rural landscape into the mid-twentieth century.

Use of historic map sources to reconstruct/predict the location of former features within the modern landscape generally proceeds by using common reference points between the various sources. These sources are then geo-referenced in order to provide the most accurate determination of the location of any property on historic mapping sources. The results of such exercises are often imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including the vagaries of map production (both past and present), the need to resolve differences of scale and resolution, and distortions introduced by reproduction of the sources. To a large degree, the significance of such margins of error is dependent on the size of the feature one is attempting to plot, the constancy of reference points, the distances between them, and the consistency with which both they and the target feature are depicted on the period mapping.

A review of the physiography of the Study Area is situated within the Oak Ridges Moraine physiographic regions of southern Ontario on drumlinized and bevelled till plains (Chapman and Putnam 1984:172–174). Figure 6 depicts the surficial geology in the Study Area as being underlain in part by glaciolacustrine-derived silty to clayey till with the remainder of the Study Area underlain by ice-contact stratified deposits of sand and gravel with minor silt, clay and till (Ontario Geological Survey 2010). Soils in the Study Area consist of Pontypool sandy loam, a grey-brown podzolic with good drainage, and Chinguacousy clay loam, a grey-brown podzolic with imperfect drainage (Hoffman and Richards 1955) (Figure 7). An active sand and gravel pit is located within the western part of the Study Area. The Study Area is within the Don River watershed.

3.0 EXISTING CONDITIONS: CRITERIA INDICATIVE OF ARCHAEOLOGICAL POTENTIAL

The S & G, Section 1.3.1, lists criteria which are indicative of archaeological potential. All four Study Area meet the following criteria which are indicative of archaeological potential:

- Proximity to previously registered archaeological sites (see Table 1);
- Proximity to Euro-Canadian settlements (farmsteads; village of Elgin Mills, Richmond Hill);
- Proximity to historic transportation routes (Dufferin Street, Bathurst Street, Kirby Road, Gamble Road);
- Proximity to water sources (tributaries of the Don River); and,
- Well-drained soils (Pontypool sandy loam);

These criteria are indicative of the Study Area as having potential for the identification of Euro-Canadian and Indigenous archaeological sites, depending on the degree of disturbance and physical features of the Study Area. This will be confirmed during the full Stage 1 Archaeological Assessment property inspection.

An archaeological potential model takes into consideration the study area's proximity to water, previously registered archaeological sites, up to 100 metres from any historic roadway, slopes greater than 20 degrees, deep and extensive land disturbances, and the results of previous archaeological assessments (Mayer Heritage Consultants Inc. 1998). Also considered was the Archaeological Management Plan for the Region of York (ASI 2012). In consideration of these factors, approximately 50 ha (30%) of the study area, is determined to have increased potential for archaeological resources (Figure 8). The archaeological potential model is presented here for planning purposes only, and does not replace a property inspection or Stage 2 assessment.



Previously Registered Archaeological Sites

According to the Ontario Archaeological Sites Database (OASD) maintained by the MTCS there are seven previously registered archaeological sites located within an approximately one kilometre radius of the Study Area components (MTCS 2017). None of these are located within 50 metres. These sites are detailed below in Table 1.

Table 1: Previously Registered Archaeological Sites within One Kilometer of the Study Area

Borden #	Site Name	Cultural Affiliation	Site Type	Researcher
AlGu-76	Andromeda	Indigenous Pre-Contact	Isolated Find	ASI 1987
AlGu-85	Cygnus	Indigenous Pre-Contact	Scatter	ASI 1987
AlGu-175	Maplewood Ravines	Late Archaic; Early Woodland	Camp; Camp	AMICK 1996
AlGu-210	Memorial Park Cemetery	Euro Canadian	Homestead	AMICK 1998
AlGu-211	Kerswill II	Indigenous Pre-Contact; Euro Canadian	Lithic Scatter; Unknown	AMICK 1998
AlGu-217	Dufferin Camp	Late Archaic	Scatter	AMICK 1998
AlGu-356	N/A	Euro Canadian	Homestead	TAI 2005
AlGv-4*	Fraser	Indigenous Pre-Contact	Camp	Clark 1926

TAI – The Archaeologists Inc.

* – site is approximately 1,100 m from the study area

While the Fraser site (AlGv-4) is described in the OASD as an indigenous pre-contact camp located just over one kilometre from the Study Area, it is considered to be a potential ancestral Huron-Wendat village. No further archaeological assessment has been conducted to determine the extent and nature of the deposits originally identified by Clark in 1926, however the site has identified to retain further cultural heritage value or interest and was recommended for preservation in 1973 (Mayer, Pihl, Poulton and Associates Inc. 1986; Clark n.d.; Konrad 1973:132–133).

According to the background research, six previous reports detail fieldwork within 50 m of the Study Area.

Mayer Heritage Consultants Inc. (1998) conducted a Stage 1 and 2 archaeological assessment for Rizmi Holdings Limits ahead of the construction of three proposed gravel pits on part of Lot 30 and 31, Concession 2 in the City of Vaughan. The study area consisted of approximately 68.8 hectares on either side of the road allowance between Dufferin and Bathurst Streets, within the current Stage 1 Study Area. The Stage 2 survey did not identify any archaeological resources. ASI is currently in discussions with MTCS to determine the applicability of this report under the 2011 S & G.

ASI (2003) conducted a Stage 1 archaeological assessment (background study and property inspection) for the proposed Aurora/Newmarket Water Supply in the City of Vaughan. The property inspection investigated the proposed Kirby Road extension within the current Study Area and found that it retained archaeological potential. Stage 2 survey was recommended prior to any development.

ASI (2007) conducted a Stage 1 and 2 archaeological assessment of 695 Gamble Road, south of Gamble Road, east of Bathurst Street, in the City of Vaughan. The property encompassed an area of approximately 2.7 hectares. During the Stage 2, no archaeological remains were encountered and it was recommended that no further archaeological assessment of the project area is required.



ASI (2009a) conducted a Stage 1 archaeological assessment (background study and property inspection) of the PD7/PD8 Bathurst Street Watermain 2 in the City of Vaughan. The property inspection concluded that most of the proposed watermain would be located within previously disturbed lands with no archaeological potential. However, one section, located at the southwest corner of Bathurst Street and Gamble Road retained archaeological potential. ASI (2009b) conducted a Stage 2 property assessment of these lands, part of which overlaps with the current Stage 1 Study Area. No archaeological remains were encountered and it was recommended that no further archaeological assessment of the project area is required.

ASI (2011) conducted a Stage 1 archaeological assessment (background research and property inspection) as part of the Proposed West Richmond Hill Pumping Station and Watermains Class EA in the Town of Richmond Hill and City of Vaughan. Approximately 730 m of proposed watermain would connect the North Richmond Hill Reservoir to Gamble Road via Bathurst Street, adjacent to the current Stage 1 Study Area. The property inspection confirmed that the proposed watermain route on Bathurst Street had been subject to extensive and deep land alterations and it was recommended that no further archaeological assessment of the project area is required.

4.0 EXISTING CONDITIONS: SUMMARY

The Project will require a Stage 1 archaeological assessment, including a property inspection, once a preferred alternative has been determined to further assess archaeological potential as per the Standards and Guidelines for Consultant Archaeologists.



5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

ASI advises compliance with the following legislation:

- The Stage 1 Archaeological Assessment Report must be 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. 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 MTCS, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development;
- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*;
- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with 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 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services; and,



6.0 REFERENCES CITED

ASI

2003 Stage 1 Archaeological Assessment Aurora/Newmarket Water Supply City of Vaughan, Town of Richmond Hill, Township of King, and Town of Aurora, Regional Municipality of York. [P052-028-2003].

2007 Stage 1 and 2 Archaeological Assessment of 695 Gamble Road Part of Lot 55, Concession 1 Geographic Township of Vaughan, County of York, Now in the Town of Richmond Hill, RM of York. [P265-006-2007].

2009a Stage 1 Archaeological Resource Assessment of the PD7/PD8 Bathurst Street Watermain Class Environmental Assessment, Town of Richmond Hill, Regional Municipality of York, Ontario. [P057-537-2009].

2009b Stage 2 Property Assessment PD7/PD8 Bathurst Street Watermain City of Vaughan, Regional Municipality of York, Ontario. [P264-092-2009].

2010 City of Vaughan Official Plan Archaeological and First Nations Policy Study.

2011 Stage 1 Archaeological Assessment (Background Research and Property Inspection) West Richmond Hill Pumping Station and Watermains Class Environmental Assessment, Town of Richmond Hill and City of Vaughan, Regional Municipality of York, Ontario. [P057-653-2010].

2012 Archaeological Management Plan for the Region of York Region Technical Report. Report on file, Long Range Planning, Region of York.

Chapman, L.J., and F. Putnam

1984 The Physiography of Southern Ontario. Vol. 2. Ontario Geologic Survey, Special Volume. Ontario Ministry of Natural Resources, Toronto.

Clark, A..J

n.d. Archaeological Notes. Miscellaneous undated notes in the A. J. Clark papers. on file at the Archaeological Survey of Canada, National Museum of Man, Ottawa.

Department of Militia and Defence

1917 Markham Sheet 30M14.

Department of National Defence

1963 Markham Sheet 30M14.

Hoffman, D.W., and N.R. Richards

1955 Soil Survey of York County. Ontario Soil Survey. Experimental Farm Service, Canada



Department of Agriculture and the Ontario Agricultural College, Guelph.

Konrad, V.A.

1973 The Archaeological Resources of the Metropolitan Toronto Planning Area: Inventory and Prospect York University Department of Geography Discussion Paper No.10.

Mayer Heritage Consultants Inc.

1998 Archaeological Assessment (Stages 1 and 2) of the Rizmi Holdings Limited Pits Nos. 1, 2 and 3, City of Vaughan, R.M. of York, Ontario.

Mayer, Pihl, Poulton and Associates Inc.

1986 Report on Phase 1 of an Archaeological Masterplan for the Town of Vaughan: Background Research and Feasibility Study.

Métis National Council

n.d. The Métis Nation.

Miles & Co.

1878 Illustrated Historical Atlas of the County of York and the Township of West Gwillimbury & Town of Bradford in the County of Simcoe Ontario. Miles & Co., Toronto.

Ministry of Tourism, Culture and Sport

2017 Ontario's Past Portal.

<<https://www.pastport.mtc.gov.on.ca/APSWeb/public/login.xhtml?lang=en>>.

Municipal Engineers Association

2000 Municipal Class Environmental Assessment.

Ontario Geological Survey

2010 Surficial geology of Southern Ontario.

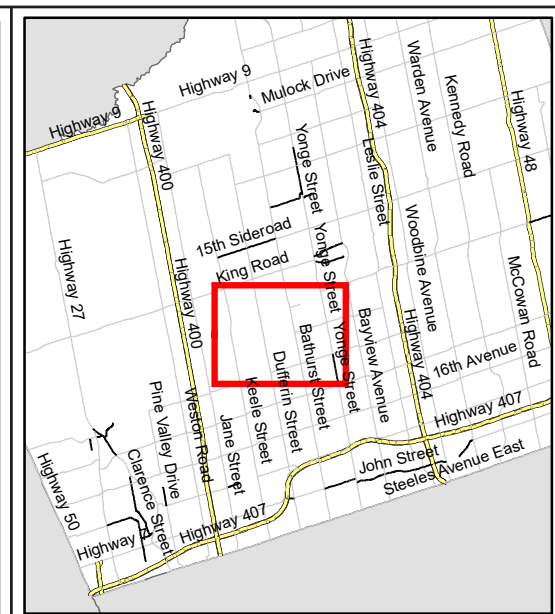
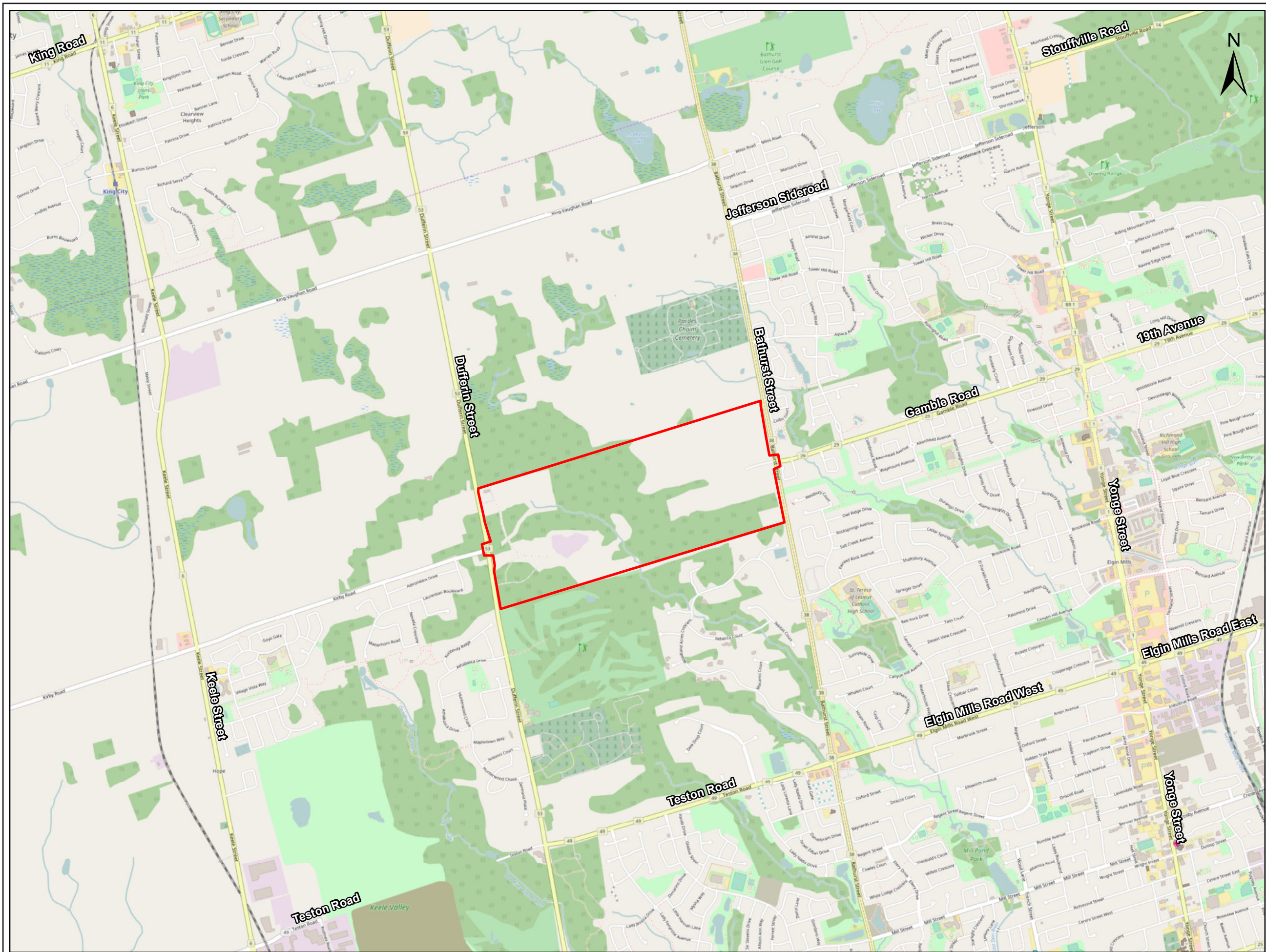
Stone, L.M., and D. Chaput


1978 History of the Upper Great Lakes. In Handbook of North American Indians, edited by Bruce G. Trigger, pp. 602–609. Smithsonian Institution, Washington.

Tremaine, G.C.

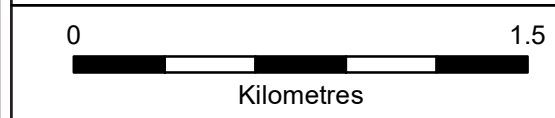
1860 Tremaine's Map of the County of York, Canada West. George C. Tremaine, Toronto.





 Study Area

BASE:
 (c) OpenStreetMap and contributors,
 Creative Commons-Share Alike
 License (CC-BY-SA)



ASI PROJECT NO.: 15EA-178
 DATE: 2/10/2017
 DRAWN BY: JF
 FILE: 15EA178_fig1



Figure 1: Kirby Road Extension - Location of the Study Area

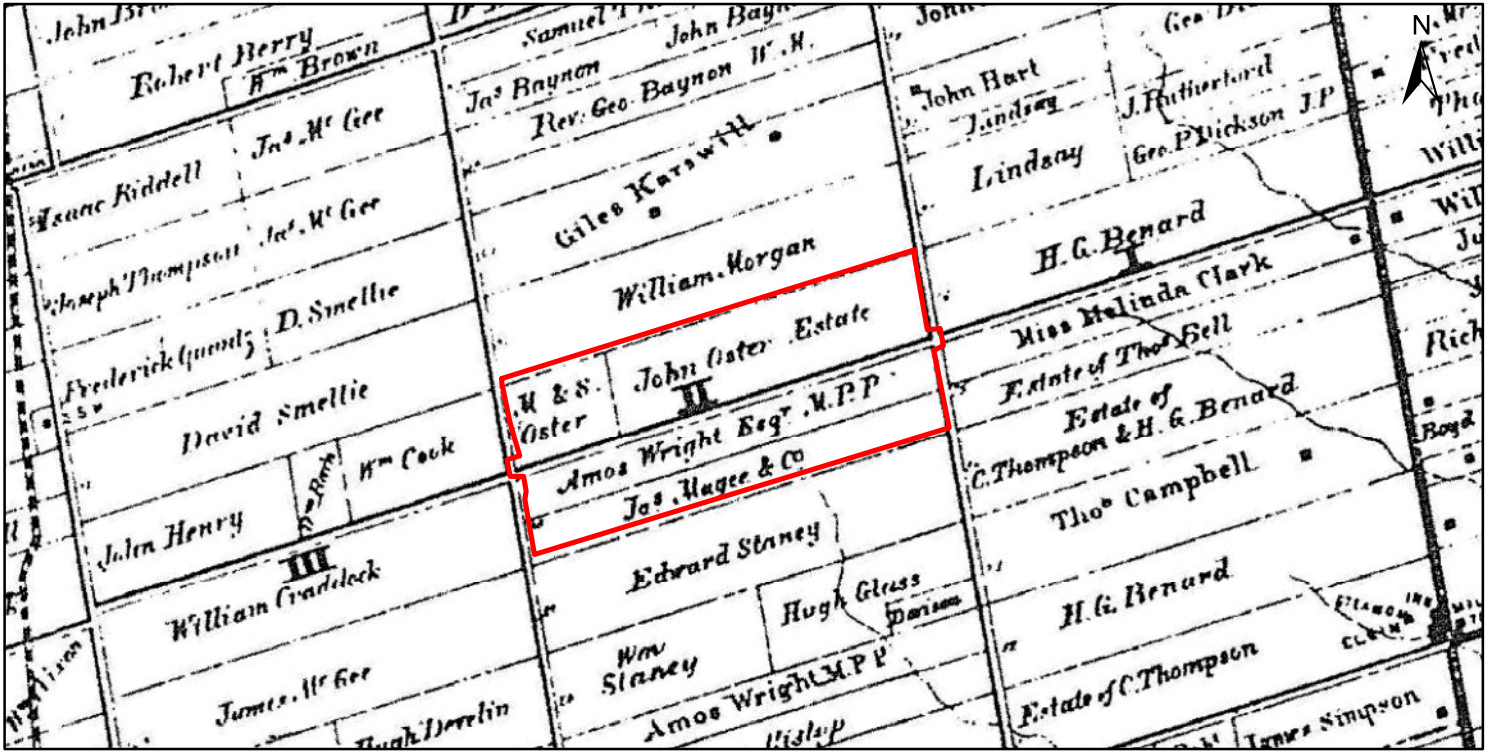


Figure 2: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1860 Map of the County of York

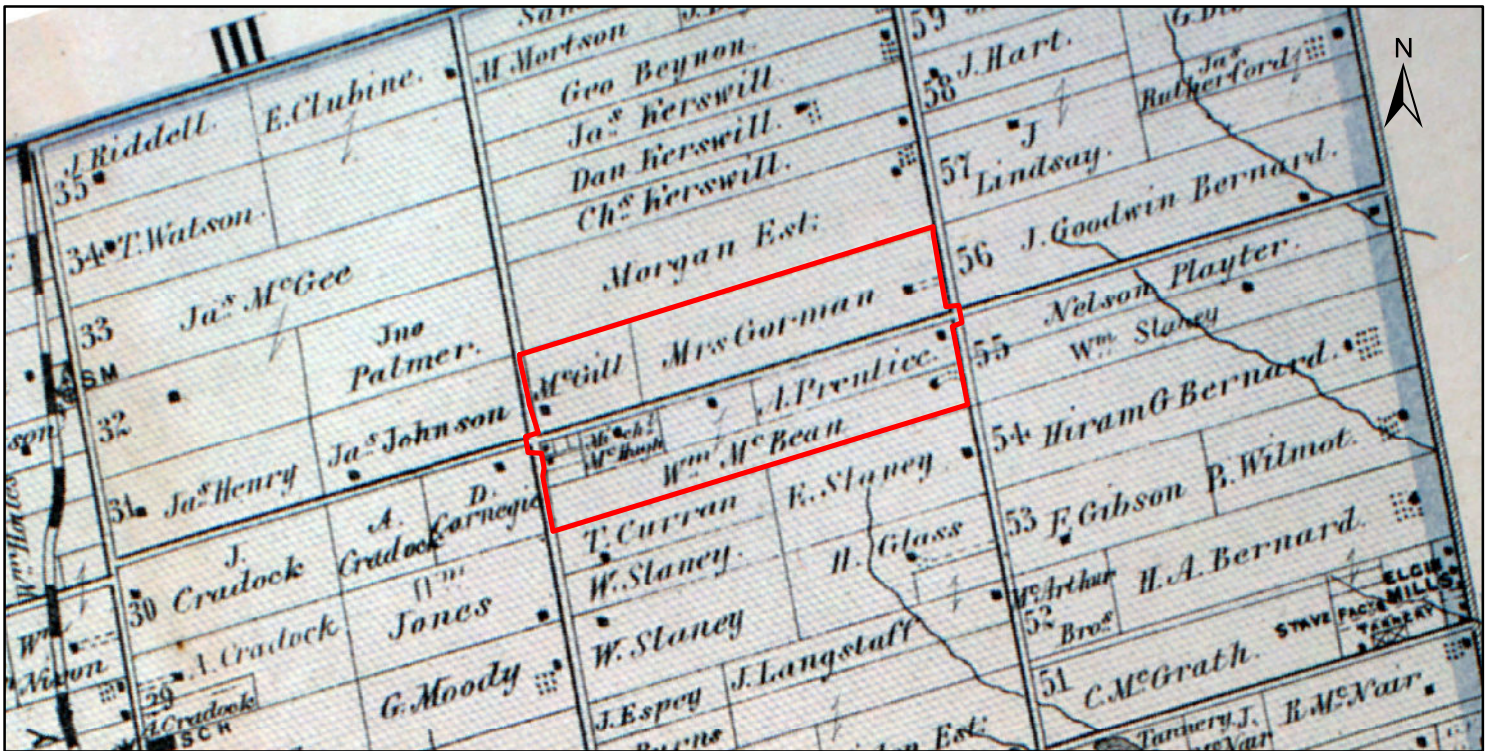


Figure 3: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1878 Illustrated Historical Atlas of the Township of Vaughan

 <p>Archaeological & Cultural Heritage Services 528 Bathurst Street Toronto, ONTARIO M5S 2P9 416-966-1069 F416-966-9723 asih heritage.ca</p>	 Study Area	<p>Base: 1860 Map of the County of York 1878 Illustrated Historical Atlas of the Township of Vaughan</p>	<p>0 1 Kilometres</p> <p>ASI PROJECT NO.: 15EA-178 DATE: 2/13/2017 DRAWN BY: JF FILE: 15EA178_fig2_3_hist</p>
--	--	--	---

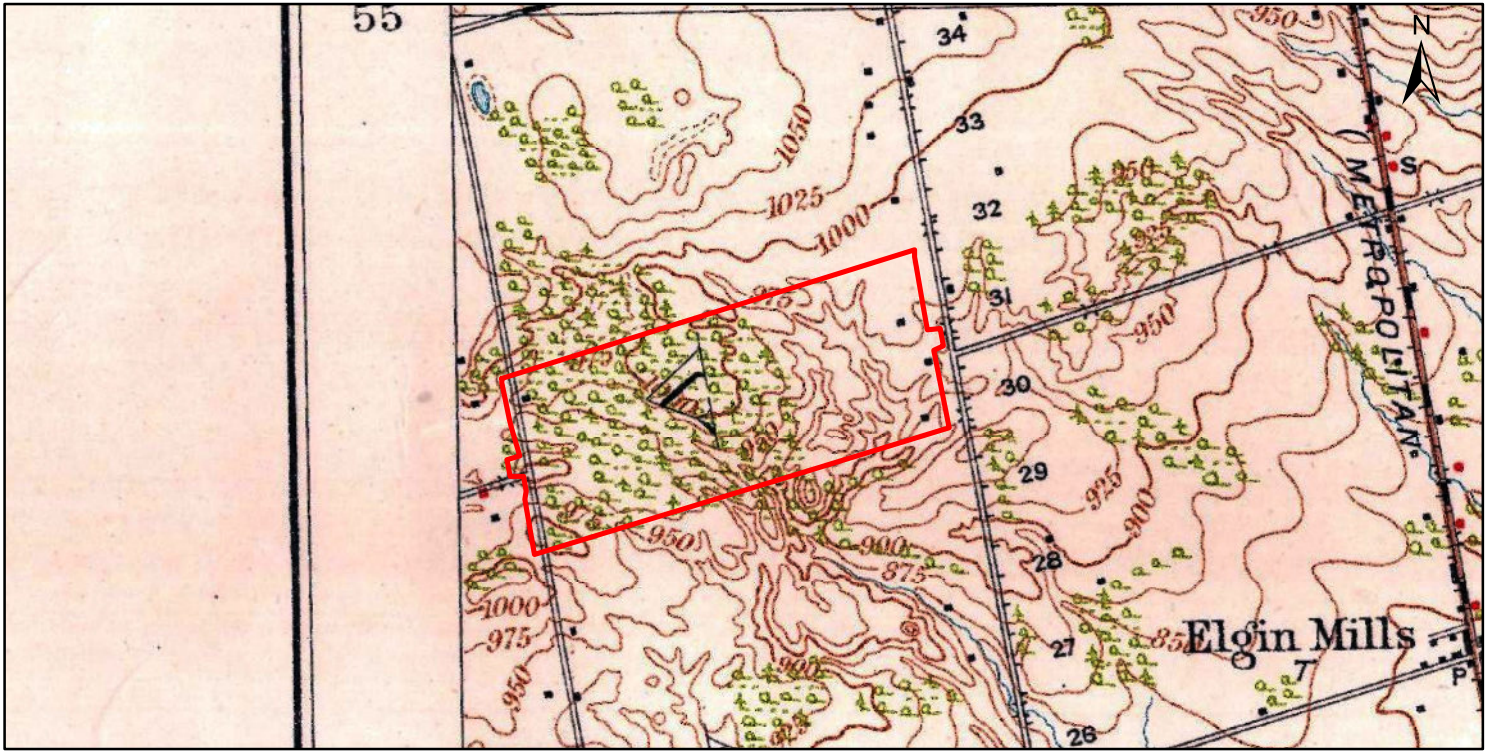


Figure 4: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1917 NTS Markham Sheet

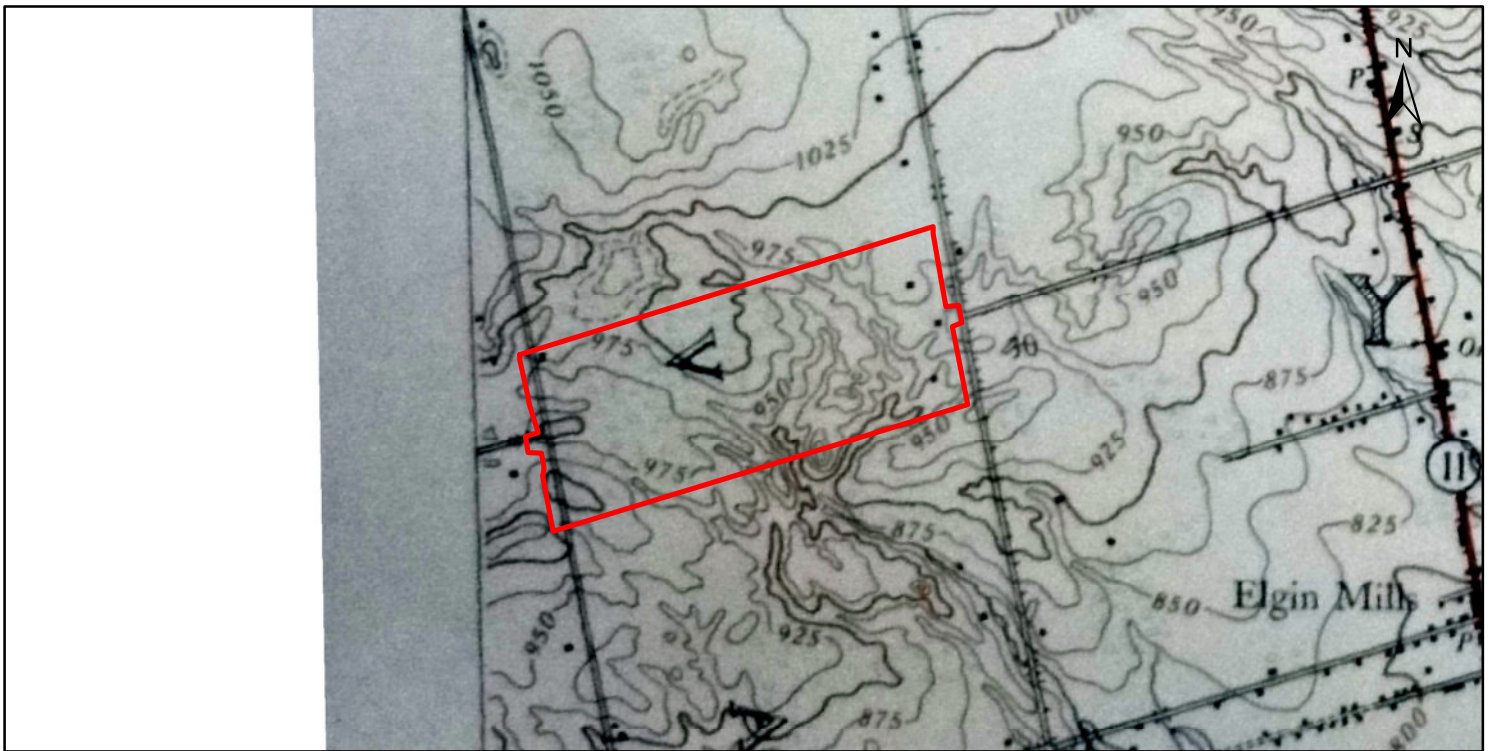


Figure 5: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1963 NTS Markham Sheet

 <p>Archaeological & Cultural Heritage Services 528 Bathurst Street Toronto, ONTARIO M5S 2P9 416-966-1069 F416-966-9723 asheritage.ca</p>	 Study Area	<p>Base: 1860 Map of the County of York 1878 Illustrated Historical Atlas of the Township of Vaughan</p>	 <p>0 1 Kilometres</p> <p>ASI PROJECT NO.: 15EA-178 DRAWN BY: JF DATE: 2/13/2017 FILE: 15EA178_fig4_5_hist</p>
---	--	--	---

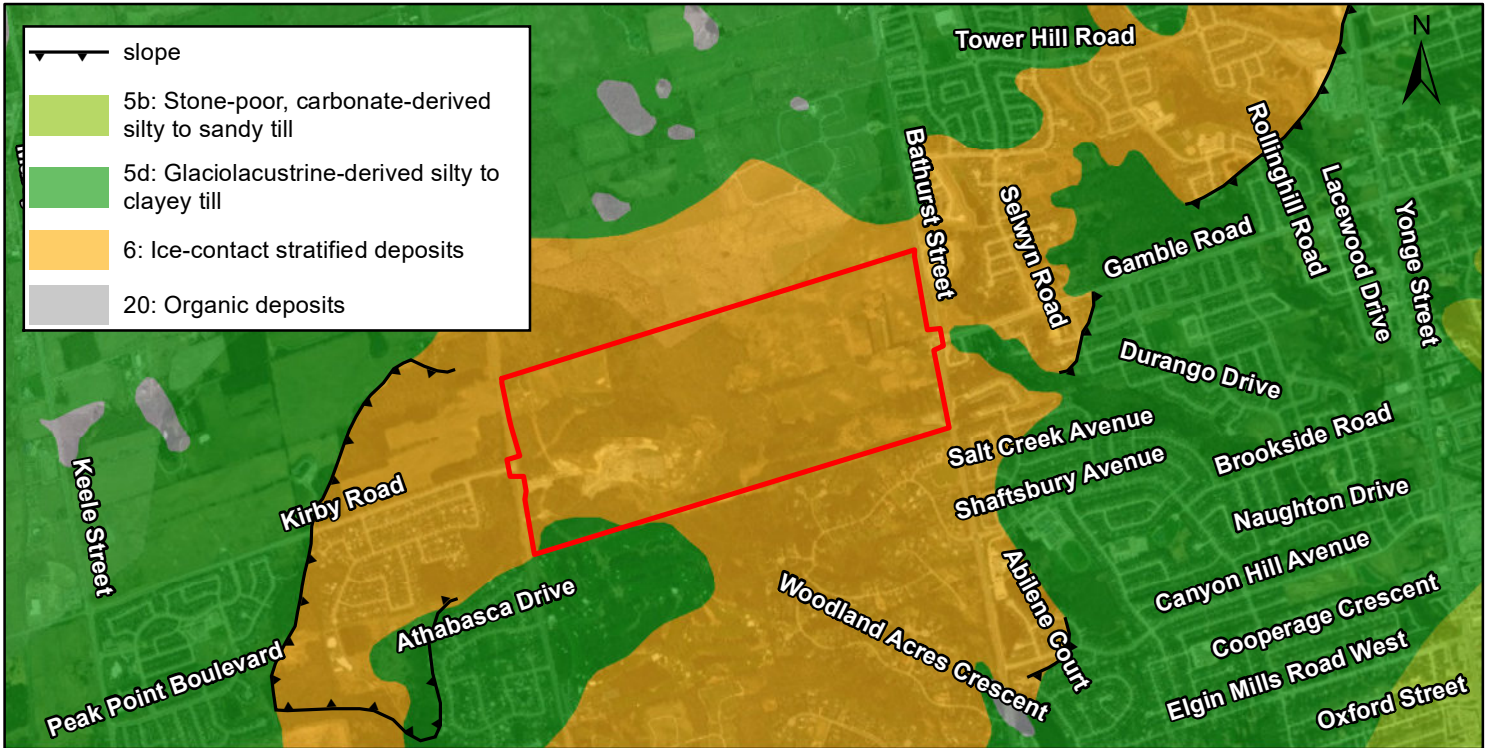
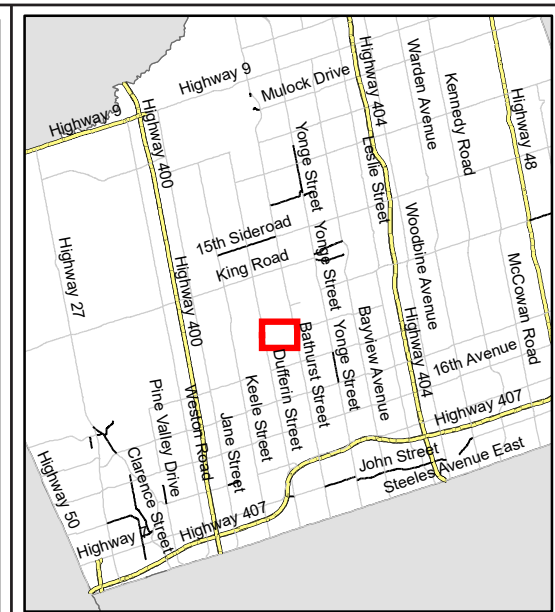
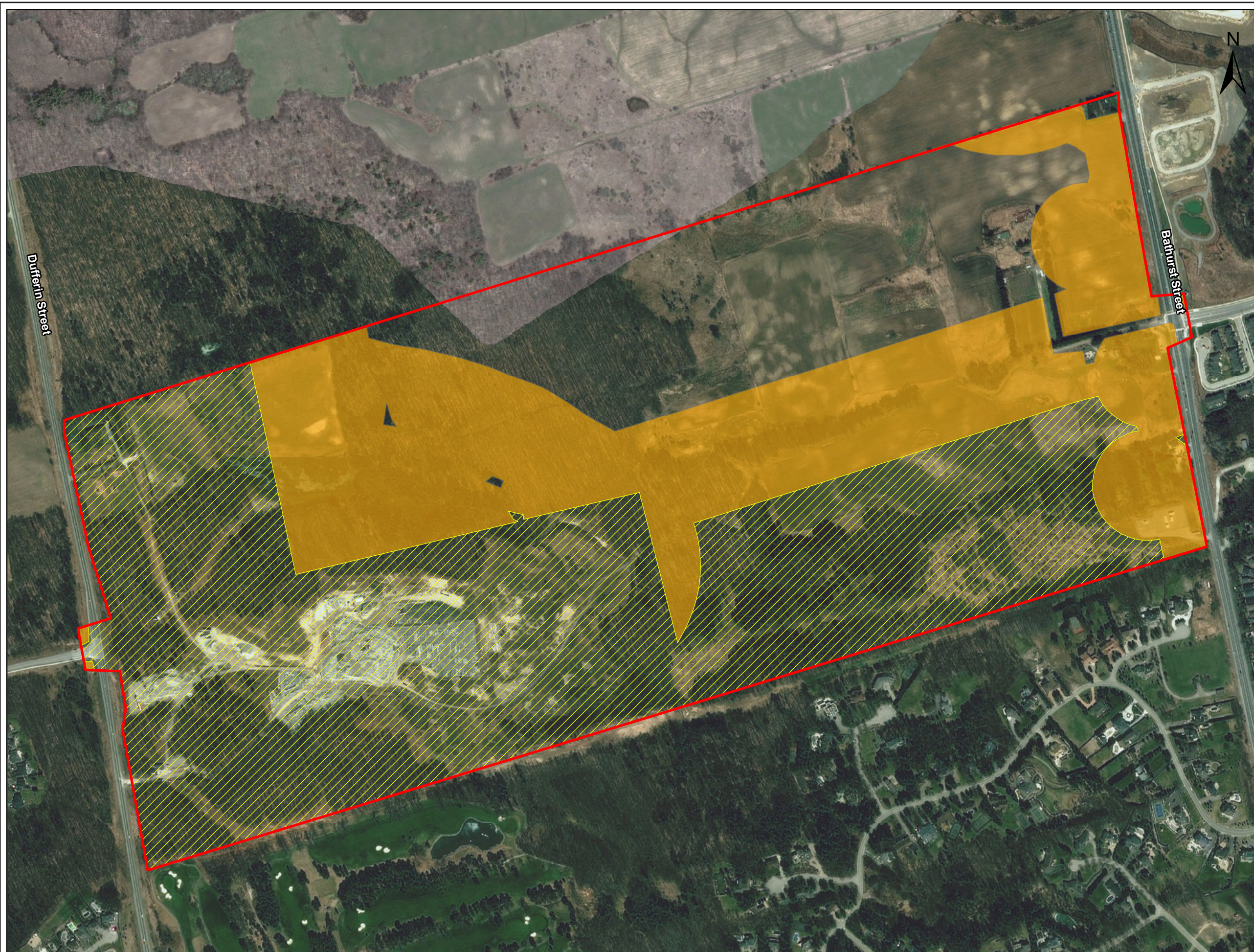


Figure 6: Kirby Road Extension Study Area - Surficial Geology



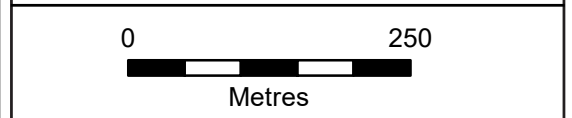
Figure 7: Kirby Road Extension Study Area - Soil Drainage

 <p>Archaeological & Cultural Heritage Services 528 Bathurst Street Toronto, ONTARIO M5S 2P9 416-966-1069 F416-966-9723 asih heritage.ca</p>	 Study Area	<p>Ontario Geological Survey, Ministry of Northern Development and Mines, © Queen's Printer for Ontario, 2003.</p>	 <p>0 1 Kilometres</p> <p>ASI PROJECT NO.: 15EA-178 DRAWN BY: JF DATE: 2/13/2017 FILE: 15EA178_fig6_7_geo</p>
--	--	--	--




- Study Area
- Area of Archaeological Potential
- Previously Assessed (Mayer 1998)

BASE:
 (c) OpenStreetMap and contributors,
 Creative Commons-Share Alike
 License (CC-BY-SA)



ASI PROJECT NO.: 15EA-178 DRAWN BY: JF
 DATE: 3/6/2017 FILE: 15EA178_fig8_potential_v2



Archaeological & Cultural Heritage Services
 528 Bathurst Street Toronto, ONTARIO M5S 2P9
 416-966-1069 | F416-966-9723 | asiheritage.ca

Figure 8: Kirby Road Extension Study Area - Archaeological Potential Model



APPENDIX C4.2

Stage 1 Archeological Assessment Report

This page intentionally left blank
for 2-sided printing purposes

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT
KIRBY ROAD EXTENSION
PART OF LOTS 30 AND 31, CONCESSION 2
(FORMER TOWNSHIP OF VAUGHAN)
CITY OF VAUGHAN
REGIONAL MUNICIPALITY OF YORK**

ORIGINAL REPORT

Prepared for:

Rizmi Holdings Ltd.
11333 Dufferin Street, P.O. Box 663
Maple, ON L6A 1A1

Archaeological Licence #P1066 (Lytle)
Ministry of Tourism, Culture and Sport PIF# P1066-0053-2017
ASI File: 15EA-178

24 April 2018



This page intentionally left blank
for 2-sided printing purposes

**Stage 1 Archaeological Assessment
Kirby Road Extension
Part of Lots 30 and 31, Concession 2
(Former Township of Vaughan)
City of Vaughan
Regional Municipality of York**

EXECUTIVE SUMMARY

ASI was contracted by Schaeffers Consulting Engineers, on behalf of Rizmi Holdings Ltd., to conduct a Stage 1 Archaeological Assessment as part of the Kirby Road Extension MCEA, connecting Kirby Road between Dufferin Street and Bathurst Street in the City of Vaughan. The extension will allow for continuous east-west traffic along Kirby Road in Vaughan and Gamble Road in the Town of Richmond Hill. The Study Area is defined as the four proposed alignments within a larger buffer:

- Alignment 4 – Minor northerly diversion with wetland crossing to minimize impacts to forest
- Alignment 5 – Direct extension with wetland crossing
- Alignment 6 – South to north minor jog diversion to avoid wetland and minimize impacts to forest
- Alignment 6a – South to north minor jog diversion to avoid wetland and minimize impacts to forest

The Stage 1 background study determined that seven previously registered archaeological sites are located within one kilometre of the Study Area. The property inspection and subsequent analysis determined that parts of the Study Area exhibit archaeological potential within Alignments 4, 5, 6, and 6a study corridor. Once a Preferred Road Alignment has been confirmed, these areas will require Stage 2 archaeological assessment, prior to any impacts.

In light of these results, the following recommendations are made:

1. The Study Area exhibits archaeological potential within all proposed Alignments 4, 5, 6, and 6a. These lands require Stage 2 archaeological assessment by test pit/pedestrian survey, both at five metre intervals, where appropriate, prior to any proposed impacts to the property;
2. Part of the Study Area has been previously assessed and does not require Stage 2 survey;
3. The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, and/or slopes in excess of 20 degrees. These lands do not require further archaeological assessment; and,
4. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.



PROJECT PERSONNEL

<i>Senior Project Manager:</i>	Lisa Merritt, MSc. (P094) <i>Partner / Director</i> <i>Environmental Assessment Division</i>
<i>Project Coordinator:</i>	Sarah Jagelewski, Hon. BA (R405) <i>Archaeologist / Assistant Manager</i> <i>Environmental Assessment Division</i>
<i>Project Director (Licensee):</i>	Jessica Lytle, MA (P1066) <i>Archaeologist / Project Manager</i> <i>Environmental Assessment Division</i>
<i>Project Manager:</i>	Eliza Brandy, MA (R1109) <i>Archaeologist / Project Manager</i> <i>Environmental Assessment Division</i>
<i>Field Director:</i>	Peter Carruthers (P163) <i>Senior Associate</i>
<i>Report Preparation:</i>	Eliza Brandy
<i>Graphics:</i>	Jonas Fernandez, MSc (R281) <i>Archaeologist / Assistant Manager - Fleet & Geomatics Specialist</i> <i>Operations Division</i>
	Adam Burwell, MSc <i>Archaeologist / Geomatics Specialist</i> <i>Operations Division</i>
<i>Report Reviewer:</i>	Lisa Merritt



TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
PROJECT PERSONNEL	ii
TABLE OF CONTENTS	iii
1.0 PROJECT CONTEXT	1
1.1 Development Context	1
1.2 Historical Context.....	2
1.2.1 <i>Indigenous Land Use and Settlement</i>	2
1.2.2 <i>Euro-Canadian Land Use: Township Survey and Settlement</i>	4
1.2.3 <i>Historical Map Review</i>	5
1.2.4 <i>Twentieth-Century Mapping Review</i>	6
1.3 Archaeological Context.....	6
1.3.1 <i>Current Land Use and Field Conditions</i>	7
1.3.2 <i>Geography</i>	7
1.3.3 <i>Previous Archaeological Research</i>	8
2.0 FIELD METHODS: PROPERTY INSPECTION	9
3.0 ANALYSIS AND CONCLUSIONS	10
3.1 Analysis of Archaeological Potential	10
3.2 Analysis of Property Inspection Results	11
3.3 Conclusions	12
4.0 RECOMMENDATIONS	12
5.0 ADVICE ON COMPLIANCE WITH LEGISLATION	13
6.0 REFERENCES CITED	14
7.0 MAPS	18
8.0 IMAGES	27

LIST OF TABLES

Table 1: Nineteenth-century property owner(s) and historical features(s) within or adjacent to the Study Area .	6
Table 2: List of previously registered sites within one kilometre of the Study Area	8

LIST OF FIGURES

Figure 1: Kirby Road Extension – Location of the Study Area	19
Figure 2: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1860 Map of the County of York.....	20
Figure 3: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1878 Illustrated Historical Atlas of the Township of Vaughan	20
Figure 4: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1917 NTS Markham Sheet.	21
Figure 5: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1963 NTS Markham Sheet	21
Figure 6: Kirby Road Extension Study Area - Surficial Geology	22
Figure 7: Kirby Road Extension Study Area - Soil Drainage	22
Figure 8: Kirby Road Extension Study Area – Results of the Property Inspection Key Map	23
Figure 9: Kirby Road Extension Study Area – Results of the Property Inspection (Sheet 1)	24
Figure 10: Kirby Road Extension Study Area – Results of the Property Inspection (Sheet 2)	25
Figure 11: Kirby Road Extension Study Area – Results of the Property Inspection (Sheet 3).....	26



LIST OF PLATES

Plate 1: North view of Study Area quarry access road; Area beyond the disturbed road exhibits potential, requires Stage 2 survey	27
Plate 2: Southeast view of quarry lands; Area is disturbed, no Stage 2 survey required	27
Plate 3: West view of quarry lands; Area is disturbed, no Stage 2 survey required	27
Plate 4: West view of quarry lands; Area is disturbed, no Stage 2 survey required	27
Plate 5: Southwest view of quarry lands; Area is disturbed, no Stage 2 survey required.....	28
Plate 6: North view of quarry lands; Area is disturbed, no Stage 2 survey required – Note steep slope at edge of forest.....	28
Plate 7: South view of quarry lands; Area is disturbed, no Stage 2 survey required	28
Plate 8: West view of undulating forest terrain in the Study Area within Alignments 4 and 5; Areas of level ground exhibit potential, require Stage 2 survey	28
Plate 9: Southwest view of quarry lands; Area is disturbed, no Stage 2 survey required.....	29
Plate 10: Southwest view of quarry lands; Area is disturbed, no Stage 2 survey required	29
Plate 11: Northwest view along tributary of the Upper East Don River; Area surrounding watercourse exhibits potential, requires Stage 2 survey.....	29
Plate 12: South view of Study Area toward Alignment 5; Areas of level ground exhibit potential, require Stage 2 survey	29
Plate 13: Southeast view of Study Area towards Alignments 4, 6 and 6a; Area exhibits potential, requires Stage 2 survey.....	30
Plate 14: Southwest view of Study Area towards Alignments 4, 6 and 6a; Area exhibits potential, requires Stage 2 survey.....	30
Plate 15: Northwest view of Study Area towards Alignment 5 and informal path; Area exhibits potential, requires Stage 2 survey	30
Plate 16: Northeast view of Study Area; Area exhibits potential, requires Stage 2 survey	30
Plate 17: Southwest view of Study Area towards Alignments 4, 6 and 6a; Area exhibits potential, requires Stage 2 survey.....	31
Plate 18: Southeast view of Study Area towards Alignment 5; Area exhibits potential, requires Stage 2 survey	31
Plate 19: Northwest view of Study Area towards Alignment 5; Area exhibits potential, requires Stage 2 survey	31
Plate 20: West view of Study Area; Area exhibits potential, requires Stage 2 survey	31
Plate 21: North view of Study Area where Alignments merge; Area exhibits potential, requires Stage 2 survey.....	32
Plate 22: North view of Study Area where Alignments merge; Areas at top and bottom of undulating slopes exhibit potential, require Stage 2 survey.....	32
Plate 23: Southwest view of Study Area where Alignments merge; Area surrounding old farmhouse exhibits potential, requires Stage 2 survey.....	32
Plate 24: South view of Study Area where Alignments merge; Area beyond disturbed road exhibits potential, requires Stage 2 survey	32
Plate 25: Southwest view of Study Area where Alignments merge; Area beyond disturbed road, farm driveway, and parking lot exhibits potential, requires Stage 2 survey	33
Plate 26: West view of Study Area where Alignments merge; Area beyond disturbed road and previous assessment exhibits potential, requires Stage 2 survey	33
Plate 27: Google Maps 2009 east view towards Study Area from Dufferin Street showing previous disturbance from Rizmi Stone Aggregates; Areas beyond disturbed road within woodlot exhibits potential, requires Stage 2 survey.....	33



1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by Schaeffers Consulting Engineers, on behalf of Rizmi Holdings Ltd., to conduct a Stage 1 Archaeological Assessment as part of the Kirby Road Extension MCEA, connecting Kirby Road between Dufferin Street and Bathurst Street in the City of Vaughan (Figure 1). The extension will allow for continuous east-west traffic along Kirby Road in Vaughan and Gamble Road in the Town of Richmond Hill. The Study Area is defined as the four proposed alignments within a larger buffer:

- Alignment 4 – Minor northerly diversion with wetland crossing to minimize impacts to forest
- Alignment 5 – Direct extension with wetland crossing
- Alignment 6 – South to north minor jog diversion to avoid wetland and minimize impacts to forest
- Alignment 6a – South to north minor jog diversion to avoid wetland and minimize impacts to forest

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (1990, as amended in 2009) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), administered by the Ministry of Tourism, Culture and Sport (MTCS).

In the S & G, Section 1, the objectives of a Stage 1 archaeological assessment are discussed as follows:

- To provide information about the history, current land conditions, geography, and previous archaeological fieldwork of the Study Area;
- To evaluate in detail the archaeological potential of the Study Area that can be used, if necessary, to support recommendations for Stage 2 archaeological assessment for all or parts of the Study Area; and,
- To recommend appropriate strategies for Stage 2 archaeological assessment, if necessary.

This report describes the Stage 1 archaeological assessment that was conducted for this project and is organized as follows: Section 1.0 summarizes the background study that was conducted to provide the historical and archaeological contexts for the project Study Area; Section 2.0 addresses the field methods used for the property inspection that was undertaken to document its general environment, current land use history and conditions of the Study Area; Section 3.0 analyses the characteristics of the project Study Area and evaluates its archaeological potential; Section 4.0 provides recommendations; and the remaining sections contain other report information that is required by the S & G, e.g., advice on compliance with legislation, works cited, mapping and photo-documentation.

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act*, RSO (1990) and regulations made under the Act, and are therefore subject to all associated legislation. This project is being conducted in accordance with the Municipal Engineers' Association document *Municipal Class Environmental Assessment* (2000 as amended in 2007, 2011 and 2015).



The City of Vaughan Official Plan Archaeological and First Nations Policy Study (ASI 2010) and The Regional Municipality of York's (York Region) Archaeological Management Plan (ASI 2012) were also consulted.

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted by Schaeffers Consulting Engineers on January 10, 2017.

1.2 Historical Context

The purpose of this section, according to the S & G, Section 7.5.7, Standard 1, is to describe the past and present land use and the settlement history and any other relevant historical information pertaining to the Study Area. A summary is first presented of the current understanding of the Indigenous land use of the Study Area. This is then followed by a review of the historical Euro-Canadian settlement history.

1.2.1 Indigenous Land Use and Settlement

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years before present (BP) (Ferris 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 BP, the environment had progressively warmed (Edwards and Fritz 1988) and populations now occupied less extensive territories (Ellis and Deller 1990).

Between approximately 10,000-5,500 BP, the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy wood working tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 BP; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest evidence for cemeteries dates to approximately 4,500-3,000 BP and is indicative of increased social organization, investment of labour into social infrastructure, and the establishment of socially prescribed territories (Ellis et al. 1990, 2009; Brown 1995:13).

Between 3,000-2,500 BP, populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. Exchange and interaction networks broaden at this time (Spence et al. 1990:136, 138) and by approximately 2,000 BP, evidence exists for macro-band camps, focusing on the seasonal harvesting of resources (Spence et al. 1990:155, 164). It is also during this period that maize was first introduced into southern Ontario, though it would have only supplemented people's diet (Birch and Williamson 2013:13-15). Bands likely retreated to interior camps during the winter. It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From approximately 1,000 BP until approximately 300 BP, lifeways became more similar to that described in early historical documents. During the Early Iroquoian phase (AD 1000-1300), the communal site is replaced by the village focused on horticulture. Seasonal disintegration of the community for the exploitation of a wider territory and more varied resource base was still practised



(Williamson 1990:317). By the second quarter of the first millennium BP, during the Middle Iroquoian phase (AD 1300-1450), this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd et al. 1990:343). In the Late Iroquoian phase (AD 1450-1649) this process continued with the coalescence of these small villages into larger communities (Birch and Williamson 2013). Through this process, the socio-political organization of the First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. By AD 1600, the communities within Simcoe County had formed the Confederation of Nations encountered by the first European explorers and missionaries. In the 1640s, the traditional enmity between the Haudenosaunee¹ and the Huron-Wendat (and their Algonkian allies such as the Nipissing and Odawa) led to the dispersal of the Huron-Wendat.

After the dispersal, the Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario, including Teiaiagon, near the mouth of the Humber River; and Ganestiquiagon, near the mouth of the Rouge River. Their locations near the mouths of the Humber and Rouge Rivers, two branches of the Toronto Carrying Place, strategically linked these settlements with the upper Great Lakes through Lake Simcoe. The west branch of the Carrying Place followed the Humber River valley northward over the drainage divide, skirting the west end of the Oak Ridges Moraine, to the East Branch of the Holland River. Another trail followed the Don River watershed.

When the Senecas established Teiaiagon at the mouth of the Humber, they were in command of the traffic across the peninsula to Lake Simcoe and the Georgian Bay. Later, Mississauga and earliest European presence along the north shore, was therefore also largely defined by the area's strategic importance for accessing and controlling long established economic networks. Prior to the arrival of the Seneca, these economic networks would have been used by indigenous groups for thousands of years. While the trail played an important part during the fur trade, people would also travel the trail in order to exploit the resources available to them across south-central Ontario, including the various spawning runs, such as the salmon coming up from Lake Ontario or herring or lake trout in Lake Simcoe.

Due, in large part, to increased military pressure from the French upon their homelands south of Lake Ontario, the Haudenosaunee abandoned their north shore frontier settlements by the late 1680s, although they did not relinquish their interest in the resources of the area, as they continued to claim the north shore as part of their traditional hunting territory. The territory was immediately occupied or re-occupied by Anishinaabek groups, including the Mississauga, Ojibwa (or Chippewa) and Odawa, who, in the early seventeenth century, occupied the vast area extending from the east shore of Georgian Bay, and the north shore of Lake Huron, to the northeast shore of Lake Superior and into the upper peninsula of Michigan. Individual bands were politically autonomous and numbered several hundred people. Nevertheless, they shared common cultural traditions and relations with one another and the land. These groups were highly mobile, with a subsistence economy based on hunting, fishing, gathering of wild plants, and garden farming. Their movement southward also brought them into conflict with the Haudenosaunee.

Peace was achieved between the Haudenosaunee and the Anishinaabek Nations in August of 1701 when representatives of more than twenty Anishinaabek Nations assembled in Montreal to participate in peace negotiations (Johnston 2004:10). During these negotiations captives were exchanged and the Iroquois and

¹ The Haudenosaunee are also known as the New York Iroquois or Five Nations Iroquois and after 1722 Six Nations Iroquois. They were a confederation of five distinct but related Iroquoian-speaking groups - the Seneca, Onondaga, Cayuga, Oneida, and Mohawk. Each lived in individual territories in what is now known as the Finger Lakes district of Upper New York. In 1722 the Tuscarora joined the confederacy.



Anishinaabek agreed to live together in peace. Peace between these nations was confirmed again at council held at Lake Superior when the Iroquois delivered a wampum belt to the Anishinaabek Nations.

In 1763, following the fall of Quebec, New France was transferred to British control at the Treaty of Paris. The British government began to pursue major land purchases to the north of Lake Ontario in the early nineteenth century, the Crown acknowledged the Mississaugas as the owners of the lands between Georgian Bay and Lake Simcoe and entered into negotiations for additional tracts of land as the need arose to facilitate European settlement.

The eighteenth century saw the ethnogenesis in Ontario of the Métis, when Métis people began to identify as a separate group, rather than as extensions of their typically maternal First Nations and paternal European ancestry (Métis National Council n.d.). Living in both Euro-Canadian and Indigenous societies, the Métis acted as agents and subagents in the fur trade but also as surveyors and interpreters. Métis populations were predominantly located north and west of Lake Superior, however, communities were located throughout Ontario (MNC n.d.; Stone and Chaput 1978:607,608). During the early nineteenth century, many Métis families moved towards locales around southern Lake Huron and Georgian Bay, including Kincardine, Owen Sound, Penetanguishene, and Parry Sound (MNC n.d.). By the mid-twentieth century, Indigenous communities, including the Métis, began to advance their rights within Ontario and across Canada, and in 1982, the Métis were federally recognized as one of the distinct Indigenous peoples in Canada. Recent decisions by the Supreme Court of Canada (Supreme Court of Canada 2003, 2016) have reaffirmed that Métis people have full rights as one of the Indigenous people of Canada under subsection 91(24) of the Constitution Act, 1867.

1.2.2 Euro-Canadian Land Use: Township Survey and Settlement

Historically, the Study Area is located in the Former Vaughan Township, York County, on part of Lots 30 and 31, Concession 2.

The S & G stipulates that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches, and early cemeteries are considered to have archaeological potential. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the *Ontario Heritage Act* or a federal, provincial, or municipal historic landmark or site are also considered to have archaeological potential.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those that are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be located in proximity to water. The development of the network of concession roads and railroads through the course of the nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 m of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (Archaeological Services Inc. 2006).



Township of Vaughan

The land within Vaughan Township was acquired by the British from the Mississaugas in 1784. The first township survey was undertaken in 1793, and the first legal settlers occupied their land holdings in 1796. The township was named in honour of Benjamin Vaughan, who was one of the negotiators for the Treaty of Paris which ended the American Revolutionary War in 1783. In 1805, D'Arcy Boulton (1805:89) noted that the soil in Vaughan was "much improved," and due to its proximity to York "may be expected to form an early and flourishing settlement." Vaughan was initially settled by Loyalists, the children of Loyalists, disbanded soldiers, and by Americans including the Pennsylvania Dutch, French Huguenots, and Quakers. By the 1840s, the township was noted for its excellent land and "well cleared and highly cultivated farms" (Smith 1846:199; Reaman 1971:19; Armstrong 1985:148; Rayburn 1997:355).

Elgin Mills

Elgin Mills has been settled since 1834 when James Newton migrating from Scotland settled there and bought a small tanning operation. This operation eventually grew into a community sized operation, reaching its heyday in the 1870s. The Newton Tanning Company as well as other industries in Elgin Mills was a significant source of employment in the area. By the mid-nineteenth century, Elgin Mills also had a steam-powered sawmill and a gristmill. The settlement's notoriety in the region is somewhat indicated by the so-named "Elgin Mills Road." The Markham Plank Road (modern day Yonge Street) was a toll road. The toll bar at Elgin Mills is itself indicative of the traffic which once travelled to and from Elgin Mills (Stamp 1991).

1.2.3 Historical Map Review

The 1860 Map of the County of York (Tremaine 1860) and the 1878 Illustrated Historical Atlas of the County of York, Vaughan Township page (Miles & Co. 1878) were examined to determine the presence of historic features within the Study Area during the nineteenth century (Figures 2-3).

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases.

In addition, the use of historical map sources to reconstruct/predict the location of former features within the modern landscape generally proceeds by using common reference points between the various sources. These sources are then geo-referenced in order to provide the most accurate determination of the location of any property on historic mapping sources. The results of such exercises are often imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including the vagaries of map production (both past and present), the need to resolve differences of scale and resolution, and distortions introduced by reproduction of the sources. To a large degree, the significance of such margins of error is dependent on the size of the feature one is attempting to plot, the constancy of reference points, the distances between them, and the consistency with which both they and the target feature are depicted on the period mapping.



Table 1: Nineteenth-century property owner(s) and historical features(s) within or adjacent to the Study Area

		1860		1878	
Con #	Lot #	Property Owner(s)	Historical Feature(s)	Property Owner(s)	Historical Feature(s)
2	30 S 1/2	James Magee & Co.	None	William McBean	House
	30 N 1/2	Amos Wright, Esq, MPP		None (5 parcels) Michael McHugh William McBean A. Prentice	House (2) House House House
	31 W	M&S Oster	None	McGill	House
	31 E	John Oster Estate		Mrs. Gorman	House

According to the maps Kirby Road was historically surveyed to extend between what are now Dufferin Street and Bathurst Street. No structures are illustrated on the 1860 map in either lot, however the north 100 acres of lot 30 was owned by Amos Wright. Wright grew up as a farmer and mill owner near Richmond Hill before becoming Reeve of Markham Township in 1850, member of provincial parliament representing East York from 1852 to 1867, federal Indian Agent for the Thunder Bay area from 1875 to 1883, and died in 1886 (Arthur 1982). In 1860, Wright also owned the north 100 acres of Lot 27 and is known to have lived in a home in town, now the Richmond Hill Heritage Centre.

The 1878 illustrates that the north 100 acres of Lot 30 had been divided into a 50 acre parcel in the east, with the western 50 acres further subdivided. Five small parcels were located at the intersection of Kirby Road and Dufferin Street. Five structures are illustrated throughout the northern half of the Lot, while one structure is located near Bathurst Street in the southern half. Lot 31 was divided into two parcels, and in 1878, one structure fronting onto Bathurst Street and one structure fronting onto Dufferin Street.

1.2.4 Twentieth-Century Mapping Review

The 1917 and the 1963 National Topographic Series Markham Sheets were also examined to determine the extent of twentieth-century development within the Study Area (Department of Militia and Defence 1917; Department of National Defence 1963). The Study Area is shown to have remained within a rural landscape into the mid-twentieth century.

A review of available Google satellite imagery since 2002 shows that the Study Area has remained relatively unchanged, however the quarry extraction area can clearly be seen to have expanded.

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MTCS through “Ontario’s Past Portal”; published and unpublished documentary sources; and the files of ASI.



1.3.1 Current Land Use and Field Conditions

A Stage 1 property inspection was conducted on August 10, 2017 that noted the Study Area is located roughly along the historical road allowance of Kirby Road between Dufferin Street and Bathurst Street, however the road was never constructed in this section. Alignment 4 has a minor northerly diversion in the west half of the buffer; Alignment 5 is a direct extension east-west from Dufferin Street to Bathurst Street; and Alignment 6 diverts south in the western half of the buffer, with 6a diverting from further west, and then both 6 and 6a divert north in the eastern half. The Study Area contains woodlot, agricultural fields, and Front Step Farms. Modern residential subdivisions are located west of Dufferin Street and east of Bathurst Street. The topography is complex with undulating agricultural fields along both sides of a tributary of the Upper East Don River which is a small overgrown creek draining the northern part of the Study Area. The southwestern part of the Study Area contains the Rizmi Stone Aggregates resource extraction area.

1.3.2 Geography

In addition to the known archaeological sites, the state of the natural environment is a helpful indicator of archaeological potential. Accordingly, a description of the physiography and soils are briefly discussed for the Study Area.

The S & G stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.) are characteristics that indicate archaeological potential.

Water has been identified as the major determinant of site selection and the presence of potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in Ontario since 5,000 BP (Karrow and Warner 1990:Figure 2.16), proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

Other geographic characteristics that can indicate archaeological potential include: elevated topography (eskers, drumlins, large knolls, and plateaux), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings. Resource areas, including; food or medicinal plants (migratory routes, spawning areas) are also considered characteristics that indicate archaeological potential (S & G, Section 1.3.1).

The Study Area is within the Oak Ridges Moraine physiographic region of southern Ontario, which extends from the Niagara Escarpment to the Trent River forming the height of land separating the drainage basin of Lake Ontario from the drainage basins of Georgian Bay and the Trent (Chapman and Putnam 1984:166–169). This physiographic region, covering approximately 1,300 square kilometres, is characterized by hilly, “knob and basin” topography of sandy or gravelly till. The Moraine was created



during the melting of the Laurentian Glaciers 13,000-12,000 B.P. The meltwater ran into present day Georgian Bay and Lake Simcoe areas, and into the Great Lakes, forming Lake Iroquois to the south (over present day Lake Ontario), and Lake Algonquin to the north (over present day Lake Huron, Georgian Bay and Lake Simcoe). On the moraine itself, glacial melting formed a series of kettle lakes (Bennett and Glasser 1996:262).

Figure 6 depicts surficial geology for the Study Area. The surficial geology mapping demonstrates that the Study Area is underlain by ice-contact stratified deposits of sand and gravel with minor silt, clay and till (Ontario Geological Survey 2010). Soils in the Study Area consist of Pontypool sandy loam, a grey-brown podzolic with good drainage (Hoffman and Richards 1955) (Figure 7).

The Study Area is within the Upper East Don River watershed. The Don River follows a west and east branch from its headwaters on the Oak Ridges Moraine, and drains into Lake Ontario in downtown Toronto at the Keating Channel, draining an area of approximately 360 square kilometers (Toronto and Region Conservation Authority n.d.).

1.3.3 Previous Archaeological Research

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MTCS. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 km east to west, and approximately 18.5 km north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The Study Area under review is located in Borden block *AlGu*.

According to the OASD, seven previously registered archaeological sites are located within one kilometre of the Study Area, none of which are within 50 metres (MTCS 2017). A summary of the sites is provided below.

Table 2: List of previously registered sites within one kilometre of the Study Area

Borden #	Site Name	Cultural Affiliation	Site Type	Researcher
AlGu-76	Andromeda	Indigenous Pre-Contact	Isolated Find	ASI 1987
AlGu-85	Cygnus	Indigenous Pre-Contact	Scatter	ASI 1987
AlGu-175	Maplewood Ravines	Late Archaic; Early Woodland	Camp; Camp	AMICK 1996
AlGu-210	Memorial Park Cemetery	Euro Canadian	Homestead	AMICK 1998
AlGu-211	Kerswill II	Indigenous Pre-Contact; Euro Canadian	Lithic Scatter; Unknown	AMICK 1998
AlGu-217	Dufferin Camp	Late Archaic	Scatter	AMICK 1998
AlGu-356	N/A	Euro Canadian	Homestead	TAI 2005

TAI – The Archaeologists Inc.

While the Fraser site (AlGv-4) is described in the OASD as an indigenous pre-contact camp located approximately 1,200 metres from the Study Area, it is considered to be a potential ancestral Huron-Wendat village. No further archaeological assessment has been conducted to determine the extent and nature of the deposits originally identified by Clark in 1926, however the site has identified to retain



further cultural heritage value or interest and was recommended for preservation in 1973 (Mayer, Pihl, Poulton and Associates Inc. 1986; Clark n.d.; Konrad 1973:132–133).

According to the background research, three previous reports detail fieldwork within 50 m of the Study Area.

Mayer Heritage Consultants Inc. (1998) conducted a Stage 1 and 2 archaeological assessment for Rizmi Holdings Limits ahead of the construction of three proposed gravel pits on part of Lot 30 and 31, Concession 2 in the City of Vaughan. The study area consisted of approximately 68.8 hectares on either side of the road allowance between Dufferin and Bathurst Streets, within the current Stage 1 Study Area. The Stage 2 survey did not identify any archaeological resources. MTCS has advised that they will not consider these areas as clear of archaeological potential under the 2011 S & G.

ASI (2003) conducted a Stage 1 archaeological assessment (background study and property inspection) for the proposed Aurora/Newmarket Water Supply in the City of Vaughan. The property inspection investigated the proposed Kirby Road extension within the current Study Area and found that it retained archaeological potential. Stage 2 survey was recommended prior to any development.

ASI (2007) conducted a Stage 1 and 2 archaeological assessment of 695 Gamble Road, south of Gamble Road, east of Bathurst Street, in the City of Vaughan. The property encompassed an area of approximately 2.7 hectares. During the Stage 2, no archaeological remains were encountered and it was recommended that no further archaeological assessment of the project area is required.

ASI (2009a) conducted a Stage 1 archaeological assessment (background study and property inspection) of the PD7/PD8 Bathurst Street Watermain 2 in the City of Vaughan. The property inspection concluded that most of the proposed watermain would be located within previously disturbed lands with no archaeological potential. However, one section, located at the southwest corner of Bathurst Street and Gamble Road retained archaeological potential. ASI (2009b) conducted a Stage 2 property assessment of these lands, part of which overlaps with the current Stage 1 Study Area. No archaeological remains were encountered and it was recommended that no further archaeological assessment of the project area is required.

ASI (2011) conducted a Stage 1 archaeological assessment (background research and property inspection) as part of the Proposed West Richmond Hill Pumping Station and Watermains Class EA in the Town of Richmond Hill and City of Vaughan. Approximately 730 m of proposed watermain would connect the North Richmond Hill Reservoir to Gamble Road via Bathurst Street, adjacent to the current Stage 1 Study Area. The property inspection confirmed that the proposed watermain route on Bathurst Street had been subject to extensive and deep land alterations and it was recommended that no further archaeological assessment of the project area is required.

2.0 FIELD METHODS: PROPERTY INSPECTION

A Stage 1 property inspection must adhere to the S & G, Section 1.2, Standards 1-6, which are discussed below. The entire property and its periphery must be inspected. The inspection may be either systematic or random. Coverage must be sufficient to identify the presence or absence of any features of archaeological potential. The inspection must be conducted when weather conditions permit good visibility of land features. Natural landforms and watercourses are to be confirmed if previously identified. Additional features such as elevated topography, relic water channels, glacial shorelines, well-drained soils within heavy soils and slightly elevated areas within low and wet areas should be identified



and documented, if present. Features affecting assessment strategies should be identified and documented such as woodlots, bogs or other permanently wet areas, areas of steeper grade than indicated on topographic mapping, areas of overgrown vegetation, areas of heavy soil, and recent land disturbance such as grading, fill deposits and vegetation clearing. The inspection should also identify and document structures and built features that will affect assessment strategies, such as heritage structures or landscapes, cairns, monuments or plaques, and cemeteries.

The Stage 1 archaeological assessment property inspection was conducted under the field direction of Peter Carruthers (P163) of ASI, on August 10, 2017 in order to gain first-hand knowledge of the geography, topography, and current conditions and to evaluate and map archaeological potential of the Study Area. It was a visual inspection only and did not include excavation or collection of archaeological resources.

Fieldwork was only conducted when weather conditions were deemed suitable, per S & G Section 2. Previously identified features of archaeological potential were examined; additional features of archaeological potential not visible on mapping were identified and documented as well as any features that will affect assessment strategies. Field observations are compiled onto the existing conditions of the Study Area in Section 7.0 (Figures 8-11) and associated photographic plates are presented in Section 8.0 (Plates 1-27).

3.0 ANALYSIS AND CONCLUSIONS

The historical and archaeological contexts have been analyzed to help determine the archaeological potential of the Study Area. These data are presented below in Section 3.1. Results of the analysis of the Study Area property inspection are presented in Section 3.2.

3.1 Analysis of Archaeological Potential

The S & G, Section 1.3.1, lists criteria that are indicative of archaeological potential. The Study Area meets the following criteria indicative of archaeological potential:

- Proximity to previously registered archaeological sites (see Table 2);
- Proximity to Euro-Canadian settlements (farmsteads; village of Elgin Mills, Richmond Hill);
- Proximity to historic transportation routes (Dufferin Street, Bathurst Street, Kirby Road, Gamble Road);
- Proximity to water sources (tributaries of the East Don River); and,
- Well-drained soils (Pontypool sandy loam);

According to the S & G, Section 1.4 Standard 1e, no areas within a property containing locations listed or designated by a municipality can be recommended for exemption from further assessment unless the area can be documented as disturbed. The City of Vaughan Municipal Heritage Inventory was consulted and no properties within the Study Area are Listed or Designated under the Ontario Heritage Act, however one property is noted on the inventory:

- 11490 Bathurst Street (Ontario house *circa* 1870), now Front Step Farms.



These criteria are indicative of potential for the identification of Indigenous and Euro-Canadian archaeological resources, depending on soil conditions and the degree to which soils have been subject to deep disturbance.

3.2 Analysis of Property Inspection Results

The property inspection determined that the balance of Alignments 4, 5, 6, and 6a and areas within the Study Area buffer exhibit archaeological potential (Plates 1, 2, 8, 10, 11-24, 27; Figures 8-11: areas highlighted in green and orange). These areas will require Stage 2 archaeological assessment prior to any development. According to the S & G Section 2.1.1, pedestrian survey is required in actively or recently cultivated fields (Plates 14, 16-20; Figures 9-11: areas highlighted in orange). According to the S & G Section 2.1.2, test pit survey is required on terrain where ploughing is not viable, such as wooded areas, properties where existing landscaping or infrastructure would be damaged, overgrown farmland with heavy brush or rocky pasture, and narrow linear corridors up to 10 metres wide (eg. Plates 1, 8, 11-27; Figures 8-11: areas highlighted in green).

The property inspection determined that the Study Area contains hilly forested areas and undulating fields which display a complex combination of slopes and level areas, characteristic of Oak Ridges Moraine topography. The high degree of variability of the ground conditions were not mapped in detail during the property inspection but are suggested in contour data (Figures 8-11) and can be seen in Plates 8, 12, 14, 16-20, and 22. These areas exhibit archaeological potential and require Stage 2 test pit survey, where appropriate, in accordance with the S & G Section 2.1.6., Standards 1 and 2, maintaining standard survey grid where possible. Test pitting should be conducted according to professional judgement in avoidance of sloped areas, focussing on the tops of slopes and pockets of level areas. The extent, degree of variation, and conditions encountered within the area recommended for test pit survey should be noted in the Stage 2, as per S & G Section 2.1.6. Standard 2.

Part of the Study Area buffer, where the proposed Alignments 4-6a merge at Bathurst Street, has been previously assessed (Figure 11: areas highlighted in red) and do not require additional Stage 2 survey.

The remainder of the Study Area has been subjected to deep soil disturbance events (Plates 1-7, 9, 10, 24-27; Figures 8-11: areas highlighted in yellow) or can be documented as sloped in excess of 20 degrees (Plate 6; Figures 8-9: areas highlighted in pink). According to the S& G Section 2.1 and Section 1.3.2 do not retain potential and do not require further survey. Alignments 4, 5, 6, and 6a all contain areas of disturbance and slopes which do not require further survey.

Evaluation of Archaeological Resources

The comparative evaluation of the alternative road alignments has been conducted by establishing the environmental effects of each alignment on the scale from “No Effect” and “Minimal Effect” to “Very Significant Effect” with associated scores from 1 to 5 points. Based on the degree of interference with known archaeological potential areas, the effects are summarized as follows:

- Alignment 4 – Very Significant Effect 1: The alignment is within areas of archaeological potential with exception of a very small segment;
- Alignment 5 – Very Significant Effect 1: The alignment is within areas of archaeological potential with exception of a very small segment;



- Alignment 6 –Significant Effect 2: Most of the alignment is within areas of archaeological potential;
- Alignment 6a – Moderate Effect 3: Considerable segment of the alignment is within areas of archaeological potential

3.3 Conclusions

The Stage 1 background study determined that seven previously registered archaeological sites are located within one kilometre of the Study Area. The property inspection and subsequent analysis determined that parts of the Study Area exhibit archaeological potential within Alignments 4, 5, 6, and 6a study corridor. Once a Preferred Road Alignment has been confirmed, these areas will require Stage 2 archaeological assessment, prior to any impacts.

4.0 RECOMMENDATIONS

In light of these results, the following recommendations are made:

1. The Study Area exhibits archaeological potential within all proposed Alignments 4, 5, 6, and 6a. These lands require Stage 2 archaeological assessment by test pit/pedestrian survey, both at five metre intervals, where appropriate, prior to any proposed impacts to the property;
2. Part of the Study Area has been previously assessed and does not require Stage 2 survey;
3. The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, and/or slopes in excess of 20 degrees. These lands do not require further archaeological assessment; and,
4. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the MTCS should be immediately notified.



5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

ASI also advises compliance with the following legislation:

- 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*, RSO 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 field work and report recommendations ensure the conservation, preservation and protection 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 field work on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.
- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with 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 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.



6.0 REFERENCES CITED

- Archaeological Services Inc.
2006 Historical Overview and Assessment of Archaeological Potential Don River Watershed, City Of Toronto.
- Armstrong, F. H.
1985 Handbook of Upper Canadian Chronology. Dundurn Press, Toronto.
- Arthur, E.
1982 Wright, Amos. In Dictionary of Canadian Biography, vol. 11. Accessed February 8, 2017 from <http://www.biographi.ca/en/bio/wright_amos_11E.html>.
- ASI
2010 City of Vaughan Official Plan Archaeological and First Nations Policy Study.
- ASI, (Archaeological Services Inc.)
2012 Archaeological Management Plan for the Region of York Region Technical Report. Report on file, Long Range Planning, Region of York.
- Bennett, M.R., and N.F. Glasser
1996 Glacial geology: ice sheets and landforms. John Wiley, London.
- Birch, J., and R. F. Williamson
2013 The Mantle Site: An Archaeological History of an Ancestral Wendat Community. Rowman & Littlefield Publishers, Inc., Latham.
- Boulton, D.
1805 Sketch of His Majesty's Province of Upper Canada. C. Rickaby, London.
- Brown, J.
1995 On Mortuary Analysis – with Special Reference to the Saxe-Binford Research Program. In Regional Approaches to Mortuary Analysis, edited by L. A. Beck, pp. 3–23. Plenum Press, New York.
- Chapman, L.J., and F. Putnam
1984 The Physiography of Southern Ontario. Vol. 2. Ontario Geologic Survey, Special Volume. Ontario Ministry of Natural Resources, Toronto.



Department of Militia and Defence
1917 Markham Sheet 30M14.

Department of National Defence
1963 Markham Sheet 30M14.

Dodd, C. F., D. R. Poulton, P. A. Lennox, D. G. Smith, and G. A. Warrick
1990 The Middle Ontario Iroquoian Stage. In *The Archaeology of Southern Ontario to A.D. 1650*, edited by C. J. Ellis and N. Ferris, pp. 321–360. Occasional Publication of the London Chapter OAS Number 5. Ontario Archaeological Society Inc., London.

Edwards, T.W.D., and P. Fritz
1988 Stable-Isotope Palaeoclimate Records from Southern Ontario, Canada: Comparison of Results from Marl and Wood. *Canadian Journal of Earth Sciences* 25: 1397–1406.

Ellis, C. J., and D. B. Deller
1990 Paleo-Indians. In *The Archaeology of Southern Ontario to A.D. 1650*, edited by C. J. Ellis and N. Ferris, pp. 37–64. Occasional Publication of the London Chapter OAS Number 5. Ontario Archaeological Society Inc., London.

Ellis, C. J., I. T. Kenyon, and M. W. Spence
1990 The Archaic. In *The Archaeology of Southern Ontario to A.D. 1650*, edited by C. J. Ellis and N. Ferris, pp. 65–124. Occasional Publication of the London Chapter OAS Number 5. Ontario Archaeological Society Inc., London.

Ellis, C. J., P. A. Timmins, and H. Martelle
2009 At the Crossroads and Periphery: The Archaic Archaeological Record of Southern Ontario. In *Archaic Societies: Diversity and Complexity across the Midcontinent.*, edited by T. D. Emerson, D. L. McElrath, and A. C. Fortier, pp. 787–837. State University of New York Press, Albany, New York.

Ferris, N.
2013 Place, Space, and Dwelling in the Late Woodland. In *Before Ontario: The Archaeology of a Province*, pp. 99–111. McGill-Queen's University Press.

Hoffman, D.W., and N.R. Richards
1955 Soil Survey of York County. Ontario Soil Survey. Experimental Farm Service, Canada Department of Agriculture and the Ontario Agricultural College, Guelph.



Johnston, D.

2004 Connecting People to Place: Great Lakes Aboriginal in Cultural Context. Unpublished paper prepared for the Ipperwash Commission of Inquiry.

Karrow, P.F., and B.G. Warner

1990 The Geological and Biological Environment for Human Occupation in Southern Ontario. In The Archaeology of Ontario to A.D. 1650, pp. 5–36. Occasional Publications 5. London Chapter, Ontario Archaeological Society, London.

Mayer Heritage Consultants Inc.

1998 Archaeological Assessment (Stages 1 and 2) of the Rizmi Holdings Limited Pits Nos. 1, 2 and 3, City of Vaughan, R.M. of York, Ontario.

Métis National Council

n.d. The Métis Nation.

n.d. Métis Historic Timeline. <<http://www.metisnation.org/culture-heritage/m%C3%A9tis-timeline/>>.

Miles & Co.

1878 Illustrated Historical Atlas of the County of York and the Township of West Gwillimbury & Town of Bradford in the Coutny of Simcoe Ontario. Miles & Co., Toronto.

Ministry of Culture

1990 Ontario Heritage Act, R.S.O. [as amended in 2009]. Province of Ontario.

Ministry of Tourism, Culture and Sport

2017 Ontario's Past Portal.

<<https://www.pastport.mtc.gov.on.ca/APSWeb/public/login.xhtml?lang=en>>.

Municipal Engineers Association

2000 Municipal Class Environmental Assessment.

Ontario Geological Survey

2010 Surficial geology of Southern Ontario.

Rayburn, A.

1997 Place Names of Ontario. University of Toronto Press, Toronto.



Reaman, G.E.

1971 *A History of Vaughan Township: Two Centuries of Life in the Township*. University of Toronto Press, Toronto.

Smith, W.H.

1846 *Smith's Canadian Gazetteer, Comprising Statistical and General Information Respecting All Parts of the Upper Province, or Canada West*. H. & W. Rowsell, Toronto.

Spence, M. W., R. H. Pihl, and C. Murphy

1990 Cultural Complexes of the Early and Middle Woodland Periods. In *The Archaeology of Southern Ontario to A.D. 1650*, edited by C. J. Ellis and N. Ferris. Occasional Publication of the London Chapter OAS Number 5. Ontario Archaeological Society Inc., London.

Stamp, R. M.

1991 *Early Days in Richmond Hill: A History of the Community to 1930*: electronic edition. <<http://edrh.rhpl.richmondhill.on.ca/default.asp>>.

Stone, L.M., and D. Chaput

1978 *History of the Upper Great Lakes*. In *Handbook of North American Indians*, edited by Bruce G. Trigger, pp. 602–609. Smithsonian Institution, Washington.

Supreme Court of Canada

2003 *R. v. Powley*. September 19.

2016 *Daniels v. Canada (Indian Affairs and Northern Development)*. April 14.

Toronto and Region Conservation Authority

n.d. *Don River Watershed Features*. Accessed September 20, 2016 from <<https://trca.ca/conservation/watershed-management/don-river/watershed-features/>>.

Tremaine, G.C.

1860 *Tremaine's Map of the County of York, Canada West*. George C. Tremaine, Toronto.

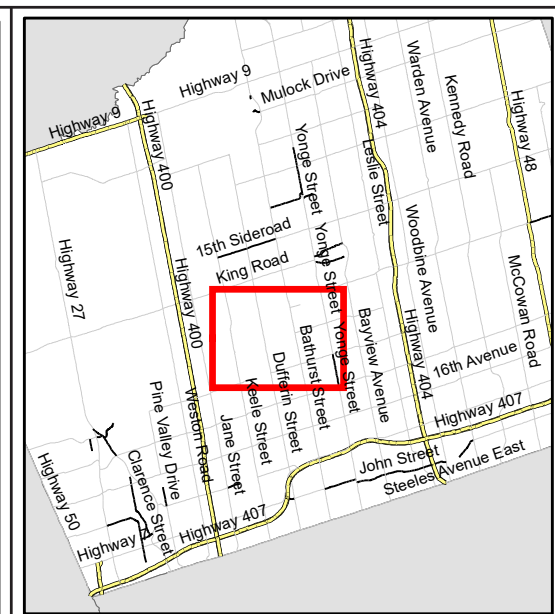
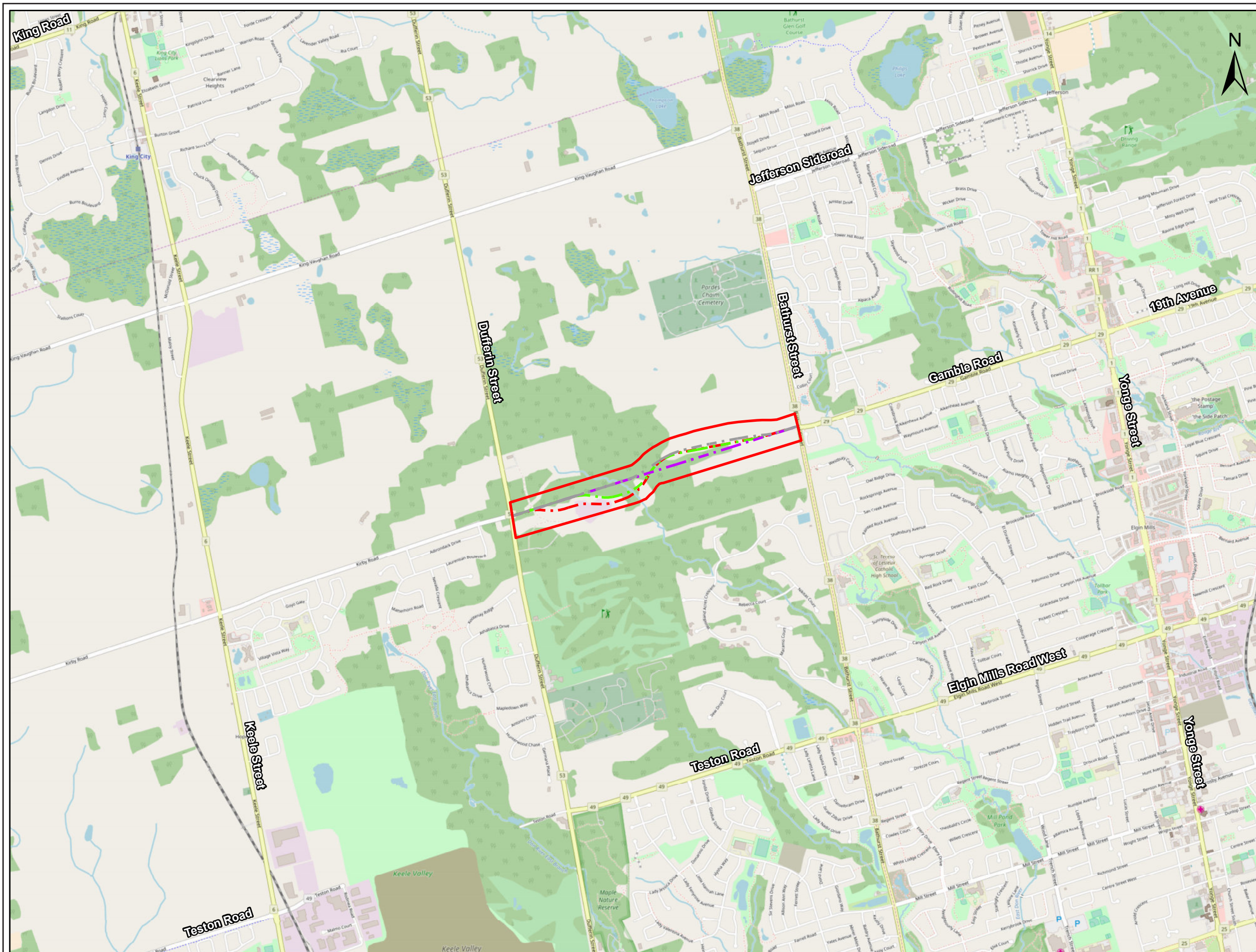
Williamson, R. F.

1990 *The Early Iroquoian Period of Southern Ontario*. In *The Archaeology of Southern Ontario to A.D. 1650*, edited by C. J. Ellis and N. Ferris, pp. 291–320. Occasional Publication of the London Chapter OAS Number 5. Ontario Archaeological Society Inc., London.



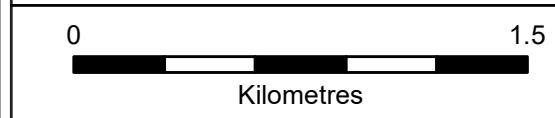
7.0 MAPS





- Study Corridor
- Alignment 4
- Alignment 5
- Alignment 6
- Alignment 6A

BASE:
 (c) OpenStreetMap and contributors,
 Creative Commons-Share Alike
 License (CC-BY-SA)



ASI PROJECT NO.: 15EA-178 DRAWN BY: JF
 DATE: 4/23/2018 FILE: 15EA178_fig1_v2



Figure 1: Kirby Road Extension - Location of the Study Area

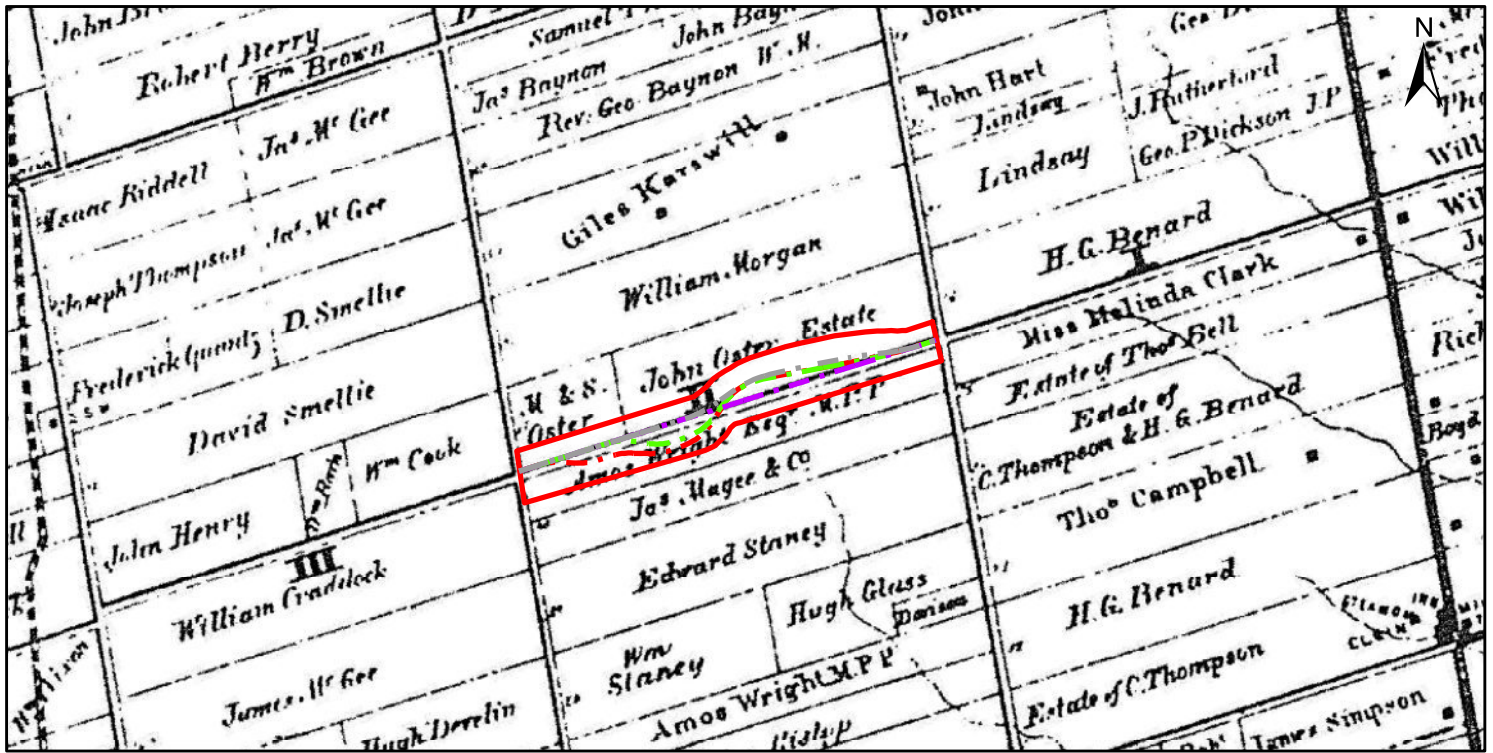


Figure 2: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1860 Map of the County of York

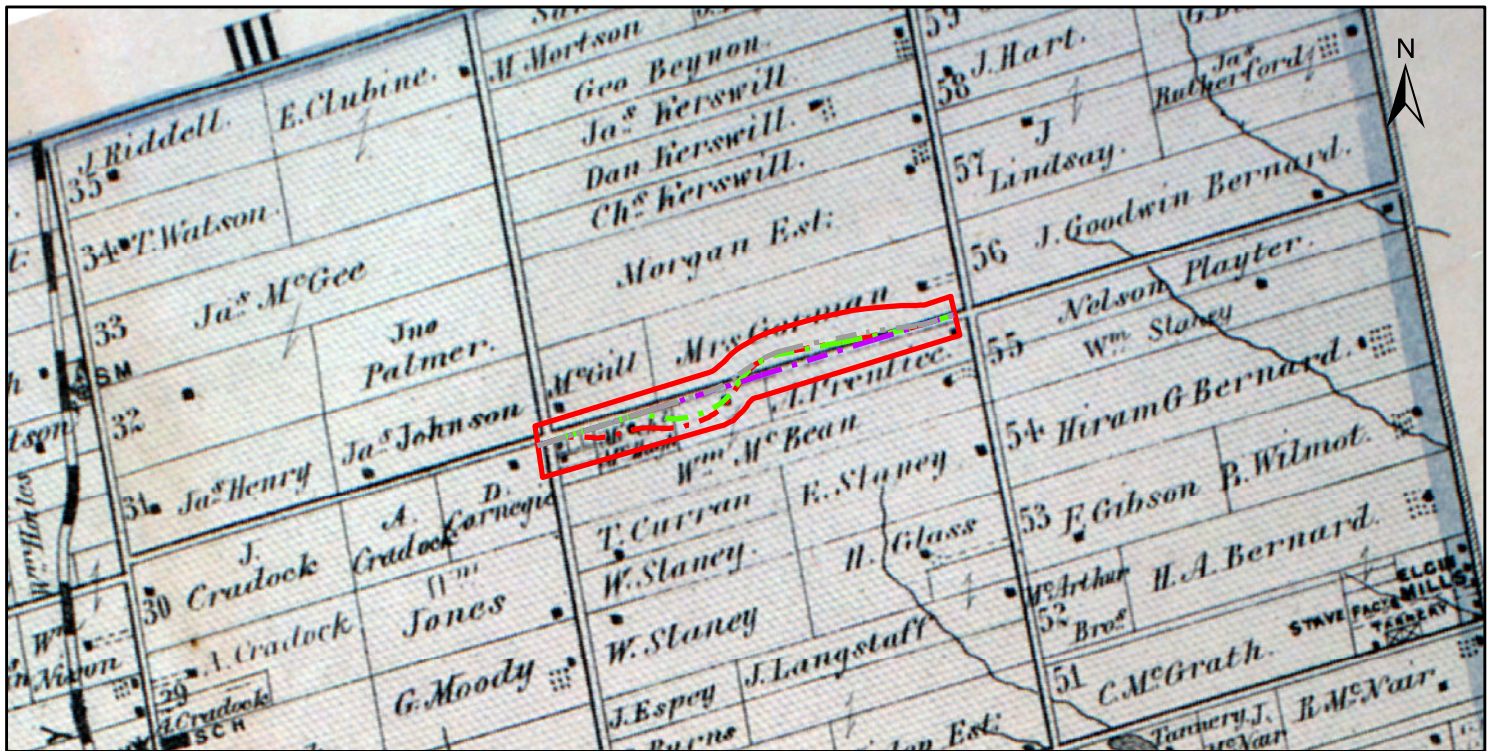









Figure 3: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1878 Illustrated Historical Atlas of the Township of Vaughan

 <p>Archaeological & Cultural Heritage Services 528 Bathurst Street Toronto, ONTARIO M5S 2P9 416-966-1069 F416-966-9723 asihheritage.ca</p>	<p> Study Corridor</p> <p> Alignment 5</p> <p> Alignment 6</p> <p> Alignment 4</p> <p> Alignment 6A</p>	<p>Base: 1860 Map of the County of York 1878 Illustrated Historical Atlas of the Township of Vaughan</p>	<p>0  1 Kilometres</p>
	<p>ASI PROJECT NO.: 15EA-178 DATE: 4/23/2018</p>	<p>DRAWN BY: AB FILE: 15EA178_fig2_3_hist_v2</p>	

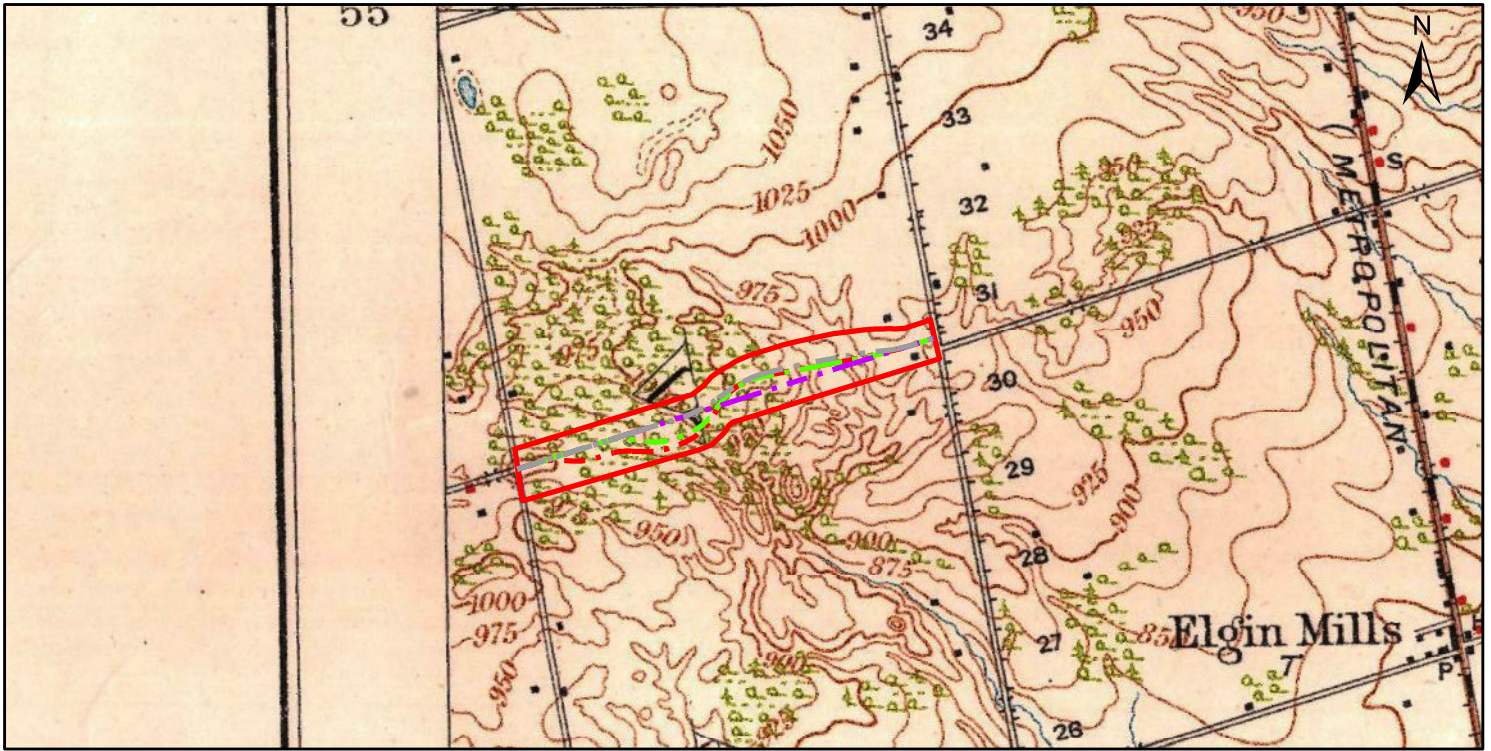


Figure 4: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1917 NTS Markham Sheet

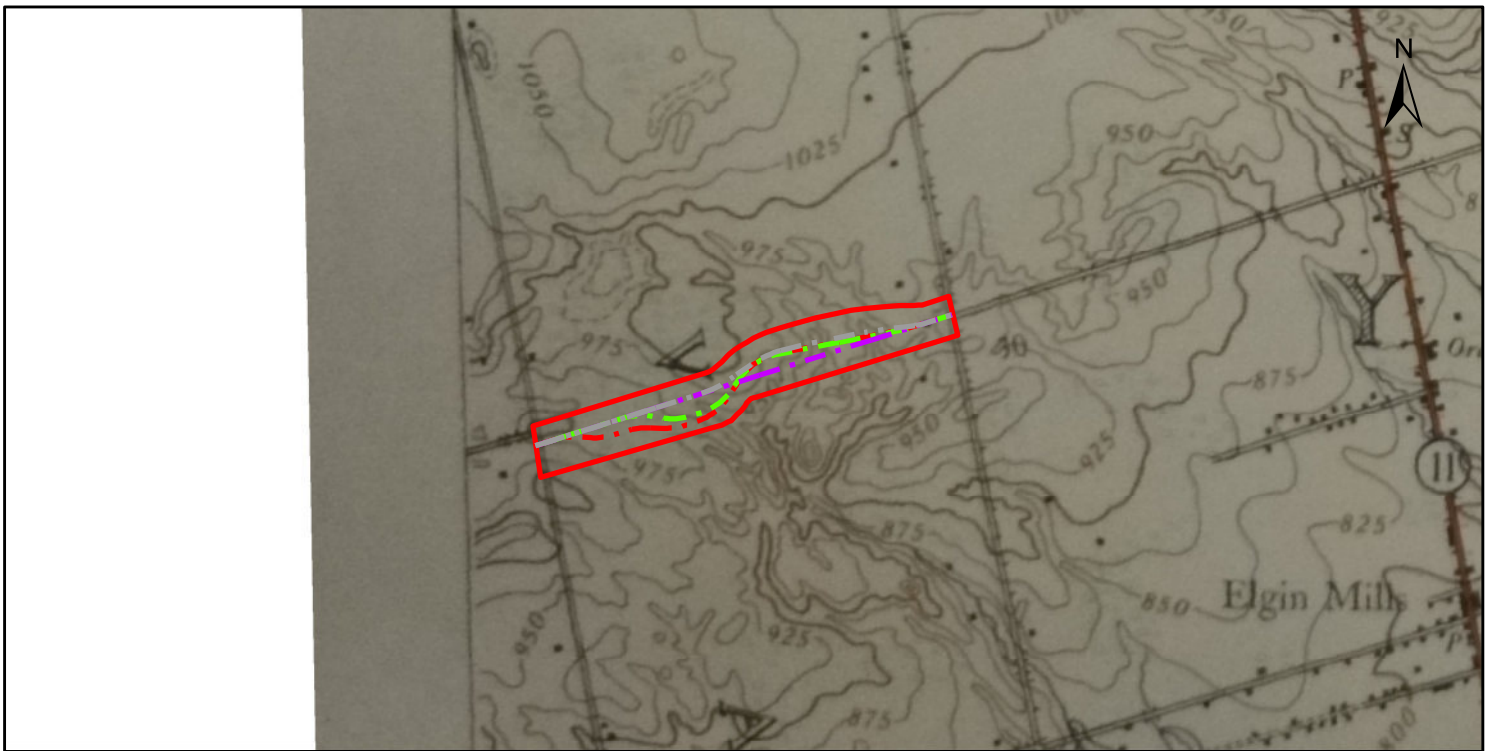









Figure 5: Kirby Road Extension Study Area (Approximate Location) Overlaid on the 1963 NTS Markham Sheet

 <p>Archaeological & Cultural Heritage Services 528 Bathurst Street Toronto, ONTARIO M5S 2P9 416-966-1069 F416-966-9723 asih heritage.ca</p>	<p> Study Corridor</p> <p> Alignment 5</p> <p> Alignment 6</p> <p> Alignment 4</p> <p> Alignment 6A</p>	<p>Base: 1917 NTS Markham Sheet 1963 NTS Markham Sheet</p>	<p>0  1 Kilometres</p>
	<p>ASI PROJECT NO.: 15EA-178 DRAWN BY: AB DATE: 4/23/2018 FILE: 15EA178_fig4_5_hist_v2</p>		

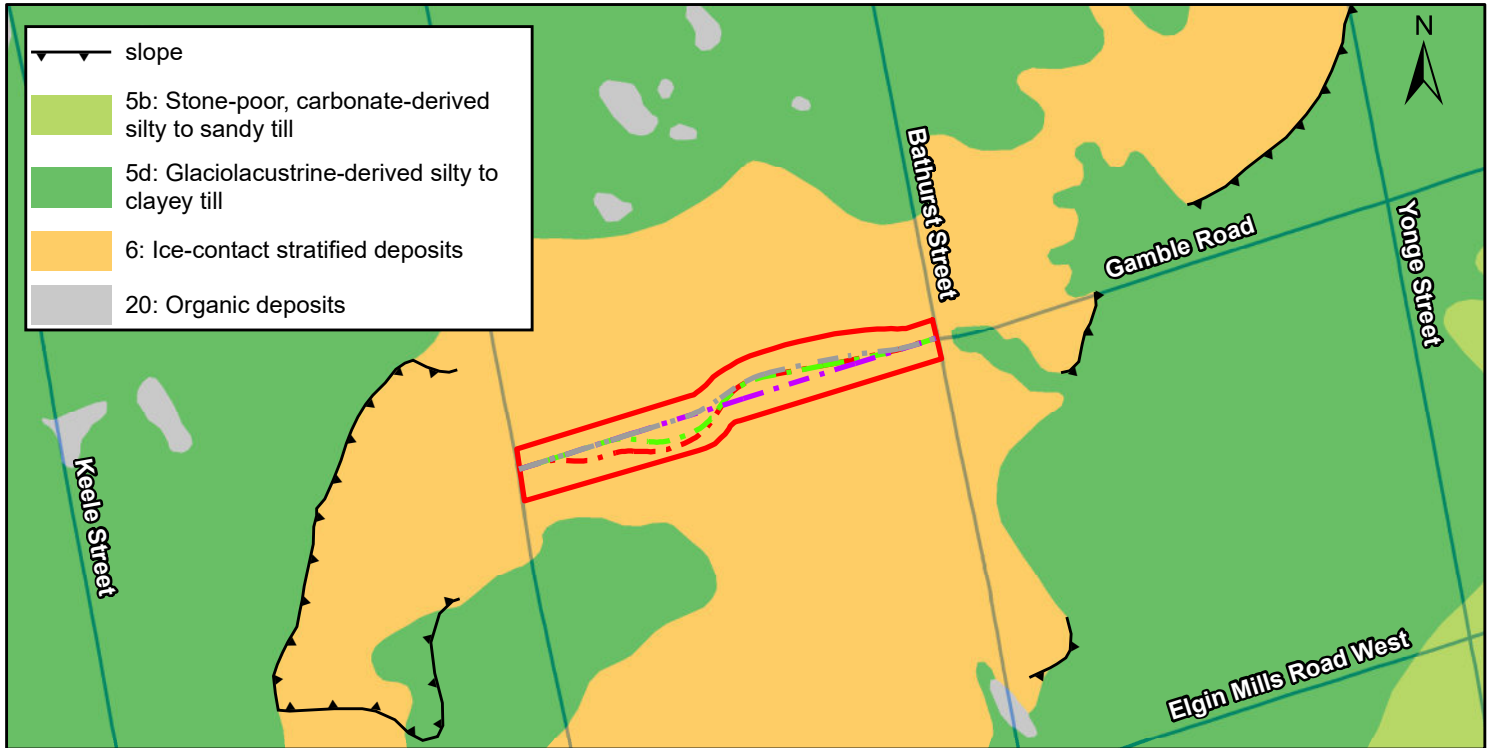
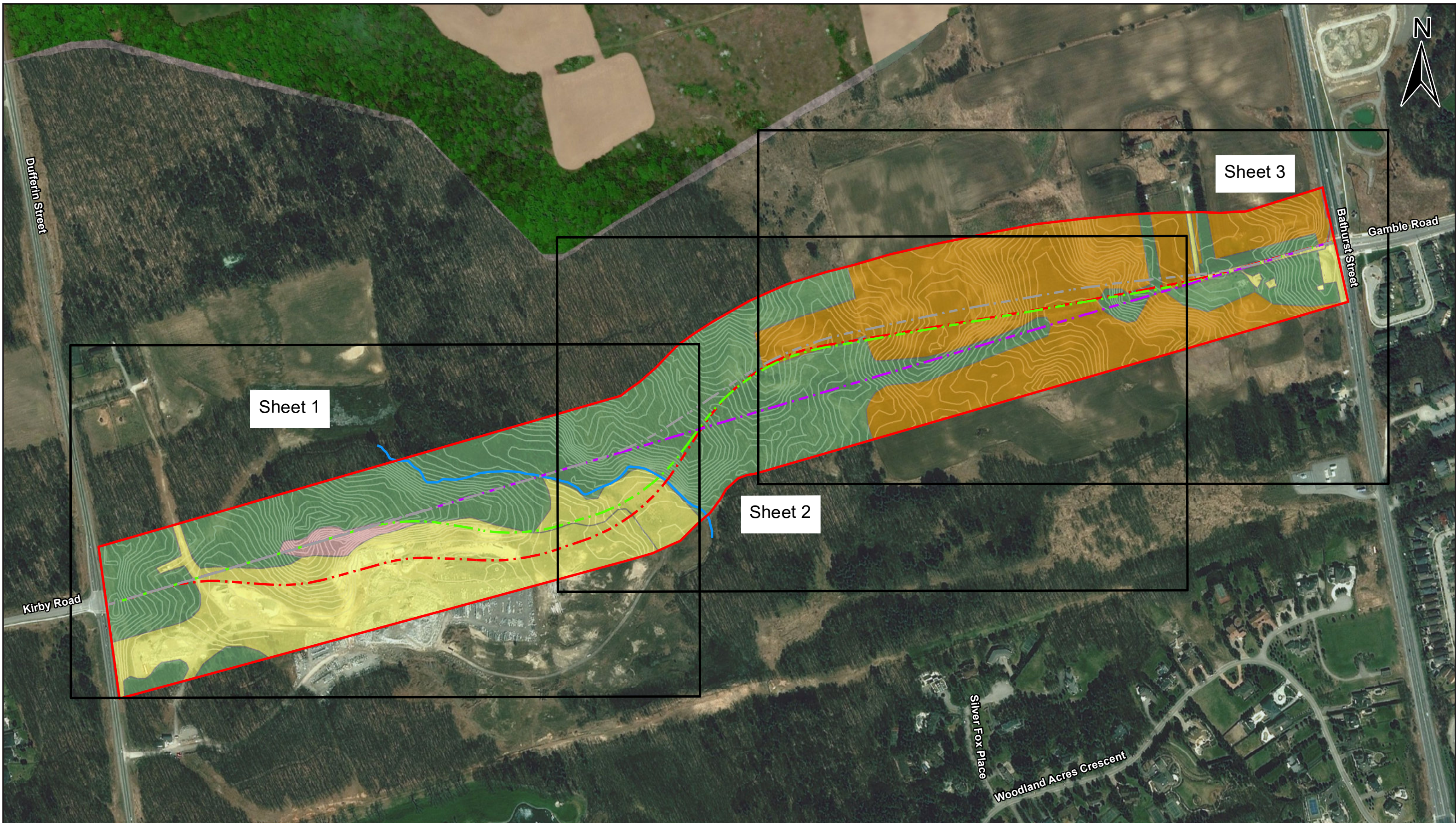














Figure 6: Kirby Road Extension Study Area - Surficial Geology




Figure 7: Kirby Road Extension Study Area - Soil Drainage




Archaeological & Cultural Heritage Services
 528 Bathurst Street Toronto, ONTARIO M5S 2P9
 416-966-1069 | 416-966-9723 | asiheritage.ca

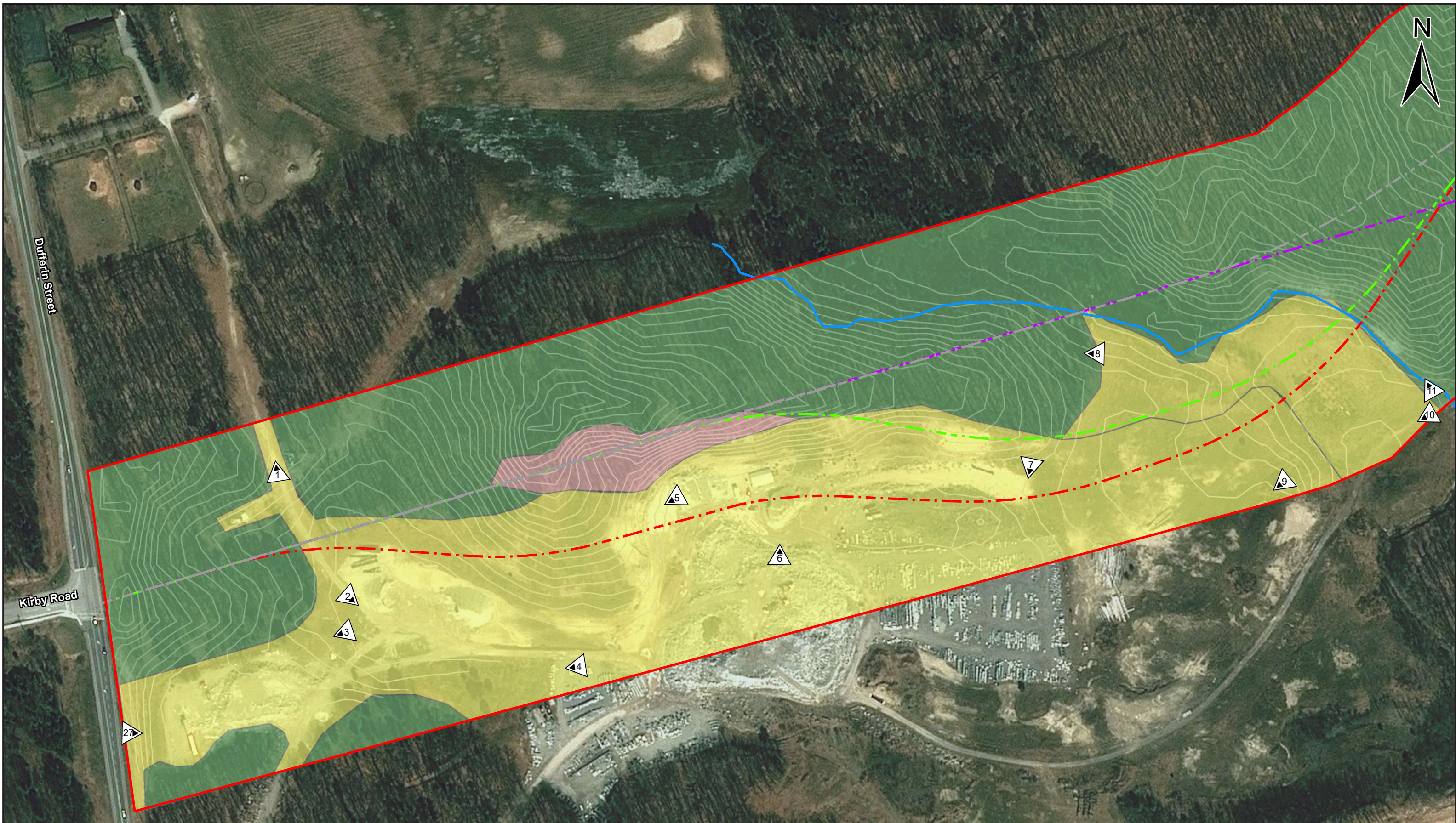
 Study Corridor	 Alignment 5	 Previously Assessed (ASI 2009) OR (ASI 2011) - No Stage 2 Survey Required	 Sloped - No Stage 2 Survey Required	 1m Contour
 Alignment 6	 Disturbed - No Stage 2 Survey Required	 Potential - Requires Stage 2 Test Pit Survey	 Watercourse	
 Alignment 4	 Alignment 6A	 Potential - Requires Stage 2 Pedestrian Survey		

BASE:
 Service Layer Credits:
 Source: Esri, DigitalGlobe,
 GeoEye, Earthstar
 Geographics, CNES/Airbus

0  250
 Metres

ASI PROJECT NO.: 15EA-178 DRAWN BY: AB/JF
 DATE: 4/11/2018 FILE: 15EA178_fig8_Stg1results_key_v2


Figure 8: Kirby Road Extension Study Area – Results of the Property Inspection (Key Map)




Archaeological & Cultural Heritage Services
 528 Bathurst Street Toronto, ONTARIO M5S 2P9
 416-966-1069 | F416-966-9723 | asiheritage.ca

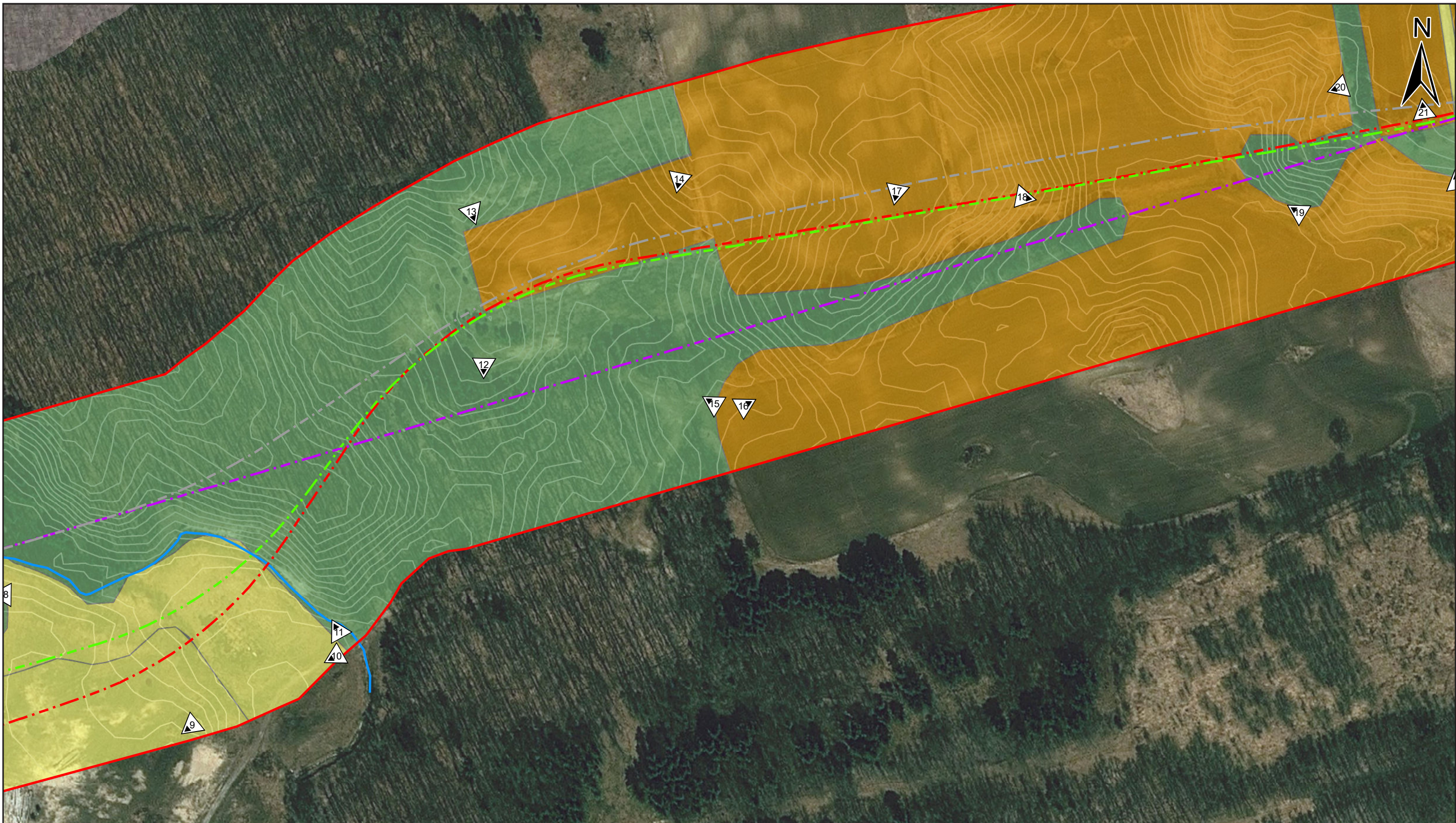
Study Corridor	Alignment 5	Previously Assessed (ASI 2009) OR (ASI 2011) - No Stage 2 Survey Required	Sloped - No Stage 2 Survey Required	1m Contour
Alignment 6	Disturbed - No Stage 2 Survey Required	Potential - Requires Stage 2 Test Pit Survey	Photos	Watercourse
Alignment 4	Alignment 6A	Potential - Requires Stage 2 Pedestrian Survey		

BASE:
 Service Layer Credits:
 Source: Esri, DigitalGlobe,
 GeoEye, Earthstar
 Geographics, CNES/Airbus

0  100
 Metres

ASI PROJECT NO.: 15EA-178 DRAWN BY: AB/JF
 DATE: 4/11/2018 FILE: 15EA178_fig9_Stg1results_S1_v2


Figure 9: Kirby Road Extension Study Area – Results of the Property Inspection (Sheet 1)




Archaeological & Cultural Heritage Services
 528 Bathurst Street Toronto, ONTARIO M5S 2P9
 416-966-1069 | F416-966-9723 | asiheritage.ca

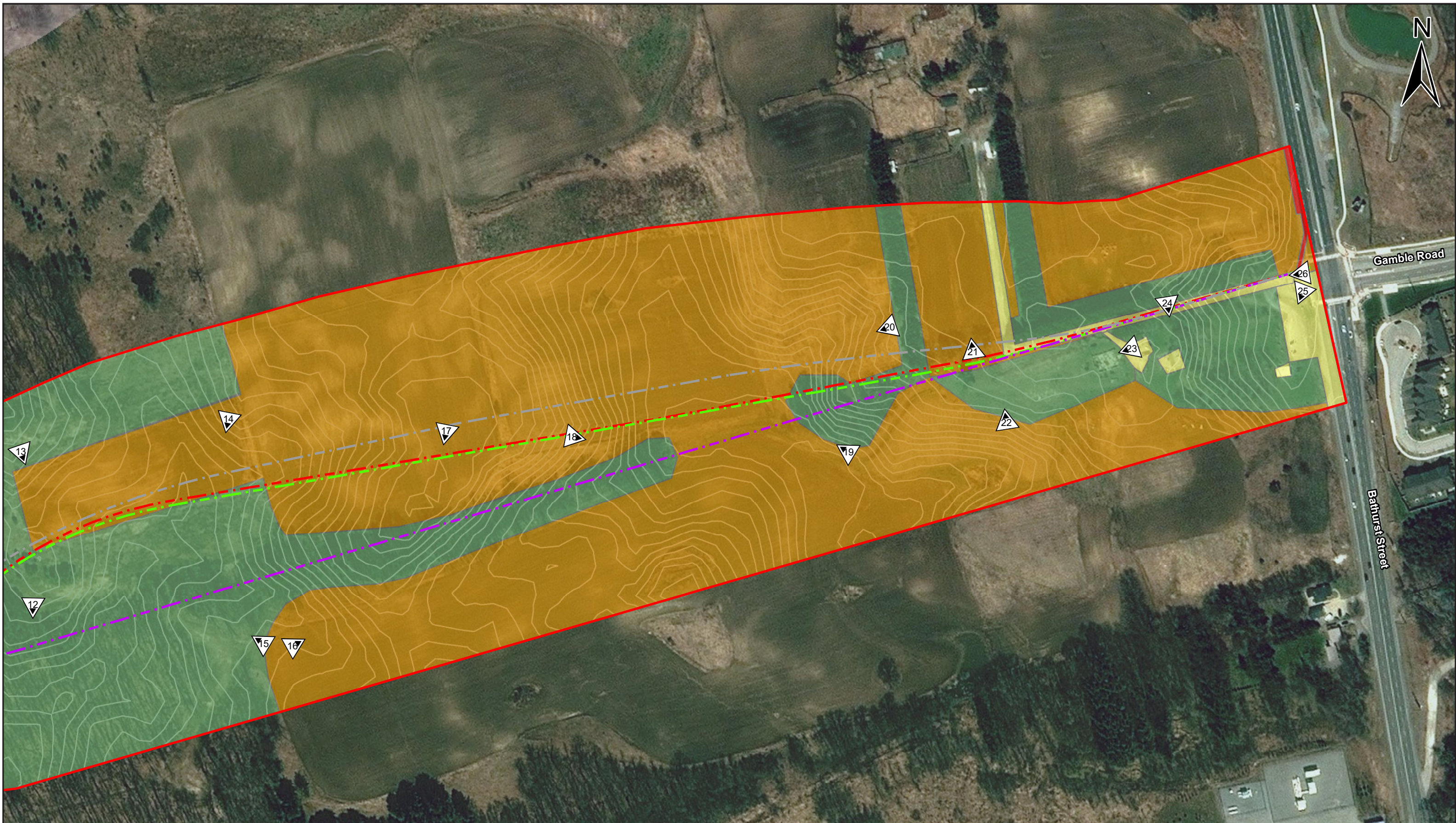
Study Corridor	Alignment 5	Previously Assessed (ASI 2009) OR (ASI 2011) - No Stage 2 Survey Required	Sloped - No Stage 2 Survey Required	1m Contour
Alignment 4	Alignment 6	Disturbed - No Stage 2 Survey Required	Potential - Requires Stage 2 Test Pit Survey	Photos
Alignment 6A	Potential - Requires Stage 2 Pedestrian Survey	Watercourse		

BASE:
 Service Layer Credits:
 Source: Esri, DigitalGlobe,
 GeoEye, Earthstar
 Geographics, CNES/Airbus

0  100
 Metres

ASI PROJECT NO.: 15EA-178 DRAWN BY: AB/JF
 DATE: 4/11/2018 FILE: 15EA178_fig10_Stg1results_S2_v2


Figure 10: Kirby Road Extension Study Area – Results of the Property Inspection (Sheet 2)




Archaeological & Cultural Heritage Services
 528 Bathurst Street Toronto, ONTARIO M5S 2P9
 416-966-1069 | 416-966-9723 | asiheritage.ca

Study Corridor	Alignment 5	Previously Assessed (ASI 2009) OR (ASI 2011) - No Stage 2 Survey Required	Sloped - No Stage 2 Survey Required	1m Contour
Alignment 4	Alignment 6	Disturbed - No Stage 2 Survey Required	Potential - Requires Stage 2 Test Pit Survey	Photos
Alignment 6A	Potential - Requires Stage 2 Pedestrian Survey	Watercourse		

BASE:
 Service Layer Credits:
 Source: Esri, DigitalGlobe,
 GeoEye, Earthstar
 Geographics, CNES/Airbus

0  100
 Metres

ASI PROJECT NO.: 15EA-178 DRAWN BY: AB/JF
 DATE: 4/11/2018 FILE: 15EA178_fig11_Stg1results_S3_v2

Figure 11: Kirby Road Extension Study Area – Results of the Property Inspection (Sheet 3)

8.0 IMAGES



Plate 1: North view of Study Area quarry access road; Area beyond the disturbed road exhibits potential, requires Stage 2 survey



Plate 2: Southeast view of quarry lands; Area is disturbed, no Stage 2 survey required



Plate 3: West view of quarry lands; Area is disturbed, no Stage 2 survey required



Plate 4: West view of quarry lands; Area is disturbed, no Stage 2 survey required



Plate 5: Southwest view of quarry lands; Area is disturbed, no Stage 2 survey required



Plate 6: North view of quarry lands; Area is disturbed, no Stage 2 survey required – Note steep slope at edge of forest



Plate 7: South view of quarry lands; Area is disturbed, no Stage 2 survey required



Plate 8: West view of undulating forest terrain in the Study Area within Alignments 4 and 5; Areas of level ground exhibit potential, require Stage 2 survey



Plate 9: Southwest view of quarry lands; Area is disturbed, no Stage 2 survey required



Plate 10: Southwest view of quarry lands; Area is disturbed, no Stage 2 survey required



Plate 11: Northwest view along tributary of the Upper East Don River; Area surrounding watercourse exhibits potential, requires Stage 2 survey



Plate 12: South view of Study Area toward Alignment 5; Areas of level ground exhibit potential, require Stage 2 survey



Plate 13: Southeast view of Study Area towards Alignments 4, 6 and 6a; Area exhibits potential, requires Stage 2 survey



Plate 14: Southwest view of Study Area towards Alignments 4, 6 and 6a; Area exhibits potential, requires Stage 2 survey



Plate 15: Northwest view of Study Area towards Alignment 5 and informal path; Area exhibits potential, requires Stage 2 survey



Plate 16: Northeast view of Study Area; Area exhibits potential, requires Stage 2 survey



Plate 17: Southwest view of Study Area towards Alignments 4, 6 and 6a; Area exhibits potential, requires Stage 2 survey



Plate 18: Southeast view of Study Area towards Alignment 5; Area exhibits potential, requires Stage 2 survey

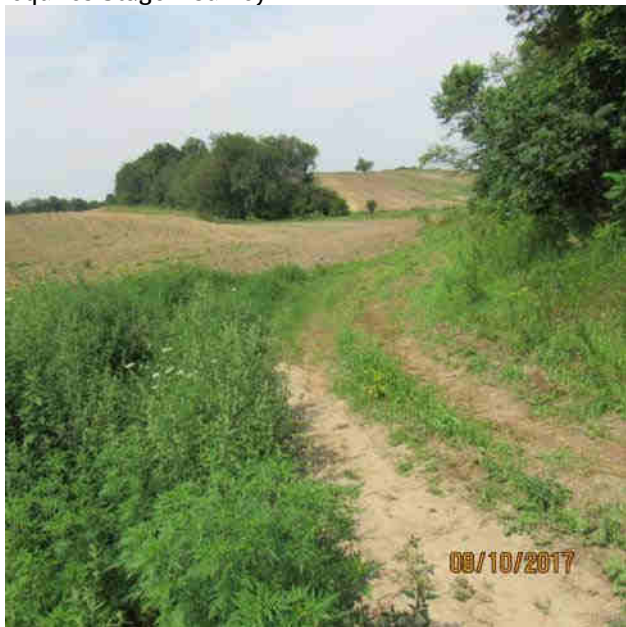


Plate 19: Northwest view of Study Area towards Alignment 5; Area exhibits potential, requires Stage 2 survey



Plate 20: West view of Study Area; Area exhibits potential, requires Stage 2 survey



Plate 21: North view of Study Area where Alignments merge; Area exhibits potential, requires Stage 2 survey



Plate 22: North view of Study Area where Alignments merge; Areas at top and bottom of undulating slopes exhibit potential, require Stage 2 survey



Plate 23: Southwest view of Study Area where Alignments merge; Area surrounding old farmhouse exhibits potential, requires Stage 2 survey



Plate 24: South view of Study Area where Alignments merge; Area beyond disturbed road exhibits potential, requires Stage 2 survey



Plate 25: Southwest view of Study Area where Alignments merge; Area beyond disturbed road, farm driveway, and parking lot exhibits potential, requires Stage 2 survey



Plate 26: West view of Study Area where Alignments merge; Area beyond disturbed road and previous assessment exhibits potential, requires Stage 2 survey



Plate 27: Google Maps 2009 east view towards Study Area from Dufferin Street showing previous disturbance from Rizmi Stone Aggregates; Areas beyond disturbed road within woodlot exhibits potential, requires Stage 2 survey