

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT
KIRBY ROAD WIDENING EA (JANE STREET TO DUFFERIN STREET)
PART OF LOTS 30-31, CONCESSIONS 2-5
(FORMER TOWNSHIP OF VAUGHAN, COUNTY OF YORK)
CITY OF VAUGHAN
REGIONAL MUNICIPALITY OF YORK, ONTARIO**

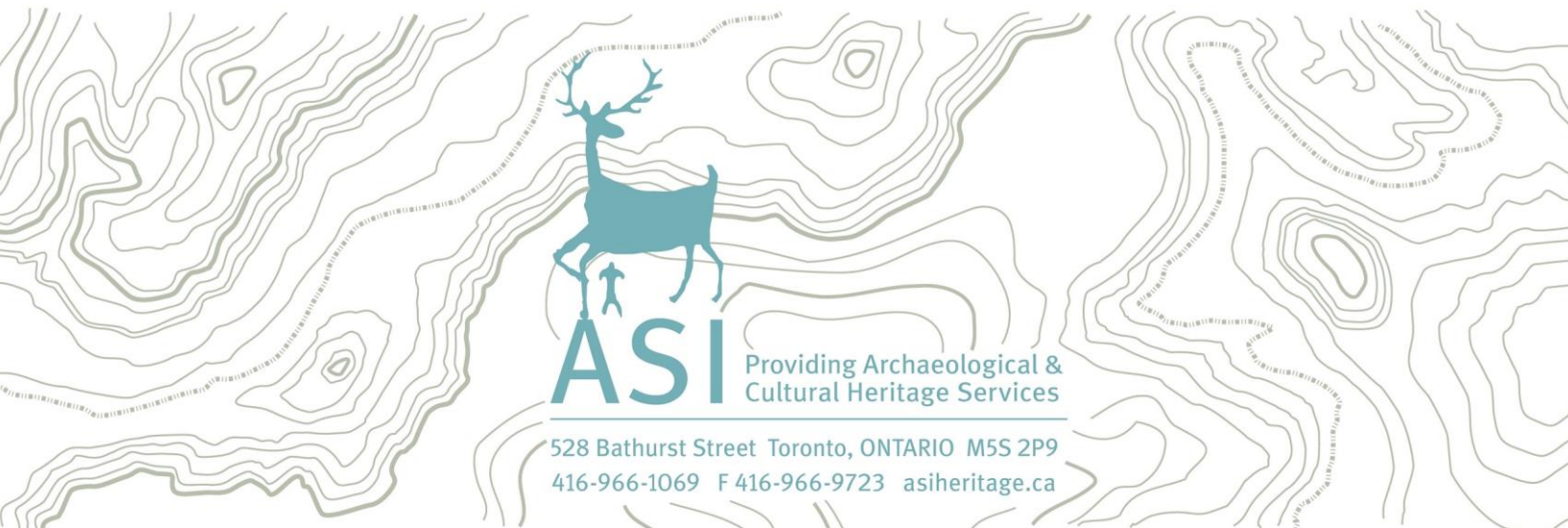
ORIGINAL REPORT

Prepared for:

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**Stage 1 Archaeological Assessment
Kirby Road Widening EA (Jane Street to Dufferin Street)
Part of Lots 30-31, Concessions 2-5
(Former Township of Vaughan, County of York)
City of Vaughan
Regional Municipality of York, Ontario**

EXECUTIVE SUMMARY

ASI was contracted by HDR Inc. to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Kirby Road Widening Environmental Assessment (Jane Street to Dufferin Street) in the City of Vaughan. This project involves the widening of Kirby Road between Jane Street and Dufferin Street, the grade separation of the Barrie GO Rail line at Kirby Road, and the elimination of the jog at the intersection of Kirby Road and Jane Street.

The Stage 1 background study determined that 37 previously registered archaeological sites are located within one kilometre of the Study Area, six of which are within 50 metres and retain Cultural Heritage Value or Interest (CHVI). The property inspection determined that parts of the Study Area exhibits archaeological potential and will require Stage 2 assessment.

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

1. The Study Area exhibits archaeological potential. These lands require Stage 2 archaeological assessment by test pit/pedestrian survey at five metre intervals, where appropriate, prior to any proposed impacts to the property;
2. ALGv-117, ALGv-118, ALGv-121, ALGv-122, ALGv-123 and ALGv-404 are within 50 metres of the Study Area and are considered to exhibit CHVI. All six sites should be subject to Stage 3 assessment, if impacted, prior to any proposed construction activities;
3. The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, low and wet conditions, slopes in excess of 20 degrees, or having been previously assessed. 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.



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1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by HDR Inc. to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Kirby Road Widening Environmental Assessment (Jane Street to Dufferin Street) in the City of Vaughan (Figure 1). This project involves the widening of Kirby Road between Jane Street and Dufferin Street, the grade separation of the Barrie GO Rail line at Kirby Road, and the elimination of the jog at the intersection of Kirby Road and Jane Street.

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (2017, as amended in 2018) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), administered by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI 2011), formerly the Ministry of Tourism, Culture and Sport.

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act*, RSO (Ministry of the Environment 1990 as amended 2010) 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 *Archaeological Masterplan of the Town of Vaughan* (Mayer, Pihl, Poulton and Associates Inc. 1986) and the *City of Vaughan Official Plan Archaeological and First Nations Policy Study* (ASI 2010) were also consulted.

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted by HDR Inc. on October 21, 2019.

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; Ellis et al. 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. The Woodland period begins around 2,500 BP and 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). By 1,500 BP there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolith evidence for maize in central New York State by 2,300 BP - it is likely that once similar analyses are conducted on Ontario ceramic vessels of the same period, the same evidence will be found (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 the beginning of the Late Woodland period at approximately 1,000 BP, lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (CE), 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 1300-1450 CE, this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd et al. 1990:343). From 1450-1649 CE 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 1600 CE, 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 Algonquian allies such as the Nipissing and Odawa) led to the dispersal of the Huron-Wendat.

Shortly after dispersal of the Wendat, Ojibwa began to expand into southern Ontario and Michigan from along the east shore of Georgian Bay, west along the north shore of Lake Huron, and along the northeast shore of Lake Superior and onto the Upper Peninsula of Michigan (Rogers 1978:760-762). This history was constructed by Rogers using both Anishinaabek oral tradition and the European documentary record, and notes that it included Chippewa, Ojibwa, Mississauga, and Saulteaux or "Southeastern Ojibwa" groups. Ojibwa, likely Odawa, were first encountered by Samuel de Champlain in 1615 along the eastern shores of Georgian Bay. Etienne Brule later encountered other groups and by 1641, Jesuits had journeyed to Sault Sainte Marie (Thwaites 1896:11:279) and opened the Mission of Saint Peter in 1648 for the occupants of Manitoulin Island and the northeast shore of Lake Huron. The Jesuits reported that these Algonquian peoples lived "solely by hunting and fishing and roam as far as the "Northern sea" to trade for "Furs and Beavers, which are found there in abundance" (Thwaites 1896-1901, 33:67), and "all of

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.



these Tribes are nomads, and have no fixed residence, except at certain seasons of the year, when fish are plentiful, and this compels them to remain on the spot” (Thwaites 1896-1901, 33:153). Algonquian-speaking groups were historically documented wintering with the Huron-Wendat, some who abandoned their country on the shores of the St. Lawrence because of attacks from the Haudenosaunee (Thwaites 1896-1901, 27:37).

Other Algonquian groups were recorded along the northern and eastern shores and islands of Lake Huron and Georgian Bay - the “Ouasouarini” [Chippewa], the “Outchougai” [Outchougai], the “Atchiligouan” [Achiligouan] near the mouth of the French River and north of Manitoulin Island the “Amikouai, or the nation of the Beaver” [Amikwa; Algonquian] and the “Oumisagai” [Mississauga; Chippewa] (Thwaites 1896-1901, 18:229, 231). At the end of the summer 1670, Father Louys André began his mission work among the Mississagué, who were located on the banks of a river that empties into Lake Huron approximately 30 leagues from the Sault (Thwaites 1896-1901, 55:133-155).

After the Huron had been dispersed, the Haudenosaunee began to exert pressure on Ojibwa within their homeland to the north. While their numbers had been reduced through warfare, starvation, and European diseases, the coalescence of various Anishinaabek groups led to enhanced social and political strength (Thwaites 1896-1901, 52:133) and Sault Sainte Marie was a focal point for people who inhabited adjacent areas both to the east and to the northwest as well as for the Saulteaux, who considered it their home (Thwaites 1896-1901, 54:129-131). The Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. From east to west, these villages consisted of Ganneious, on Napanee Bay, an arm of the Bay of Quinte; Quinte, near the isthmus of the Quinte Peninsula; Ganaraske, at the mouth of the Ganaraska River; Quintio, at the mouth of the Trent River on the north shore of Rice Lake; Ganatsekwyagon (or Ganestiquiagon), near the mouth of the Rouge River; Teyaiagon, near the mouth of the Humber River; and Quinaouatoua, on the portage between the western end of Lake Ontario and the Grand River (Konrad 1981:135). 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 inhabitants of these villages were agriculturalists, growing maize, pumpkins and squash, but their central roles were that of portage starting points and trading centres for Iroquois travel to the upper Great Lakes for the annual beaver hunt (Konrad 1974; Williamson et al. 2008:50–52). Ganatsekwyagon, Teyaiagon, and Quinaouatoua were primarily Seneca; Ganaraske, Quinte and Quintio were likely Cayuga, and Ganneious was Oneida, but judging from accounts of Teyaiagon, all of the villages might have contained peoples from a number of the Iroquois constituencies (ASI 2013).

During the 1690s, some Ojibwa began moving south into extreme southern Ontario and soon replaced, the Haudenosaunee by force. By the first decade of the eighteenth century, the Michi Saagiig Nishnaabeg (Mississauga Nishnaabeg) had settled at the mouth of the Humber, near Fort Frontenac at the east end of Lake Ontario and the Niagara region and within decades were well established throughout southern Ontario. In 1736, the French estimated there were 60 men at Lake Saint Clair and 150 among small settlements at Quinte, the head of Lake Ontario, the Humber River, and Matchedash (Rogers 1978:761). This history is based almost entirely on oral tradition provided by Anishinaabek elders such as George Copway (Kahgegagahbowh), a Mississauga born in 1818 near Rice Lake who followed a traditional lifestyle until his family converted to Christianity (MacLeod 1992:197; Smith 2000). According to Copway, the objectives of campaigns against the Haudenosaunee were to create a safe trade route between the French and the Ojibwa, to regain the land abandoned by the Huron-Wendat. While various editions of Copway’s book have these battles occurring in the mid-seventeenth century, common to all is a statement that the battles occurred around 40 years after the dispersal of the Huron-Wendat (Copway 1850:88; Copway 1851:91; Copway 1858:91). Various scholars agree with this timeline ranging from



1687, in conjunction with Denonville's attack on Seneca villages (Johnson 1986:48; Schmalz 1991:21–22) to around the mid- to late-1690s leading up to the Great Peace of 1701 (Schmalz 1977:7; Bowman 1975:20; Smith 1975:215; Tanner 1987:33; Von Gernet 2002:7–8).

Robert Paudash's 1904 account of Mississauga origins also relies on oral history, in this case from his father, who died at the age of 75 in 1893 and was the last hereditary chief of the Mississauga at Rice Lake. His account in turn came from his father Cheneebeesh, who died in 1869 at the age of 104 and was the last sachem or Head Chief of all the Mississaugas. He also relates a story of origin on the north shore of Lake Huron (Paudash 1905:7–8) and later, after the dispersal of the Huron-Wendat, carrying out coordinated attacks against the Haudenosaunee. Francis Assikinack, an Ojibwa of Manitoulin Island born in 1824, provides similar details on battles with the Haudenosaunee (Assikinack 1858:308–309).

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 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.

From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there is no interruption to Anishinaabek control and use of southern Ontario. While hunting in the territory was shared, and subject to the permission of the various nations for access to their lands, its occupation was by Anishinaabek until the assertion of British sovereignty, the British thereafter negotiating treaties with them. Eventually, with British sovereignty, tribal designations changed (Smith 1975:221–222; Surtees 1985:20–21). According to Rogers (1978), by the twentieth century, the Department of Indian Affairs had divided the “Anishinaubag” into three different tribes, despite the fact that by the early eighteenth century, this large Algonquian-speaking group, who shared the same cultural background, “stretched over a thousand miles from the St. Lawrence River to the Lake of the Woods.” With British land purchases and treaties, the bands at Beausoleil Island, Cape Croker, Christian Island, Georgina and Snake Islands, Rama, Sarnia, Saugeen, the Thames, and Walpole, became known as “Chippewa” while the bands at Alderville, New Credit, Mud Lake, Rice Lake, and Scugog, became known as “Mississauga.” The northern groups on Lakes Huron and Superior, who signed the Robinson Treaty in 1850, appeared and remained as “Ojibbewas” in historical documents.

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 throughout Ontario in the early nineteenth century, and entered into negotiations with various Nations 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.). 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.). Recent decisions by the Supreme Court of Canada (Supreme Court of Canada 2003; Supreme Court of Canada 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.



The Study Area is within Treaty 13a, signed on August 2, 1805 by the Mississaugas and the British Crown in Port Credit at the Government Inn. A provisional agreement was reached with the Crown on August 2, 1805, in which the Mississaugas ceded 70,784 acres of land bounded by the Toronto Purchase of 1787 in the east, the Brant Tract in the west, and a northern boundary that ran six miles back from the shoreline of Lake Ontario. The Mississaugas also reserved the sole right of fishing at the Credit River and were to retain a 1 mile strip of land on each of its banks, which became the Credit Indian Reserve. On September 5, 1806, the signing of Treaty 14 confirmed the Head of the Lake Purchase between the Mississaugas of the Credit and the Crown (Mississauga of the New Credit First Nation 2001; Mississauga of the New Credit First Nation 2017).

1.2.2 Euro-Canadian Land Use: Township Survey and Settlement

Historically, the Study Area is located in the Former Township of Vaughan, County of York in part of Lots 30-31, Concessions 2-5.

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 (ASI 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).



Settlement of Hope

The settlement of Hope is first cartographically identified on the 1919 publication of the National Topographic Survey, but the presence of a church, a school house and a steam saw mill in the same location is depicted on the 1860 *Tremaine Map of the County of York*. The settlement is not described in *A History of Vaughan Township*, though it is noted that Hope section formed part of Patterson School, S.S. No. 19, which was built in 1872 (Reaman 1971:179).

1.2.3 Historical Map Review

The 1860 *Tremaine's Map of the County of York* (Tremaine 1860) and the 1878 *Illustrated Historical Atlas of the County of York* (Miles & Co. 1878) were examined to determine the presence of historic features within the Study Area during the nineteenth century (Table 1; 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	Amos Wright Regt M.P.P.	None	Michl McHugh None	House House (2)
3	30	William Craddock	Tributary	J Cradock A Cradock D Carnegie	House None House
4	30	J Noble John Barker Wm Nixon	None None Northern Railway	? Arthur Noble Jno Parkins Wm Nixon	House House (2), orchard House House, Northern Railway, ?
5	30	A Cameron	None	Alex Cameron	House, orchard
2	31	M & S Oster	None	McGill	House
3	31	John Henry Wm Bain Wm Cook	Tributary None None	Jas Henry Jas Johnson	House House



		<i>1860</i>		<i>1878</i>	
Con #	Lot #	Property Owner(s)	Historical Feature(s)	Property Owner(s)	Historical Feature(s)
4	31	A Cameron Wm Cradock	None Northern Railway	Alex Cameron Wm Kirby Wm Hoiles Wm Nixon	None None Northern Railway None
5	31	Neil Maloy	None	Alex Malloy	House, orchard

? = notes illegible entries

According to the 1860 and 1878 maps, Kirby Road, Jane Street, Keele Street, and Dufferin Street were historically surveyed roads. The 1860 map illustrates the Northern Railway through the Study Area, and a tributary in its historical alignment. The 1878 map indicates eleven structures and one orchard adjacent the Study Area. The tributary is no longer shown through the Study Area.

1.2.4 Twentieth-Century Mapping Review

The 1914 National Topographic System Markham Sheet (Department of Militia and Defence 1914), the 1919 National Topographic System Bolton Sheet (Department of Militia and Defence 1919), the 1954 aerial photography of Vaughan (University of Toronto 1954), and the 1994 National Topographic System Bolton and Markham sheets (Department of Energy, Mines and Resources 1994a, 1994b) were examined to determine the extent and nature of development and land uses within the Study Area (Figures 4-6).

The 1914 map indicates one bridge on the east end of Kirby Road, which is shown to end at Dufferin Street. By 1919, the railway was renamed the Grand and Trunk Railway North Bay Branch. Two bridges are illustrated towards the west end of Kirby Road, and the community of Hope is shown southeast of Kirby Road and Keele Street.

The 1954 photography shows the area consists largely of open agricultural lands, with trees surrounding Kirby Road towards the east end. A tributary of the Don River can be seen running through the western portions of Lots 30-31, Concession IV. Highway 400 is shown west of the Study Area, and the railway is labelled Canadian National Railways.

Kirby Road is indicated to end at Keele Street on the 1994 maps. Tributaries of the Don River run through the Study Area, and the Don River East Branch advances towards the east end of the Study Area. Structures can be seen adjacent Kirby Road between Jane Street and Keele Street.

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 MHSTCI 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 review of available Google satellite imagery since 2002 shows that the Study Area has remained relatively unchanged. Construction of a subdivision at the southeast corner of Kirby Road and Keele Street began prior to 2002, and at the northwest corner by 2009. The property of 2480 Kirby Road became the Carrick Macross Golf Centre between 2007 and 2009. A parking lot was added beside the house and the surrounding open lands show landscaping for the golf course.

A Stage 1 property inspection was conducted on November 22, 2019 that noted the Study Area is located along Kirby Road, west of Jane Street to east of Dufferin Street, within the City of Vaughan. The area is surrounded by agricultural fields, twentieth- and twenty-first-century residential subdivisions and commercial development.

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 located within the drumlinized till plains and the kame moraines of the South Slope and Oak Ridges Moraine of southern Ontario (Chapman and Putnam 1984).

The Oak Ridges Moraine physiographic region of southern Ontario (Chapman and Putnam 1984:166-169) 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. 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). The South Slope physiographic region (Chapman and Putnam 1984:172–174) is the southern slope of the Oak Ridges Moraine. The South Slope meets the Moraine at heights of approximately 300 metres above sea level, and descends southward toward Lake Ontario, ending, in some areas, at elevations below 150 metres above sea level. Numerous streams descend the South Slope, having cut deep valleys in the till. In the vicinity of the study area, the South Slope is ground moraine of limited relief.

Figure 7 depicts surficial geology for the Study Area. The surficial geology mapping demonstrates that the Study Area is underlain by clay to silt-textured till derived from glaciolacustrine deposits or shale and ice-contact stratified deposits of sand and gravel, minor silt, clay and till (Ontario Geological Survey 2010). Soils in the Study Area consist of King clay loam, Woburn sandy loam and Jeddo clay loam, grey-brown podzolics with good drainage, Jeddo clay loam, a dark grey gleysolic with poor drainage, and Monaghan silt loam and Milliken loam, grey-brown podzolics with imperfect drainage (Figure 8).

The Study Area is within the Humber River and Don River watersheds. The Humber River watershed is the largest watershed under the Toronto and Region Conservation Authority’s jurisdiction, encompassing 911 square kilometres. It originates on the Niagara Escarpment and the Oak Ridges Moraine to flow down the Humber River into the Lake Ontario. The watershed consists of 37% urban cover, 30% rural, and 33% natural cover (Toronto and Region Conservation Authority 2018a). The Don River watershed covers an area of approximately 36,000 hectares. The Don River stretches approximately 38 kilometres in length from its headwaters on the Oak Ridges Moraine to the Keating Channel where it empties into Lake Ontario. The majority of the Don River watershed is urban at 85%, with 14% natural cover and 1% rural cover (Toronto and Region Conservation Authority 2018b; Toronto and Region Conservation Authority 2019).

1.3.3 Previous Archaeological Research

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MHSTCI. 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* and *AlGv*.

According to the OASD, 37 previously registered archaeological sites are located within one kilometre of the Study Area, six of which are within 50 metres of the Study Area and retain Cultural Heritage Value or Interest (CHVI) (MHSTCI 2019). 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-175	Maplewood Ravines	Archaic, Late; Woodland, Early	Camp	AMICK 1996
AlGu-454	n/a	Euro-Canadian	Homestead	Powers 2010
AlGv-4	Fraser	Ancestral Huron-Wendat	Village	Clarke 1926
AlGv-103	n/a	Euro-Canadian	Homestead	MHCI 1993
AlGv-104	Janeston	Euro-Canadian	Unknown	MHCI 1993; TLA 2009; AMICK 2014
AlGv-105	n/a	Euro-Canadian	Unknown	MHCI 1993
AlGv-106	n/a	Euro-Canadian	Homestead	MHCI 1993
AlGv-108	n/a	Euro-Canadian	Homestead	MHCI 1993
AlGv-109	n/a	Euro-Canadian	Homestead	MHCI 1993
AlGv-110	First Season #1	Pre-Contact	Camp	MHCI 1993
AlGv-113	Ella	Pre-Contact	Camp	MHCI 1993
AlGv-114	Gulio I	Archaic, Early	Camp	MHCI 1993
AlGv-115	Gulio II	Pre-Contact	Findspot	MHCI 1993
AlGv-116	Gulio III	Archaic, Middle	Findspot	MHCI 1993
<i>AlGv-117</i>	<i>n/a</i>	<i>Euro-Canadian</i>	<i>Unknown</i>	<i>MHCI 1993</i>
AlGv-118	n/a	Euro-Canadian	Unknown	MHCI 1993
AlGv-119	n/a	Euro-Canadian	Other	MHCI 1993
<i>AlGv-121</i>	<i>n/a</i>	<i>Euro-Canadian</i>	<i>Unknown</i>	<i>MHCI 1993</i>
AlGv-122	n/a	Euro-Canadian	Unknown	MHCI 1993
AlGv-123	n/a	Euro-Canadian	Unknown	MHCI 1993
AlGv-125	Mazella I	Pre-Contact	Findspot	MHCI 1993
AlGv-126	Mazella II	Pre-Contact	Findspot	MHCI 1993
AlGv-128	Garont	Pre-Contact	Findspot	MHCI 1993
AlGv-130	Snider	Pre-Contact	Findspot	MHCI 1993
AlGv-199	Hope	Woodland, Late	Village	ASI 2005
AlGv-243	Janeston	Archaic, Early	Unknown	TAI 2006; TLA 2009; AMICK 2013
AlGv-244	n/a	Pre-Contact	Findspot	TAI 2006; TLA 2009; AMICK 2013
AlGv-245	n/a	Pre-Contact	Findspot	TAI 2006; TLA 2009; AMICK 2013
AlGv-246	n/a	Pre-Contact	Findspot	TAI 2006;



Borden #	Site Name	Cultural Affiliation	Site Type	Researcher
AlGv-300	Lormel Site	Euro-Canadian	Homestead	TLA 2009 AMICK 2013; TLA 2008
AlGv-305	P1 Site	Woodland, Early	Findspot	Archeoworks 2010
AlGv-313	Allcap	Euro-Canadian	Homestead	ASI 2011
AlGv-363	Azuria 3 Site	Euro-Canadian	Farmstead	TLA 2010
AlGv-370	Arthur Noble	Euro-Canadian	Homestead	AMICK 2012, 2014
AlGv-396	Yarmosh	Pre-Contact	Camp	TLA 2007
AlGv-404	Omega Site 1	Euro-Canadian	Unknown; scatter	TLA 2016
AlGv-431	n/a	Archaic, Middle	Findspot	ASI 2019

Sites in **bold** are within the Study Area
 Sites in *italics* are within 50m of the Study Area.

AMICK – AMICK Consultants Limited
 Archeoworks – Archeoworks Inc.
 MHCI – Mayer Heritage Consultants Inc.
 TAI – The Archaeologists Inc.
 TLA – This Land Archaeology

Of the sites within 50 m of the Study Area, six are considered to retain CHVI: AlGv-117, AlGv-118, AlGv-121, AlGv-122, AlGv-123, and AlGv-404 (see *Supplementary Documentation*). All six sites will require Stage 3 Archaeological Assessments if impacted. The OASD site limit information was found to be inaccurate compared to the Mayer Heritage Consultants Inc. 1994 site records. The Mayer report was used to determine site limits. Site AlGv-130 is within the Study Area and is not considered to retain CHVI.

While the Fraser site (AlGv-4) is described as a pre-contact indigenous camp in the OASD, Clark's field notes (Clark n.d.) indicate it is 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). The site is approximately 500 m from the current Study Area (see *Supplementary Documentation*).

According to the background research, 14 previous reports detail fieldwork within 50 metres of the Study Area.

ASI (1992) conducted a Stage 1-2 AA for the Dufferin Street Widening from Major Mackenzie Drive West to King Side Road, including part of the current Study Area. Test pit survey was conducted along the edges of the properties adjacent to the former Dufferin Street right-of-way (ROW). No archaeological resources were identified near the current Study Area and determined the area be cleared of further concern.



Mayer Heritage Consultants Inc. (1994) conducted a Stage 1-2 AA of the IWA Landfill Site Search within the Toronto and York Region, including parts of the current Study Area. A 20-25% sample of each candidate landfill site was subject to test pit and pedestrian survey at five metre intervals. Sites AIGv-117, AIGv-121 and AIGv-123 are adjacent the current Study Area, and sites AIGv-118, AIGv-122 and AIGv-130 are within the current Study Area. Sites AIGv-117 and AIGv-121 are Euro-Canadian homesteads dating to the mid-nineteenth century, site AIGv-123 is a Euro-Canadian homestead dating to mid-to-late nineteenth century, and sites AIGv-118 and AIGv-122 are Euro-Canadian homesteads dating to the mid-nineteenth and twentieth centuries. It was recommended that these sites be further evaluated and subject to Stage 3 Archaeological Assessment if impacted. Site AIGv-130 is a pre-contact Indigenous findspot consisting of one flake of onondoga chert and is not considered to retain CHVI.

Archeoworks (2005) conducted a Stage 1-2 AA of the three ten-acre parcels of land, located in the City of Vaughan, including parts of the current Study Area. A pedestrian survey and test pit survey were conducted at five metre intervals resulting in the identification of two findspots. Due to the non-diagnostic and isolated nature of these findspots, it was recommended the area be considered free of further archaeological concern.

The Archaeologists Inc. (2010) conducted a Stage 1-2 AA for part of Lot 30, Concession 4 in the City of Vaughan, including parts of the current Study Area. Pedestrian and test pit surveys were conducted at five metre intervals, and no archaeological materials were found. The area was considered free of further archaeological concern.

This Land Archaeology Inc. (2012) conducted a Stage 1-2 AA of the Di Poce Management Property, in the City of Vaughan. Pedestrian and test pit survey were conducted at five metre intervals, and no significant archaeological resources were encountered. The area was recommended free of further archaeological concern.

This Land Archaeology Inc. (2015) conducted a Stage 1-3 AA of the Yarmosh Holding Inc.'s Property in the City of Vaughan, including part of the current Study Area. A pedestrian survey was conducted at five metre intervals. The area is considered free of further archaeological concern.

AMICK Consultants Limited (2016) conducted a Stage 1-2 AA of the Vaughan 400 Employment Lands Secondary Plan Area in the City of Vaughan, including parts of the current Study Area. Test pit and pedestrian survey were conducted at five metre intervals within Parcel 10 Block 35. The area is considered free of further archaeological concern.

ASI (2017) conducted a Stage 1 AA of the Barrie Rail Corridor Expansion in the City of Toronto, Municipality of York and County of Simcoe, including parts of the current Study Area. Property inspection determined that parts of the Study Area require Stage 2 Archaeological Assessment.

ASI (2017) conducted a Stage 1-2 AA of Rizmi Holdings Limited in the City of Vaughan, including parts of the current Study Area. Visual inspection determined that part of the study area was sloped and did not possess potential. Test pit survey was conducted at 5 metre intervals and increased to 10 metres when disturbance was encountered. The area is to be considered clear of further archaeological concern.

This Land Archaeology Inc. (2017) conducted a Stage 1-2 AA of 2508113 Ontario Inc.'s property in the City of Vaughan, including parts of the current Study Area. The area was assessed by test pit survey at five metre intervals, and pedestrian survey at three and four intervals. One isolated findspot and one mid to late nineteenth century Euro-Canadian scatter were recovered. The isolated findspot consisted of a



single white ball clay pipe stem and was not considered to be a significant archaeological resource. The scatter was registered as the Omega site (AlGv-404), and a Stage 3 Archaeological Assessment is required.

ASI (2018a) conducted a Stage 1 AA of the proposed Northeast Vaughan Water and Wastewater Servicing project in the City of Vaughan, including parts of the current Study Area. Field review determined that parts of the Study Area require Stage 2 Archaeological Assessment prior to earth moving activities.

ASI (2018b) conducted a Stage 1 AA of the Kirby Road extension in the City of Vaughan, including parts of the current Study Area. The property inspection determined that the area requires a Stage 2 Archaeological Assessment.

WSP (2018) conducted a Stage 1 AA of the Kirby GO station in the City of Vaughan, including parts of the current Study Area. The property inspection determined that parts of the study area possess archaeological potential and a Stage 2 Archaeological Assessment 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 Martin Cooper (380) of ASI, on November 22, 2019, 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 and seasonally appropriate, per S & G Section 1.2., Standard 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 10-12) and associated photographic plates are presented in Section 8.0 (Plates 1-10).



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:

- Previously identified archaeological sites (See Table 2);
- Water sources: primary, secondary, or past water source (Don River and Humber River tributaries);
- Early historic transportation routes (Kirby Road, Jane Street, Keele Street, and Dufferin Street)
- Proximity to early settlements (Hope); and
- Well-drained soils (King clay loam, Woburn sandy loam, and Jeddo clay 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 Municipal Heritage Register was consulted and no properties within the Study Area are Listed or Designated under the Ontario Heritage Act.

The *Archaeological Masterplan of the Town of Vaughan* (Mayer, Pihl, Poulton and Associates Inc. 1986) and the *City of Vaughan Official Plan Archaeological and First Nations Policy Study* (ASI 2010) indicate that the Study Area exhibits archaeological potential.

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 Study Area exhibits archaeological potential. 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 (eg. Plates 5-6; Figures 11-12: 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 4-6, 8; Figures 11-12: areas highlighted in green).

An ossuary potential model has been incorporated into York Region's Archaeological Management Plan (ASI 2013). The Management Plan calls for monitoring of predevelopment topsoil removal (grading) within 100 metres of known ossuaries in recognition of the fact that these features are commonly associated with additional isolated burials. It is also recommended that in such situations, all site supervisors and heavy equipment operators working on site be briefed in advance concerning the role and



responsibilities of the archaeological monitor. Should they encounter potential human remains, they must cease work in the area, retain all potentially associated soils in place and notify the monitor and their own supervisors immediately. Should any ossuary feature be discovered during the course of the monitoring work, preservation through avoidance through project redesign/revision should be the ultimate preferred alternative. The details of this form of mitigation must be negotiated with the appropriate First Nation(s) and the Cemeteries Registrar. Indeed, in the event that human remains are encountered during construction, the proponent should immediately contact the Police and Registrar of the Cemeteries Regulation Unit of the Ministry of Consumer and Business Services.

Given the location of the ancestral Huron-Wendat village Fraser site within one kilometre, for which an ossuary has not previously been identified, part of the Study Area in the proposed standpipe/in-ground reservoir is within a 1000 metre radius of the site and within 300 metres of water and is deemed to exhibit potential for the presence of an ossuary (see *Supplementary Documentation*). Although the data for known ossuaries is limited, a reasonable level of confidence may be achieved by the suggestion that any ossuaries within the Region are most likely to occur within 1000 metres of documented village sites and within 300 metres of any current or former water source. Recommendations derived from the Archaeological Management Plan with respect to archaeological procedures are centered on monitoring. York Region has developed and adopted burial avoidance strategies since the potential disturbance to ossuaries remains a subject of considerable concern. In order to mitigate this concern it is recommended that predevelopment topsoil removal (grading) within those development area lands that are located within 1000 metres of documented village sites *and* within 300 metres of any current or former water source should be subject to archaeological monitoring.

Part of the Study Area has been previously assessed and does not require further work (Figures 10-12)

The property inspection determined that some of lands within the Study Area are sloped in excess of 20 degrees, and according to the S & G Section 2.1 do not retain potential (Plates 3; Figures 11-12: areas highlighted in purple). The remainder of the Study Area has been subjected to deep soil disturbance events and according to the S & G Section 1.3.2 do not retain archaeological potential (Plates 1-2, 7; Figures 10-12: areas highlighted in yellow). Any areas of disturbance that overlap with ossuary potential should be subject to archaeological monitoring, as per above recommendation. These areas do not require further survey.

3.3 Conclusions

The Stage 1 background study determined that 37 previously registered archaeological sites are located within one kilometre of the Study Area, six of which are within 50 metres and retain CHVI. The property inspection determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 assessment.



4.0 RECOMMENDATIONS

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

1. The Study Area exhibits archaeological potential. These lands require Stage 2 archaeological assessment by test pit/pedestrian survey at five metre intervals, where appropriate, prior to any proposed impacts to the property;
2. AIGv-117, AIGv-118, AIGv-121, AIGv-122, AIGv-123, and AIGv-404 are within 50 metres of the Study Area and are considered to exhibit CHVI. All six sites should be subject to Stage 3 assessment, if impacted, prior to any proposed construction activities as per S & G Section 3.2;
3. Part of the Study Area is located within 1000 metres of a documented ancestral Huron-Wendat village site and within 300 metres of any current or former water source. If impacted, these areas should be subject to ossuary monitoring during construction, consistent with the recommendations of the York Region Archaeological Management Plan. Any areas of disturbance that overlap with ossuary potential should also be subject to archaeological monitoring, as per above recommendation.;
4. The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, low and wet conditions, slopes in excess of 20 degrees, or having been previously assessed. These lands do not require further archaeological assessment; and,
5. 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 MHSTCI 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 Ministry of Heritage, Sport, Tourism and Culture Industries 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 Heritage, Sport, Tourism and Culture Industries, 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.
- Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the Ontario Heritage Act and may not be altered, nor may artifacts be removed from them, except by a person holding an archaeological license.



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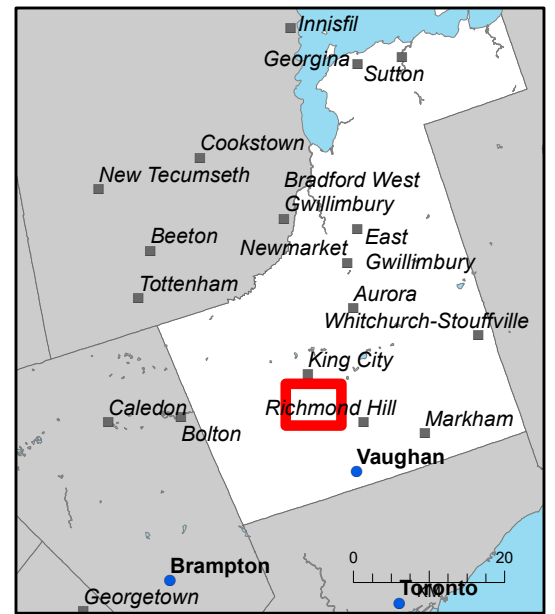
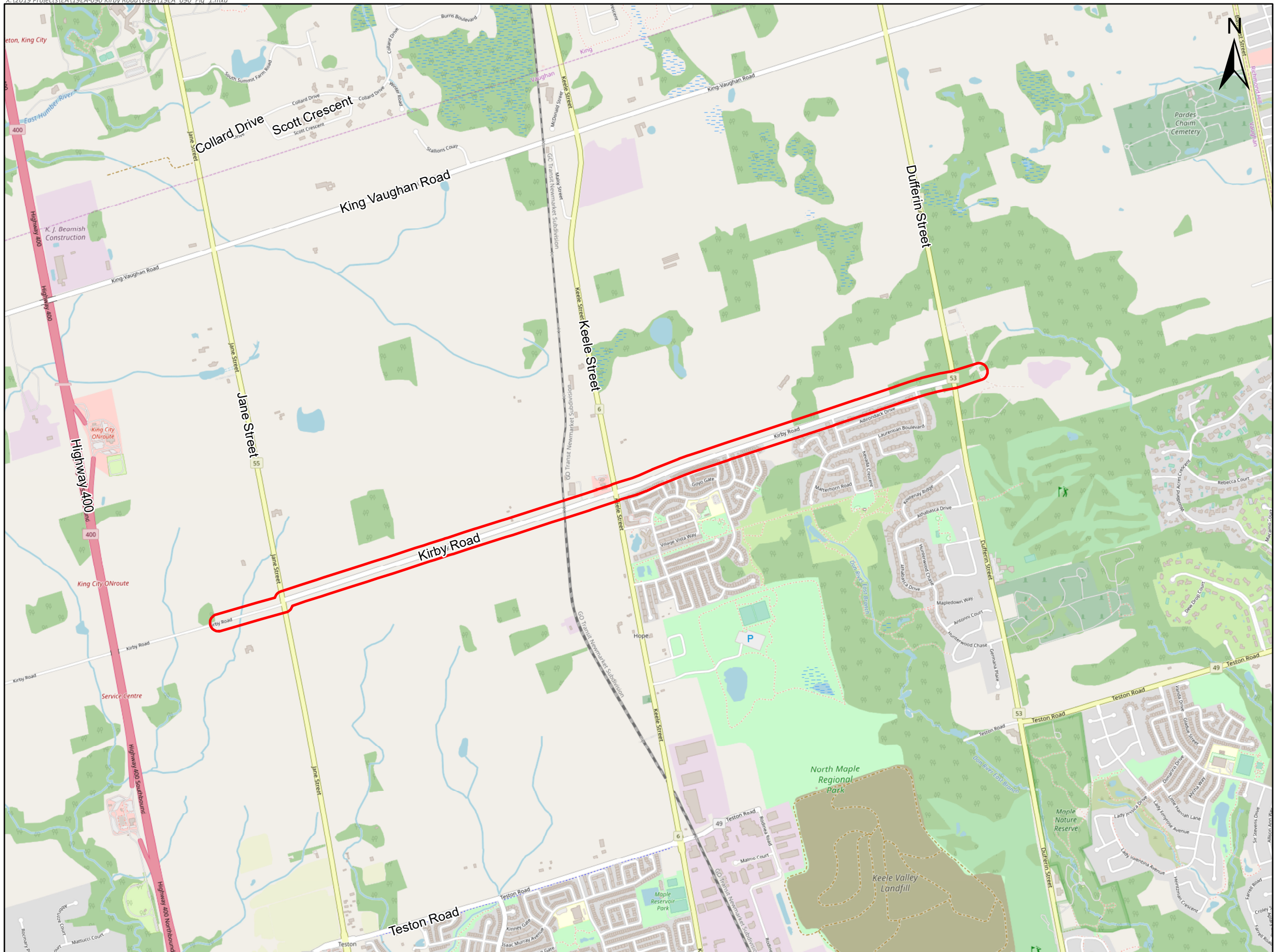
WSP

2018 Stage 1 Archaeological Assessment Kirby GO Station Parts of Lots 29, 30 and 31, Concessions 3 and 4, in the Historic Township of Vaughan, Former County of York, Now the City of Vaughan, in the Province of Ontario.



7.0 MAPS





 STUDY AREA

Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA
 Projection: NAD 1983 UTM Zone 17N
 Scale: 1:21,524
 Page Size: 11 x 17



ASI PROJECT NO.: 19EA_090
 DATE: 2019-11-05
 DRAWN BY: ESB
 FILE: 19EA_090_Fig_1

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

Figure 1: Kirby Road Study Area

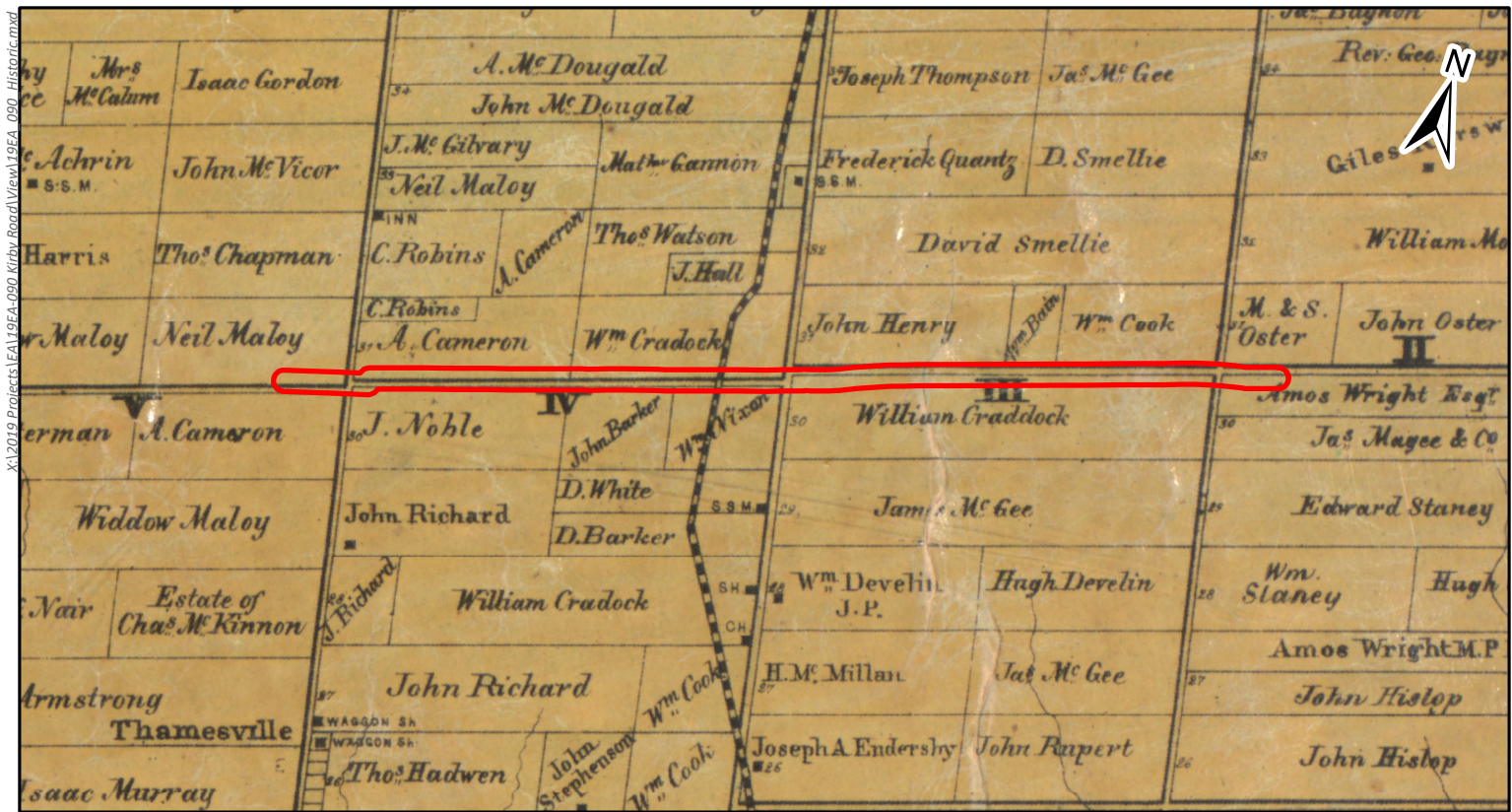


Figure 2: Study Area (Approximate Location) Overlaid on the 1860 Tremain's Map of the County of York

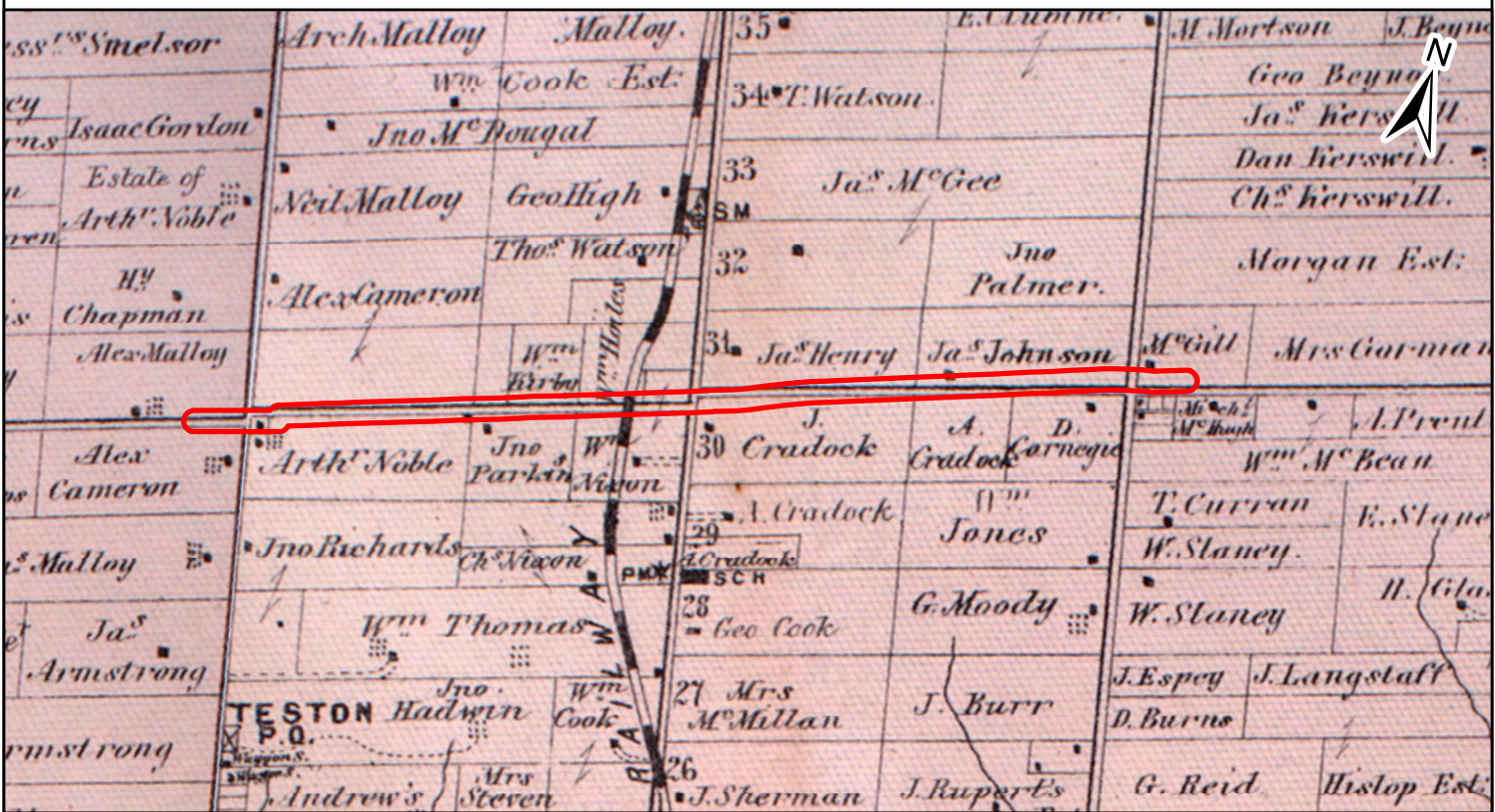


Figure 3: Study Area (Approximate Location) Overlaid on the 1878 Illustrated Historical Atlas of the County of York

	STUDY AREA	Sources: Fig. 2: Tremain's Map of the County of York, 1860.; Fig. 3: Illustrated Historical Atlas of the County of York, 1878. Projection: NAD 1983 UTM Zone 17N Scale: 1:35,000 Page Size: 8.5 x 11	<p>0 750 Meters</p> <p>ASI PROJECT NO.: 19EA_090 DATE: 2019-11-22 DRAWN BY: ESB FILE: 19EA_090_Historic</p>
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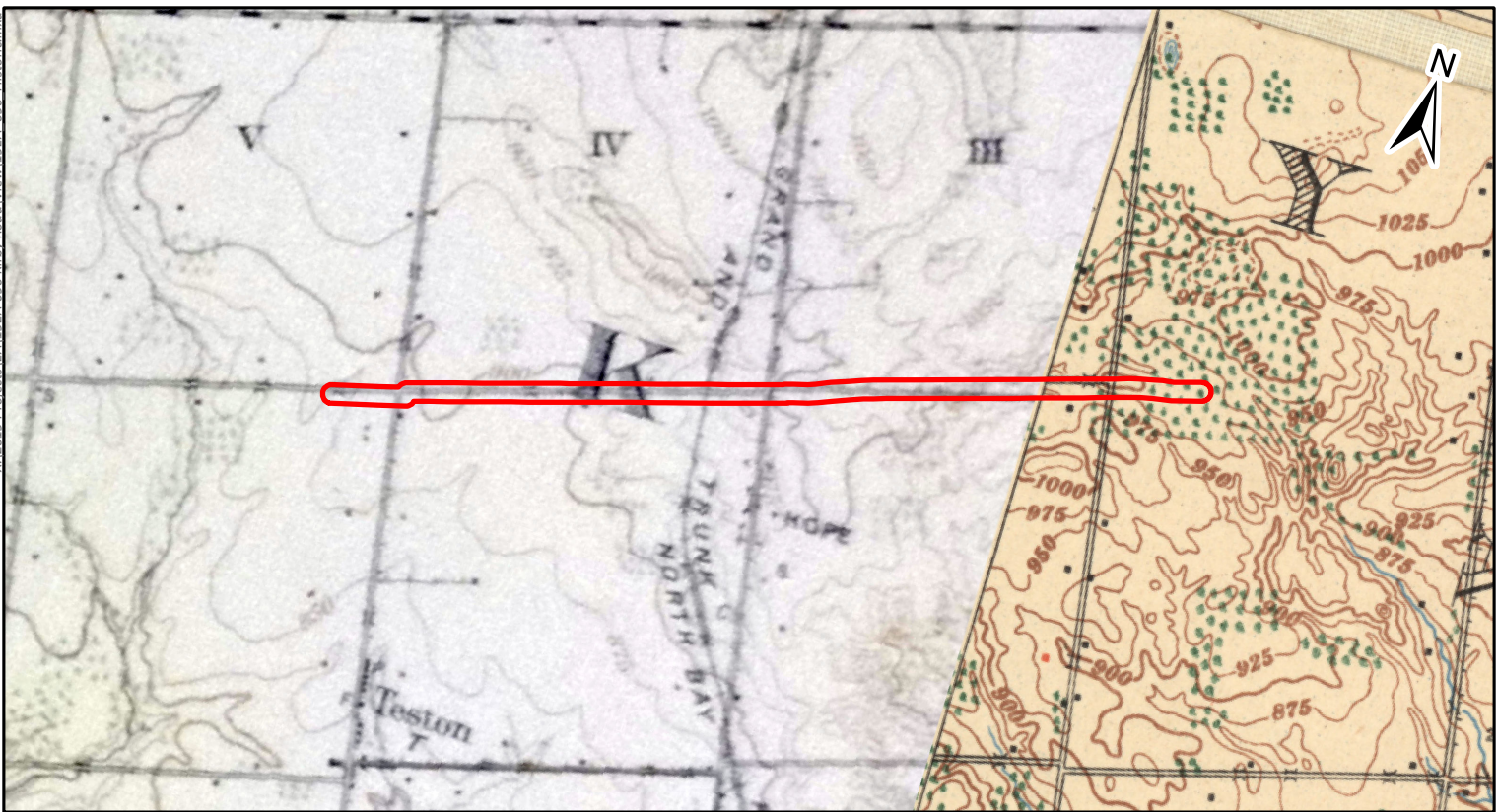


Figure 4: Study Area (Approximate Location) Overlaid on the 1919 National Topographic System Bolton Sheet and the 1914 National Topographic System Markham Sheet

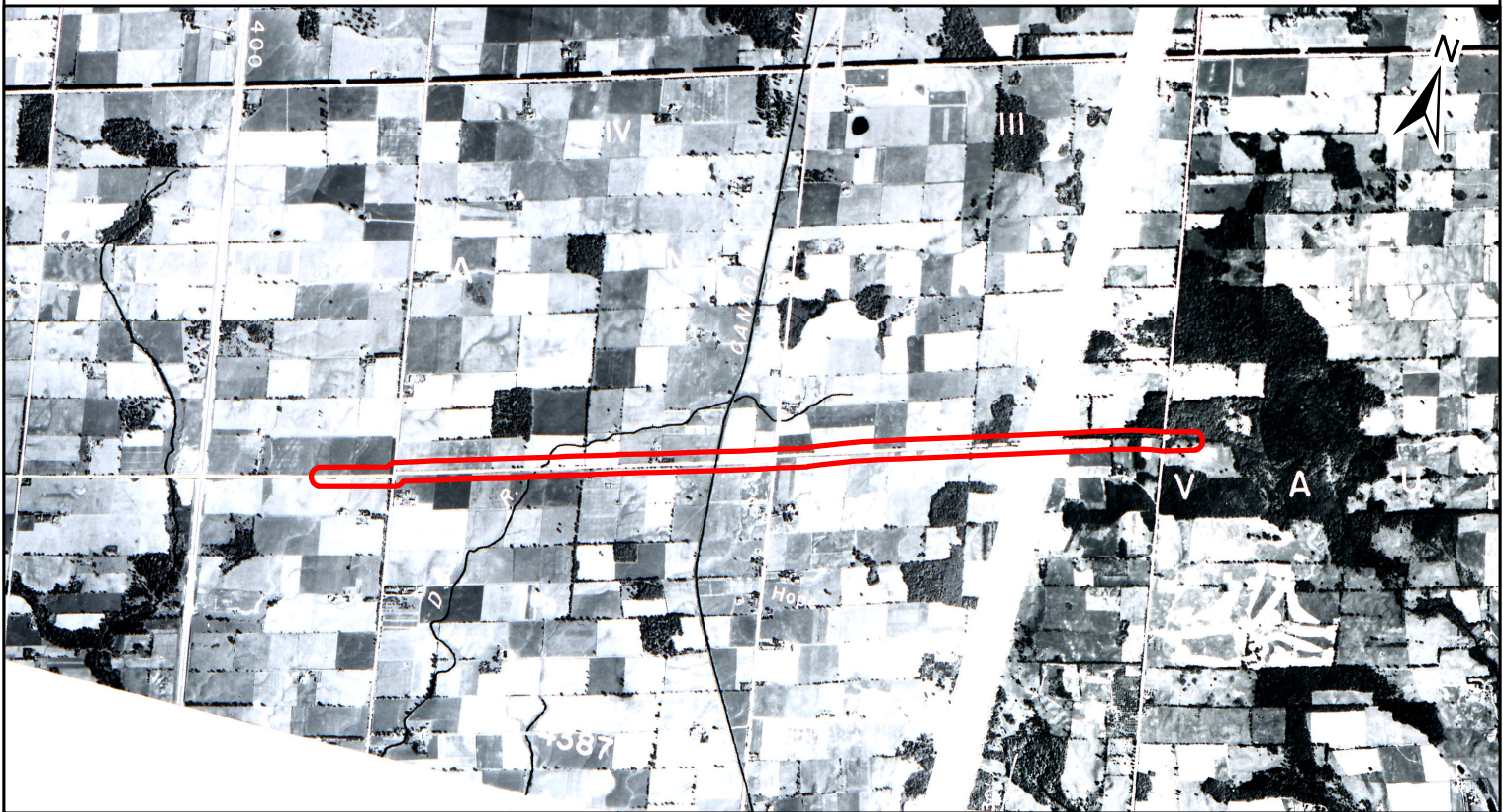



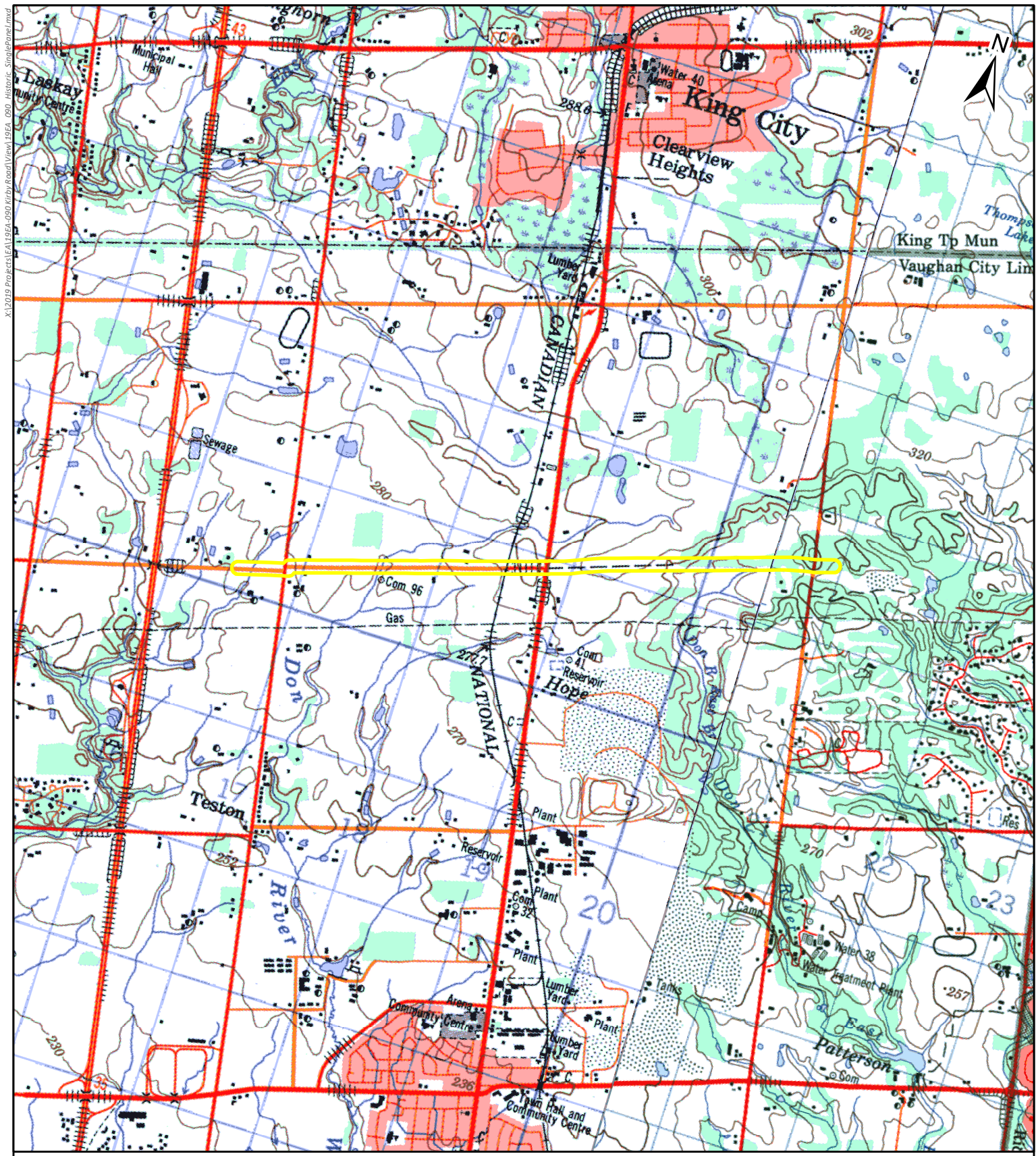


Figure 5: Study Area (Approximate Location) Overlaid on the 1954 Aerial Photography

	 STUDY AREA	Sources: Fig. 4: National Topographic System, Bolton and Markham Sheets. 1919; 1914. Fig. 5: Map and Data Library. University Projection: NAD 1983 UTM Zone 17N Scale: 1:40,000 Page Size: 8.5 x 11	 0 1 Kilometers ASI PROJECT NO.: 19EA_090 DRAWN BY: ESB DATE: 2019-11-22 FILE: 19EA_090_Historic
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	 STUDY AREA	Sources: National Topographic System, Bolton and Markham Sheets. 1994. Projection: NAD 1983 UTM Zone 17N Scale: 1:40,000 Page Size: 8.5 x 11	 0 1 Kilometers ASI PROJECT NO.: 19EA_090 DRAWN BY: ESB DATE: 2019-11-22 FILE: 19EA_090_Historic_SinglePanel
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Figure 6: Study Area (Approximate Location) Overlaid on the 1994 National Topographic System Bolton and Markham Sheets

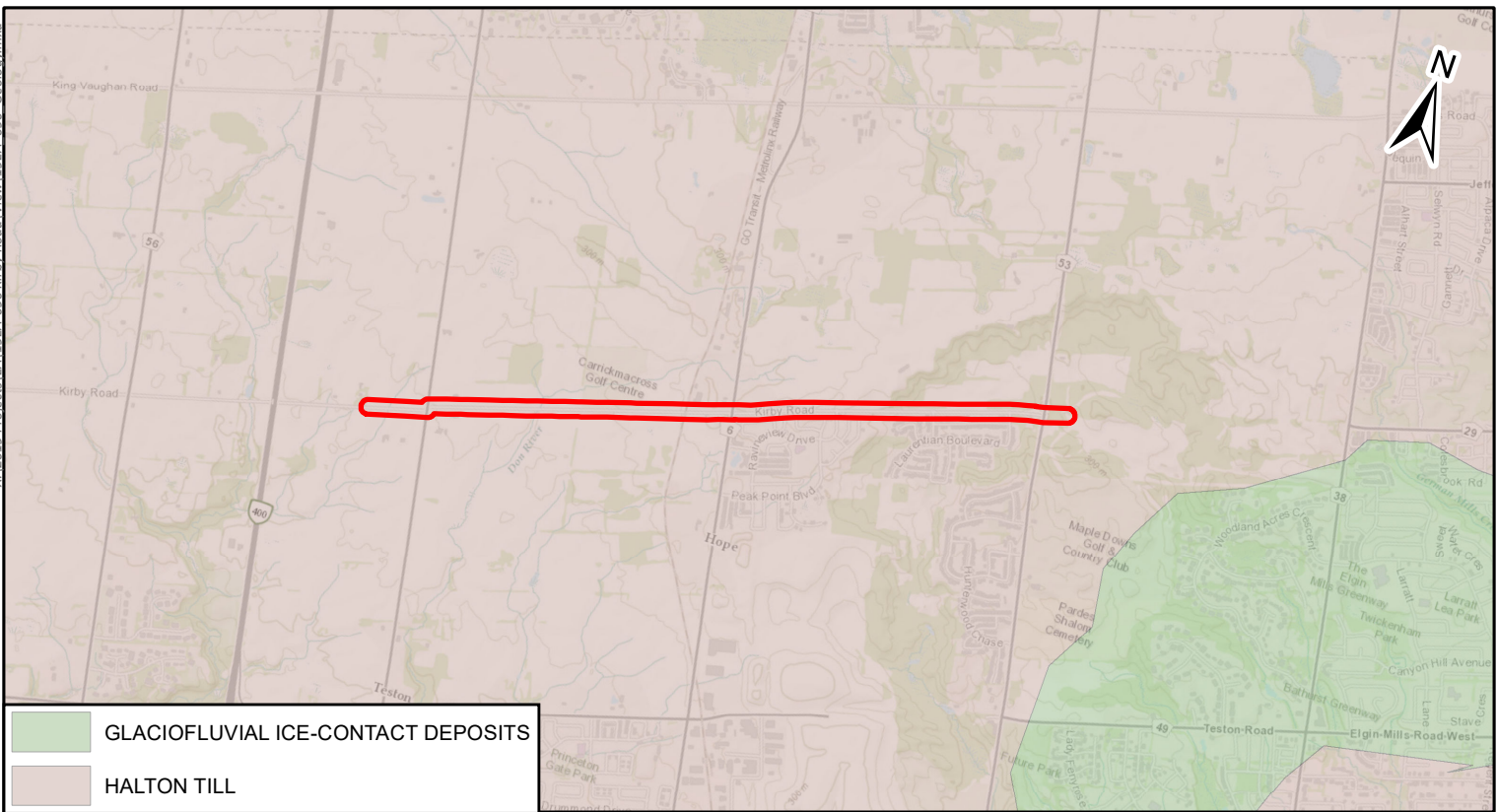


Figure 7: Study Area - Surficial Geology

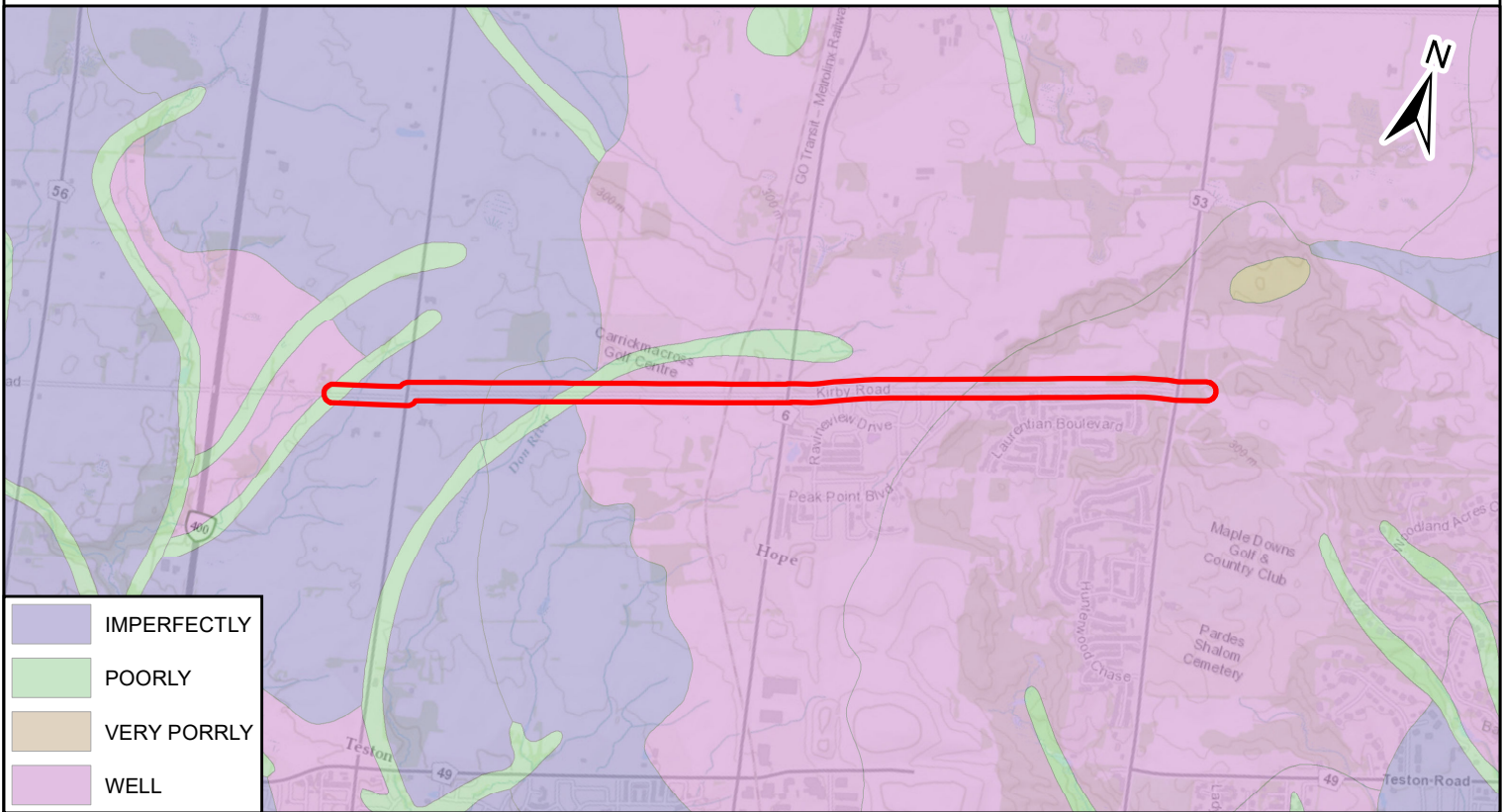

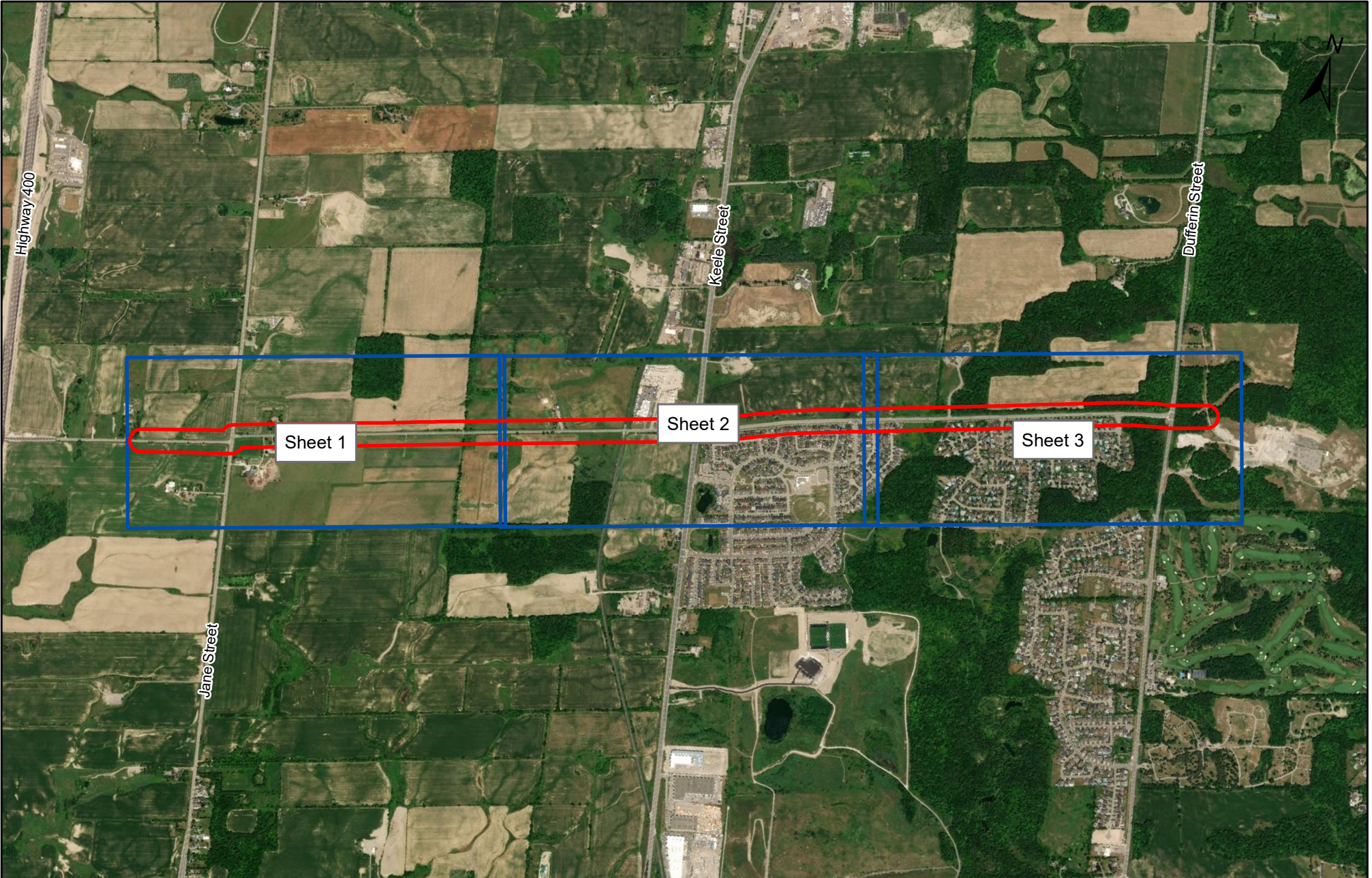




Figure 8: Study Area - Soil Drainage

	 STUDY AREA	Basemap: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster	
		Projection: NAD 1983 UTM Zone 17N Scale: 49,765 Page Size: 8.5 x 11	ASI PROJECT NO.: 19EA_090 DATE: 2019-11-22



-  STUDY AREA
-  MAP KEY

Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA,
Projection: NAD 1983 UTM Zone 17N
Scale: 1:22,576
Page Size: 8.5 x 11


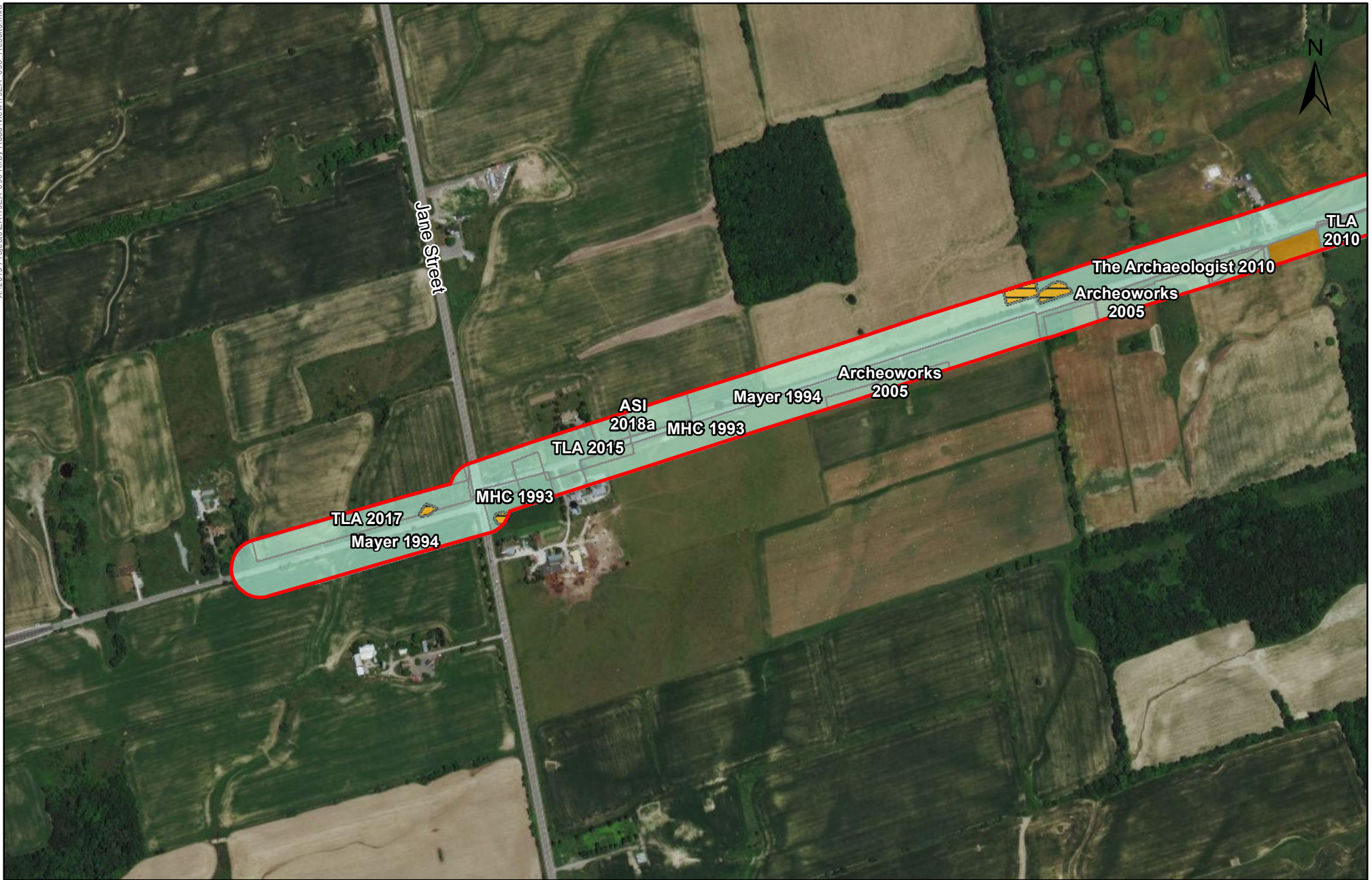









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Figure 9: Kirby Road - Results of Stage 1 (Key Map)



 <p>ASI</p>	 STUDY AREA	 PREVIOUSLY ASSESSED - NO FURTHER WORK REQUIRED	 SLOPE
	 PHOTO LOCATIONS AND DIRECTION	 DISTURBED	 POTENTIAL - REQUIRES TEST PIT SURVEY
	 PREVIOUSLY ASSESSED - FURTHER WORK REQUIRED	 POTENTIAL - REQUIRES PEDESTRAIN SURVEY	

Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA,

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 Page Size: 8.5 x 11

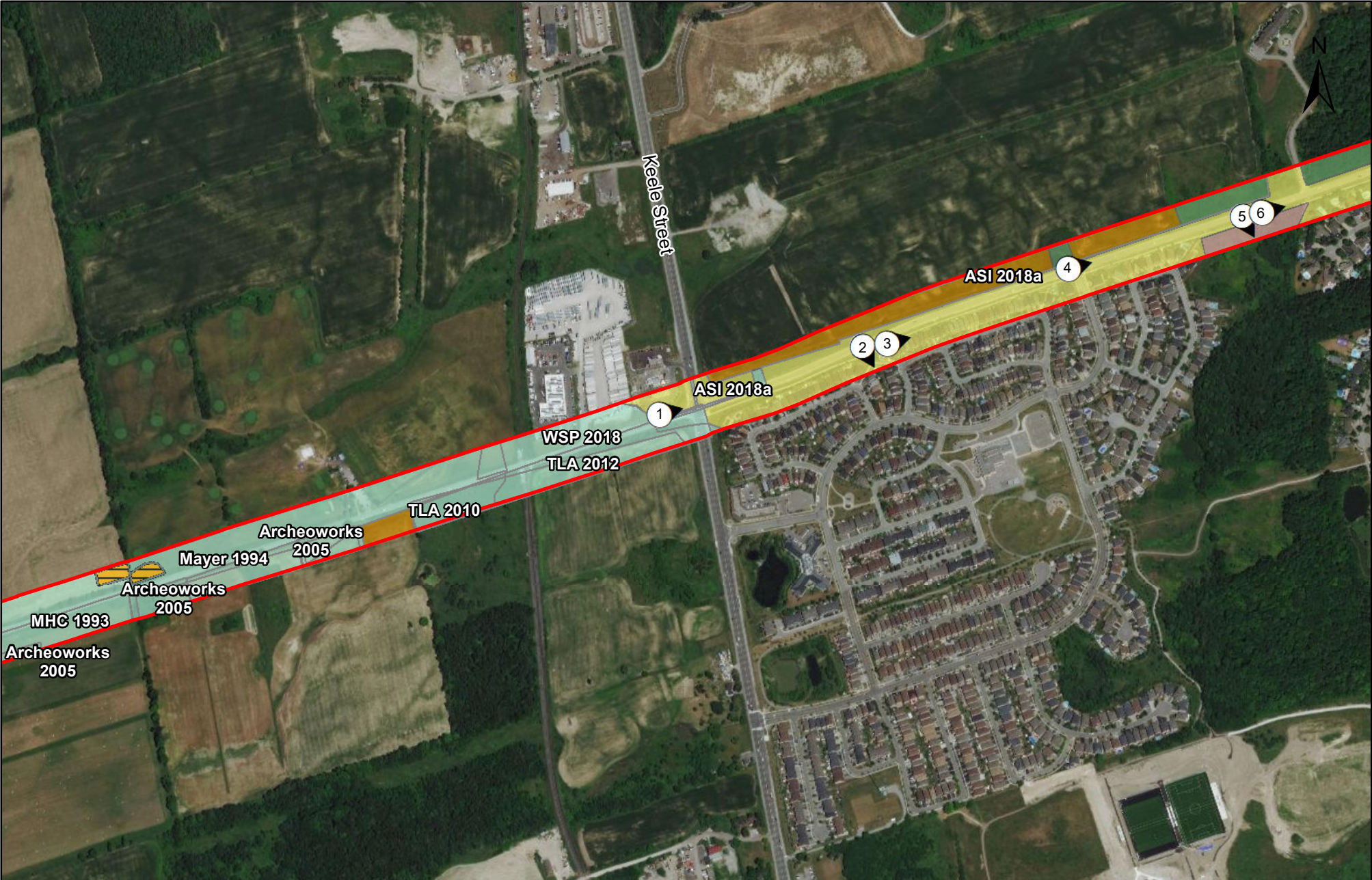











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DATE: 08-Jan-20

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FILE: 19EA_090_Results


Figure 10: Kirby Road - Results of Stage 1 (Sheet 1)



	 STUDY AREA	 PREVIOUSLY ASSESSED - NO FURTHER WORK REQUIRED	 SLOPE
	 PHOTO LOCATIONS AND DIRECTION	 DISTURBED	 POTENTIAL - REQUIRES TEST PIT SURVEY
	 PREVIOUSLY ASSESSED - FURTHER WORK REQUIRED	 POTENTIAL - REQUIRES PEDESTRAIN SURVEY	

Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA,

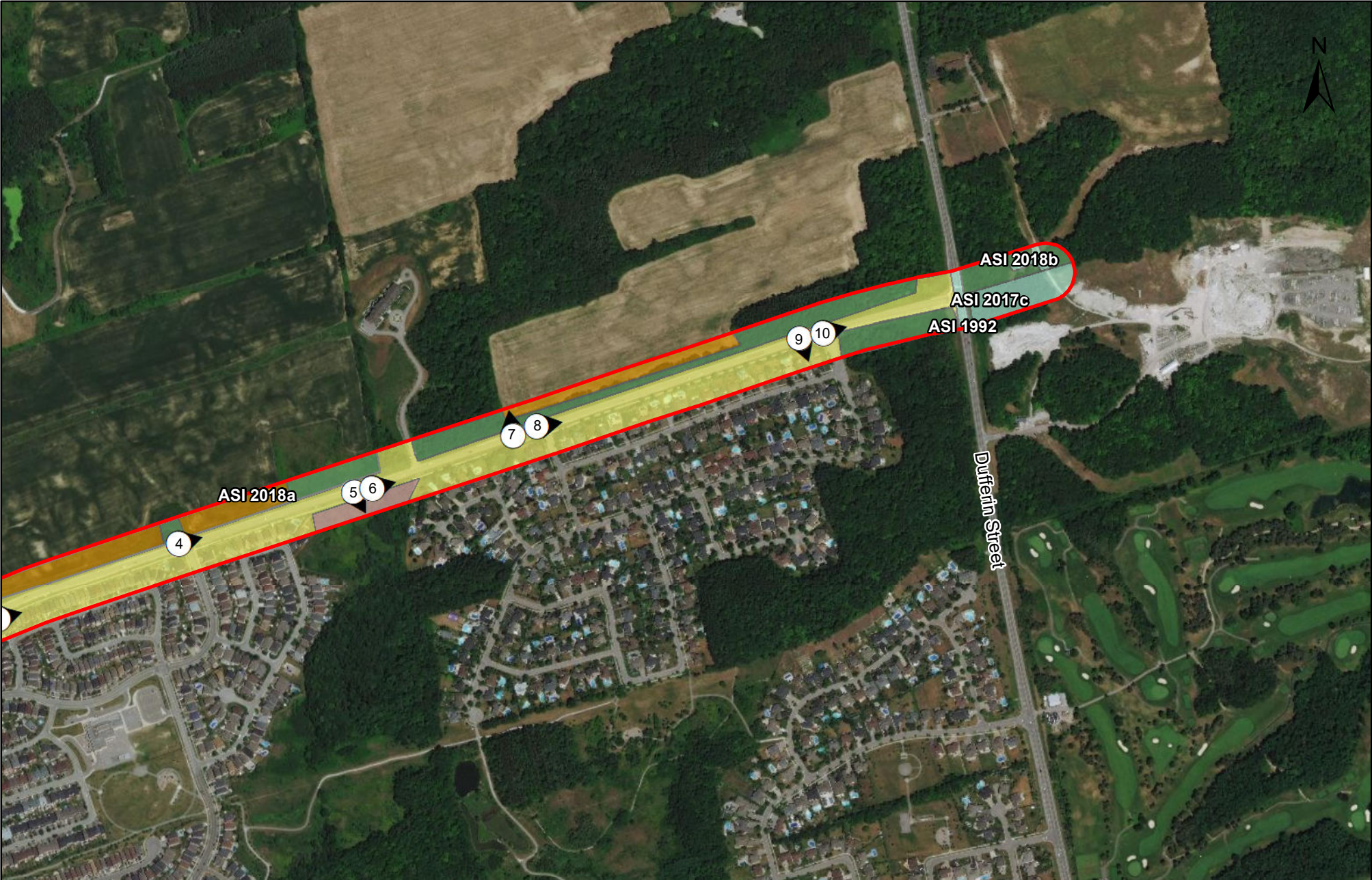
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








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ASI PROJECT NO.: 19EA_090	DRAWN BY: ESB
DATE: 08-Jan-20	FILE: 19EA_090_Results

Figure 11: Kirby Road - Results of Stage 1 (Sheet 2)



	STUDY AREA		PREVIOUSLY ASSESSED - NO FURTHER WORK REQUIRED		SLOPE
	PHOTO LOCATIONS AND DIRECTION		DISTURBED		POTENTIAL - REQUIRES TEST PIT SURVEY
	PREVIOUSLY ASSESSED - FURTHER WORK REQUIRED		POTENTIAL - REQUIRES PEDESTRAIN SURVEY		

Sources: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA,
 Projection: NAD 1983 UTM Zone 17N
 Scale: 1:8,870
 Page Size: 8.5 x 11


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ASI PROJECT NO.: 19EA_090 DATE: 08-Jan-20	DRAWN BY: ESB FILE: 19EA_090_Results

Figure 12: Kirby Road - Results of Stage 1 (Sheet 3)

8.0 IMAGES



Plate 1: [E] Kirby Road; Area is disturbed, no potential



Plate 2: [S] Kirby Road; Area is disturbed, no potential



Plate 3: [E] Kirby Road; Area is disturbed, no potential



Plate 4: [E] Kirby Road; Area is disturbed, no potential



Plate 5: [S] Kirby Road; Area is sloped, no potential



Plate 6: [E] Kirby Road; Area requires test pit survey



Plate 7: [N] Kirby Road; Area requires Stage 2 survey



Plate 8: [E] Kirby Road; Area beyond disturbed ROW requires Stage 2 survey



Plate 9: [S] Kirby Road; Area is disturbed, no potential



Plate 10: [E] Kirby Road; Area beyond disturbed ROW requires test pit survey