



REPORT

Stage 1 Archaeological Assessment

*Proposed Residential Development - Thundering Waters Golf Course, 6000
Marineland Parkway, Regional Municipality of Niagara, City of Niagara Falls,
Ontario*

Submitted to:

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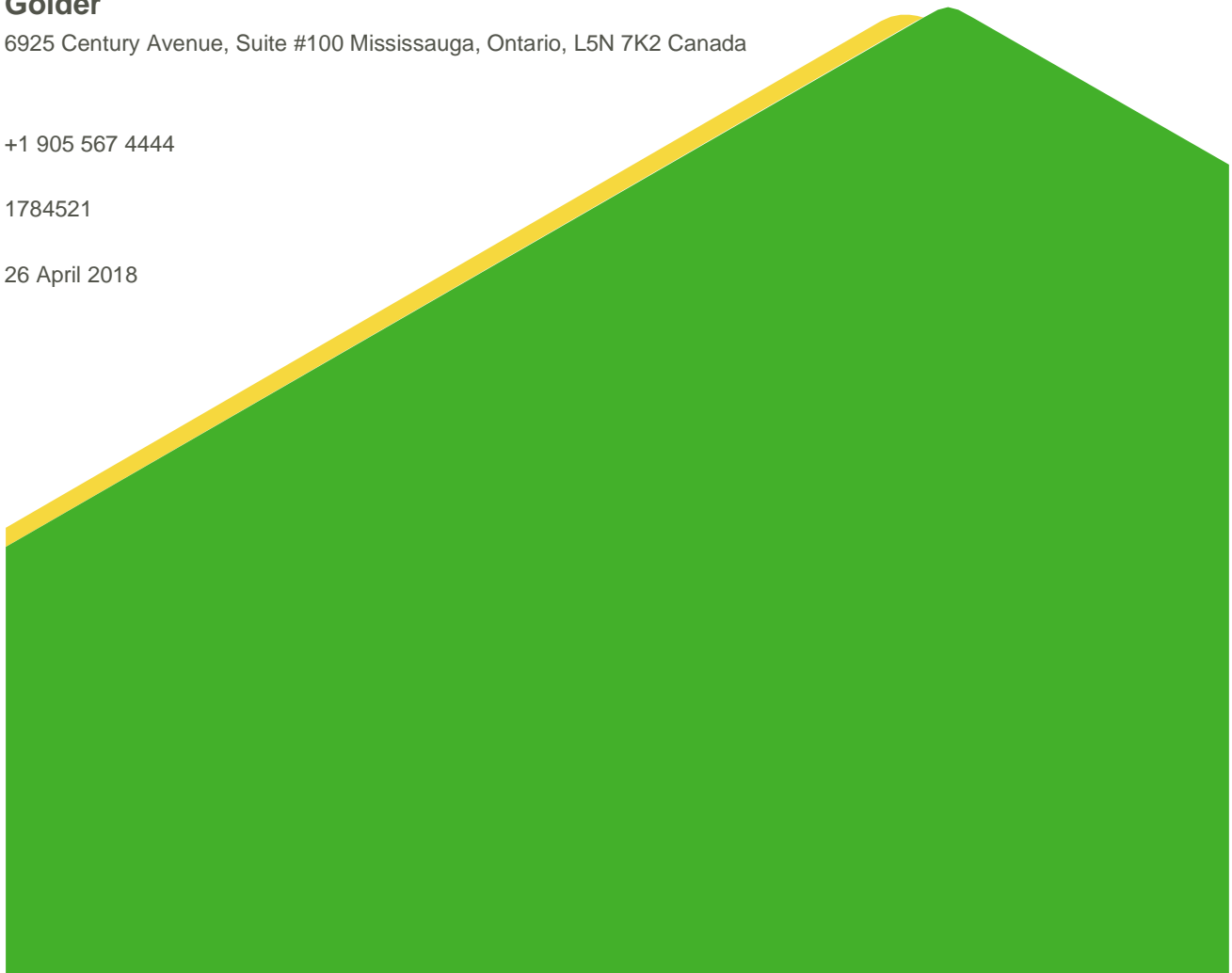
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Executive Summary

The Executive Summary highlights key points from the report only; for complete information and findings, as well as the limitations, the reader should examine the complete report.

A Stage 1 archaeological assessment of the Thundering Waters Golf Course and facilities located at 6000 Marineland Parkway, Niagara Falls, Ontario (herein after referred to as the “Study Area”) was conducted on behalf of Prenix Associates International Limited (“Prenix”) (the Client), on behalf of 2592693 Ontario Inc. (end Client) by Golder, for a proposed re-development of the Study Area. The Stage 1 assessment was conducted in support of a zoning amendment in accordance with the *Planning Act*, prior to the property being developed into a residential community. The Study Area measures approximately 61 hectares (150 acres) and covers multiple lots (Maps 1 and 2; Table 1). The Study Area is currently operated as the Thundering Waters Golf Course and was developed in 2005. The Study Area is developed with a main clubhouse, half-way house, catering building, maintenance area and four ponds.

The objective of the Stage 1 archaeological assessment is to gather information about the Study Area’s geography, land use history, current condition, and any previous archaeological research conducted within the vicinity to determine the Study Area’s archaeological potential and recommend whether further archaeological assessment is required.

The Study Area exhibits potential for the recovery of intact archaeological deposits. Based on the findings of the Stage 1 assessment the following recommendations are made, as illustrated in Map 9.

- 1) Areas of manicured lawns as well as brush and wooded areas (including areas where previous disturbance could not be definitively demonstrated) exhibit archaeological potential for the recovery of archaeological remains. Stage 2 test pit survey at an interval of five meters is recommended for these areas prior to ground disturbance activities. Test pits should be approximately 30 centimetres in diameter and excavated to subsoil. If artifacts are recovered their location should be recorded with a GPS unit and test pit intervals should be reduced to 2.5 meters within 5 meters of the positive test pit, as well as a one-meter test unit if necessary;
- 2) Areas of previous disturbance exhibit low potential for the recovery of archaeological remains. No further assessment is recommended for these areas;
- 3) Golf cart pathways and sand bunkers are considered previously disturbed, however would be captured within a five-meter test pit grid; as such, individual previously disturbed golf cart paths and sand bunkers are not illustrated in Map 9; and
- 4) Given the level of unknown disturbance from soil grading within the golf course it is recommended the Stage 2 survey follow a two-phase approach. The first phase would include the survey of brush and treed areas including those situated between and along golf hole footprints. Should these areas be found to be heavily disturbed due to deep grading, all evidence of disturbance will be photo documented. Should the treed areas be found to be previously disturbed, it is recommended that the greens and fairways also be considered to be previously disturbed. Should the first phase of test pitting reveal relatively undisturbed conditions within the treed areas, phase two will consist of Stage 2 test pit survey of the full extent of the golf course including all tees, fairways, roughs and greens. The two-phase process is illustrated in Map 9 (Phase 1 – Wooded Area, Phase 2 – Open Area).
- 5) All Stage 2 archaeological assessment should be conducted by a licensed consultant archaeologist and follow the requirements set out in the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

Despite best efforts and all due diligence, no archaeological assessment can necessarily account for all potential archaeological resources. Should deeply buried archaeological resources be identified during ground disturbance activity associated with future development of the Project Area, ground disturbance activities should be immediately halted, and the Archaeology Division of the Culture Programs Unit of the Ministry of Tourism, Culture and Sport (MTCS) notified.

The MTCS is requested to review, and provide a letter indicating their satisfaction with the results and recommendations presented herein, with regard to the 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licenses, and to enter this report into the Ontario Public Register of Archaeological Reports.

Study Limitations

Golder has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the archaeological profession currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed, or implied is made.

This report has been prepared for the specific site, design objective, developments and purpose described to Golder by Prenix Associates International Limited (the Client). The factual data, interpretations, and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

The information, recommendations, and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the Client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawing, and other documents as well as electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and the Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration, and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder's report or other work products.

Unless otherwise stated, the suggestions, recommendations, and opinions given in this report are intended only for the guidance of the Client in the design of the specific project.

Special risks occur whenever archaeological investigations are applied to identify subsurface conditions and even a comprehensive investigation, sampling, and testing program may fail to detect all or certain archaeological resources. The sampling strategies incorporated in this study, if any, comply with those identified in the MTCS's 2011 Standards and Guidelines for Consultant Archaeologists.

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1.0 PROJECT CONTEXT

1.1 Development Context

A Stage 1 archaeological assessment of the Thundering Waters Golf Course and facilities located at 6000 Marineland Parkway, Niagara Falls, Ontario (herein after referred to as the “Study Area”) was conducted on behalf of Prenix Associates International Limited (“Prenix”) (the Client), on behalf of 2592693 Ontario Inc. (end Client) by Golder, for a proposed re-development of the Study Area. The Stage 1 assessment was conducted in accordance with the *Planning Act*, prior to the property being developed into a residential community. The Study Area was also subject to an Environmental Site Assessment, through Golder, as part of a municipal Class Environmental Assessment under the *Environmental Assessment Act*. The Study Area measures approximately 61 hectares (150 acres) and covers multiple lots (Maps 1 and 2; Table 1). The Study Area is currently operated as the Thundering Waters Golf Course and was developed in 2005. The Study Area is developed with a main clubhouse, half-way house, catering building, maintenance area and four ponds. This Stage 1 archaeological assessment is intended to inform both the planning process for proposed re-development and next steps for future archaeological assessments (e.g., Stage 2 archaeological assessment) that may be required as specific developments proceed.

Table 1: Properties within the Study Area

County	Township	Lot
Niagara South (Formerly Part of Welland County)	Stamford	Part of Lots 176,189, 195,196, 214, 215, 216, 217

1.1.1 Objectives

The objective of the Stage 1 archaeological assessment is to gather information about the Study Area’s geography, land use history, and current condition as well as any previous archaeological research within the vicinity to determine the Study Area’s archaeological potential and recommend whether further archaeological assessment is required. To meet these objectives Golder archaeologists employed the following research strategies:

- Review of the relevant historical and environmental literature pertaining to the general Study Area;
- Query of the Ontario Archaeological Sites Database, maintained by the Ministry of Tourism, Culture and Sport (MTCS), to determine whether any archaeological sites have been registered within one kilometre (km) of the radius of the Study Area;
- Query of the Ontario Public Register of Archaeological Reports, maintained by the MTCS, to determine whether any archaeological fieldwork has occurred within 50 m of the Study Area; and
- Review of relevant recent and historical mapping including aerial photographs of the Study Area

The Stage 1 assessment was conducted by Golder Archaeologist Rhiannon Fisher (P468) (PIF 468-0011-2018). All activities undertaken during the assessment followed the *Ontario Heritage Act* and the MTCS’s 2011 *Standards and Guidelines for Consultant Archaeologists (SGCA)*.

2.0 HISTORICAL CONTEXT

2.1 Post-Colonial Indigenous Resources

The post-colonial Indigenous occupation of Southern Ontario was heavily influenced by the dispersal of various Iroquoian-speaking peoples by the New York State Iroquois and the subsequent arrival of Algonkian-speaking groups from northern Ontario at the end of the seventeenth century and beginning of the eighteenth century (Schmalz 1991).

Following the introduction of Europeans to North America, the nature of First Nations settlement size, population distribution, and material culture shifted as settlers began to colonize the land. Despite this shift in First Nations life ways, “written accounts of material life and livelihood, the correlation of historically recovered villages to their archaeological manifestations, and the similarities of those sites to more ancient sites have revealed an antiquity to documented cultural expressions that confirms a deep historical continuity to Iroquoian systems of ideology and thought” (Ferris 2009:114). As a result, First Nations peoples of southern Ontario have left behind archaeologically significant resources throughout southern Ontario which show continuity with past peoples, even if this connection has not been recorded in historical Euro-Canadian documentation.

The Study Area is situated within the City of Niagara Falls within the Regional Municipality of Niagara and is contained within the historic township of Stamford, Welland County. The Study Area is within the lands that were part of Treaty 381 Vol. 3 (Niagara Purchase), made between the Mississauga First Nation, Chippewa First Nation and the Crown on May 9, 1781 (Morris 1943). This treaty is described as:

The First Indian Purchase ... was made in the year 1764 at Fort Niagara from the Iroquois and Chippewa Indians, but it was not until May 9th, 1781 that a treaty was signed with the Mississa[ug]as and Chippewas for a strip of land four miles in width along the western bank of the Niagara River. This strip comprises the greater parts of the Townships of Lincoln, Stamford, Willoughby and Bertie.

(Morris 1943: 15)

The Niagara Purchase was instigated by Sir William Johnson, the first official representative of an Indian Department in British North America, and later by Colonel Guy Johnson, the acting superintendent general of Indian Affairs.

Although no Indigenous engagement was conducted as part of the Stage 1 assessment should any Stage 2 archaeological assessment result in the identification of sites with an Indigenous component that are recommended for Stage 3 assessment, Indigenous engagement measures consistent with MTCS standards will need to be undertaken.

2.2 Euro-Canadian Settlement Resources

Following the Toronto Purchase, the Province of Quebec was divided into four political districts: Lunenburg, Mechlenburg, Nassau and Hesse. When the Province of Upper Canada was formed in 1791, the names of the four districts were changed to Eastern, Midland, Home and Western, respectively.

The Study Area is situated within the City of Niagara Falls within the Regional Municipality of Niagara and is contained within the historical township of Stamford which falls within the Home District.

Home District was reorganized in 1798, and lands annexed to form the Niagara district. The Niagara district consisted of Haldimand and Lincoln Counties, with the Study Area falling within the Second Riding of Lincoln County (in 1851 Welland County would be created and separated from Lincoln).

The City of Niagara Falls developed as a cluster of small towns and villages that have amalgamated over the past couple of centuries to create the city as it is known today. The original village settlements of Drummondville and Clifton were the first to be recognized as a settlement associated with the Falls. The settlement of Clifton changed its name to the Town of Niagara Falls in 1881, and Drummondville became the Village of Niagara Falls the following year. The two of them joined in 1904 to become the City of Niagara Falls. By 1963 the Township of Stamford joined the City and by 1970 with the creation of the Regional Municipality of Niagara, Chippawa and Willoughby Township also joined the City of Niagara Falls (Niagara Falls Museum 2018).

2.2.1 Stamford Township

The Study Area is located in the historic Stamford Township, Welland County. Prior to being named Stamford Township, the area was known as Township No. 2, and for a brief time, Mount Dorchester in honour of Guy Carleton, Earl of Dorchester (Zavitz 2015). The township was renamed to Stamford Township upon arrival of Lieutenant-Governor of Upper Canada John Graves Simcoe in 1792 (Zavitz 2015). Graves named the township following the naming conventions he set out for the county.

The Township of Stamford was bordered by the townships of Niagara and Grantham to the north, to the east by the Niagara River, to the south by the Welland River, dividing it from the townships of Willoughby and Crowland, and to the west by the Township of Thorold.

Active settlement of the area commenced prior to the Crown survey of 1813. In 1784, almost immediately following the American Revolution, United Empire Loyalists, specifically members and relatives of the Butler's Rangers under the command of Col. John Butler settled in the area. An informal survey was conducted by Philip R. Frey in 1787, and the first map of the surveyed area was published in 1791 (Copp 1891).

The Crown survey used a Front and Rear special survey system that was in use from 1783-1813 (Dean and Matthews 1969). The survey system laid out concession roads that ran in a north-south orientation with side roads surveyed between every second lot to connect with the concession roads. Each lot was 100 acres.

The roads used throughout the early township were Concessions and Lines and are the basis for the main grid roads today (Niagara Falls Museum 2018). The most famous of these roads include Lundy's Lane. Lundy's Lane, originally used as an Aboriginal trail, became one of the first roads used by settlers. Named after one of the early settlers, it ran east to west through the centre of the township. At this time the township extended along the Niagara River for seven miles and included the Falls at Niagara as well as the Whirlpool, and northward to Queenston Heights. It also became the site of a major battle of the War of 1812. Stamford Township was heavily involved in the events of the War of 1812, as Lundy's Lane was considered to be the bloodiest battle to take place on Canadian soil. Lundy's Lane, which still exists today is approximately three kilometres from the most northeast portion of Thundering Waters Golf Course.

Another early road, known as the Portage Road, ran north-south passing through Stamford, Clifton and Chippawa. Portage Road, which still exists today extends from Main Street, at the base of the Falls, in the north to Main Street, by the Welland River in the south. Portions of Portage Road are approximately one kilometre from the northeast portion of Thundering Waters Golf Course.

In 1841 the Erie and Ontario Railroad was built between Niagara Falls and Queenston and followed a section of Stanley Avenue approximately three kilometres from the Study Area. Two other railways were built in the 1870s near the Study Area. In 1875, the Canada Southern Railway cut across the eastern portion of Stamford Township (Page & Co 1876). Portions of the Canada Southern Railway come within 800m from the northeast portion of the Study Area. The Canada Air Line Railway, competitor to the Canada Southern Railway was chartered by Great Western Railway in 1869 and completed in 1873. This line runs northwest to northeast through Stamford Township and is north of the Study Area.

Early settlers to the Township of Stamford discovered that the area was ideal for growing fruit and a transition from wheat and flax fields to orchards of grapes, cherries, peaches, strawberries and pears occurred. By 1885 the orchards in Stamford became so lucrative that approximately five tonnes of fresh fruit were being shipped daily to markets in Toronto, London, Hamilton and Montreal via the railway. At this point in time the population of the Township exceeded 2000 inhabitants (Niagara Falls Museum 2018).

The Study Area is located on Part of Lots 176,189, 195,196, 214, 215, 216 and 217. The first map identified for the Study area dates to 1797 (Map 3); the lots have been numbered differently from how they are presented in later maps (Map 3-4). The 1862 Tremain *Map of the Counties of Lincoln and Welland* (Map 3) indicate ownership and occupation for all of the lots in the Study Area however the only copy available is ripped right through the Study Area and it is difficult to decipher the names for some lots (Table 2). The 1876 map in the H.R. Page *Illustrated Historical Atlas of Lincoln and Welland County* (Map 4) indicates ownership and occupation for all the lots in the Study Area which are listed in Table 2 below.

Table 2: Lot Information within the Study Area Based on Tremain (1862) and H.R. Page & Co (1876).

Lot	Owner(s)		Comments	
	1862	1876	1862	1876
176	John Malone	Arch-Bishop Lynch	One structure depicted	One structure depicted
189	James Hardey	A. Cruikshank	One structure depicted.	One structure and an orchard depicted.
195	Page too worn/ ripped to decipher	Street Estate	Page too worn/ripped to decipher	One structure depicted.
196	Estate of late Thomas ... (Western Portion) William Hend ... (Eastern Portion)	Jonas Green (Western Portion) Street Estate (Eastern Portion)	Nothing depicted.	Nothing depicted.
214	Thomas C. Street	Street Estate	Lot is subdivided by an unnamed road (Creek Road according to 1938 map (Map 5), now Dorchester Road this far west).	Lot is subdivided by an unnamed road (Creek Road according to 1938 map (Map 5), now Dorchester Road this far west).
215	James Anderson	James Anderson	No structure depicted. Lot is subdivided by an unnamed road (Creek Road according to 1938 map (Map 5), now Dorchester Road this far west).	One structure and an orchard depicted in the southern portion. Lot is subdivided by an unnamed road (Creek Road according to 1938 map (Map 5), now Dorchester Road this far west).

Lot	Owner(s)		Comments	
216	John McClive	Robert McClive	No structure depicted. Lot is subdivided by an unnamed road (Creek Road according to 1938 map (Map 5), now Dorchester Road this far west).	One structure and an orchard depicted in the southern portion. Lot is subdivided by an unnamed road (Creek Road according to 1938 map (Map 5), now Dorchester Road this far west).
217	John McClive	John McClive	One structure depicted. Lot is subdivided by an unnamed road (Creek Road according to 1938 map (Map 5), now Dorchester Road this far west).	One structure and an orchard depicted in the southern portion. Lot is subdivided by an unnamed road (Creek Road according to 1938 map (Map 5), now Dorchester Road this far west).

2.2.2 Historical Mapping

The Study Area is depicted in 1797 on Augustus Jones Map found within Mapping Upper Canada 1780-1867 (Map 3) as well as in Tremaine's 1862 Map of the Counties of Lincoln and Welland (Map 3) and Page & Co's 1876 Map of the Township of Stamford (Map 4). The Study Area is also depicted on a map from 1938 (Map 5) where the railway line that intersects the Study Area southwest to northeast appears for the first time on mapping.

3.0 AERIAL PHOTOGRAPHY

Aerial photographs of the Study Area and neighbouring properties were obtained from LGI for the years 1934, 1960, 1969 and 1982, as well Google Earth images from 2005, 2013 and 2017, were reviewed by Golder. Representative photographs were selected for review based on an approximate ten-year interval. The information obtained from the aerial photographs was limited by the quality and scale of the available aerial photographs. The earliest aerial photograph available was from 1934.

Information obtained from the review of the aerial photography is depicted in Map 6 and summarized in Table 3.

Table 3: Aerial Photography Information

Year	Study Area	Surrounding Area
1934	The Study Area is comprised of undeveloped land, with a railway line extending southwest to northeast through it.	<u>North:</u> Agricultural fields <u>East:</u> Agricultural fields <u>South:</u> Undeveloped land <u>West:</u> Agricultural fields

Year	Study Area	Surrounding Area
1960	The Study Area is comprised of undeveloped land, with a railway line extending southwest to northeast through it.	<u>North</u> : Residential area is observed to the north of the site <u>East</u> : Agricultural fields <u>South</u> : Undeveloped land <u>West</u> : Agricultural fields
1969	The Study Area is comprised of undeveloped land, with a railway line extending southwest to northeast through it, several access roads and paths are now present	<u>North</u> : Further residential development to the north of the Study Area <u>East</u> : Several buildings have been developed to the east of the Study Area <u>South</u> : Undeveloped land with development beyond the wooded area <u>West</u> : Residential development to the west of the Study Area
1982	The Study Area is comprised of undeveloped land, with a railway line extending southwest to northeast through it, several access roads and paths are now present	<u>North</u> : Further residential development to the north of the Study Area <u>East</u> : Commercial/industrial building developed immediately adjacent to the east of the Study Area <u>South</u> : Undeveloped land with further development beyond the wooded area <u>West</u> : Commercial/industrial building developed immediately adjacent to the west of the Study Area
2005 (Google Earth Image)	The Study Area has been developed into a golf course with associated structures	Surrounding area remains the same as depicted in the 1982 photograph
2013 (Google Earth Image)	The Study Area remains the same as the 2005 image	<u>North</u> : Residential development observed to the north of the Study Area <u>East</u> : Further development to the east of the Study Area <u>South</u> : Remains the same as the 2005 image <u>West</u> : Remains the same as the 2005 image
2017 (Google Earth Image)	The Study Area remains the same as the 2013 image	Surrounding area remains the same as depicted in the 2013 image

Based on the aerial photographs the Study Area appears to have been undeveloped apart from the railway line prior to 2005.

4.0 ARCHAEOLOGICAL CONTEXT

4.1 Previous Archaeological Research

For an inventory of archaeological resources to be compiled, the registered archaeological site records kept by the MTCS were consulted. In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database maintained by the MTCS. This database contains archaeological sites registered according to the Borden system. Under the Borden system, Canada is 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 subject property is located within Borden block AgGs.

There are seven archaeological sites within a one-kilometre radius of the Study Area in the Ontario Archaeological Sites Database (accessed 31 January 2018) (Table 4).

The first site, located outside the Study Area but within one kilometre, is AgGs-49, an Indigenous fishing and hunting campsite dating to the Middle Archaic and Early Woodland period. The site is described as having been discovered at the edge of the Welland River and to a lesser extent within shallow water. Concentrations of chipping detritus, tools and bone were recovered from sand lag deposits. The tools were manufactured on both stone and bone. The researcher's (William Parkins) comments state that it is likely the areas recorded represents one or more sites which may be undisturbed or disturbed only to the extent that their edges have been slightly eroded (OASD 2018). There is no information available as to whether additional work was conducted or if cultural heritage value or interest remains for AgGs-49.

The second site, located outside the Study Area but within one kilometre, is AgGs-46, a Middle Archaic campsite. Similar to AgGs-49 this site is described as having been discovered in the shallow water of the Welland River. The sand lag deposits at the waters' edge and the shallow water contained a fair number of small bones, lesser amounts of chipping detritus and a few tools. According to the researcher's (William Parkins) comments a pollen analysis was conducted and preliminary results indicated that the oak dominated, mixed hardwood forest was consistent with a date of 5000 BP. (OASD 2018). There is no information available as to whether additional work was conducted or if cultural heritage value or interest remains for AgGs-46.

The third site, located outside the Study Area but within one kilometre, is AgGs-37. One piece of chipping detritus, one core and one biface tip were recovered from the location (OASD 2018). No information is available as to whether additional work was conducted or if cultural heritage value or interest remains for AgGs-37.

The fourth site, located outside the Study Area but within one kilometre, is AgGs-326, a Euro-Canadian site dating from approximately 1820 to 1859. The site is associated with PIF number P375-001-2012 and was subject to a Stage 4 Salvage Excavation. Two loci were located underneath landscape fill, placed around the former Loretto Academy. The loci were further bounded by modern utility trenches, existing property boundaries and asphalt paving for parking. The artifact collection consists of 50,000 Euro-Canadian artifacts, half of which are bone (OASD 2018).

The fifth site, located outside the Study Area but within one kilometre, is AgGs-298, an Early Archaic campsite. The site is associated with PIF number P017-0532-2016 and was subject to a Stage 3 controlled surface pick-up as well as test unit excavation. A total of 59 artifacts were recovered belonging to the Kirk-Nettling techno-tradition. No further cultural heritage value or interest remains for AgGs-298 (OASD 2018).

The sixth site, located outside the Study Area but within one kilometre, is AgGs-292, a Late Woodland findspot. A Pedestrian survey was conducted at 5m intervals and the researcher's comments state that no

further work is recommended so one can assume that no further cultural heritage value or interest remains (OASD 2018).

The seventh site, located outside the Study Area but within one kilometre, is AgGs-1, an unknown site type dating to the Archaic time period (OASD 2018). No information is available as to what work was conducted, what was recovered and whether cultural heritage value or interest remains.

While sixteen other archaeological assessments have been carried out within the Township of Stamford no additional assessments have been carried out within 50m of the Study Area (OASD 2018).

Of the sites located within a one-kilometre radius of the Study Area none are situated within 300m.

Table 4: Registered Archaeological Sites within one kilometre of the Study Area

Borden Number	Name	Cultural Affiliation	Site Type	Time Period	Site Visits	Status and Current Use
AgGs-49	Crawford 3	Aboriginal	Other-camp/campsite, fishing, hunting	Middle Archaic, Early Woodland	01/12/1984-31/12/1984	-
AgGs-46	Brindle	Aboriginal	Other-camp/campsite	Middle Archaic	01/03/1985-31/03/1985	-
AgGs-37	Harovics	-	-	-	01/04/1987-30/04/1987	-
AgGs-326	Loretto	Post-Contact	-	1820-1859	01/10/2012-31/10/2012	-
AgGs-298	-	Aboriginal	Camp/campsite	Early Archaic	12/09/2016-20/09/2016	No Further CHVI
AgGs-292	-	Aboriginal	Findspot	Late Woodland	01/12/2006	-
AgGs-1	Chippawa	Aboriginal	Unknown	Archaic	01/01/1962-31/12/1962	-

4.2 The Natural Environment

The Study Area is situated within the Haldimand Clay Plain (Chapman and Putnam 1984: 156-159).

Although it was all submerged in Lake Warren, the till is not all buried by stratified clay; it comes to the surface generally in low morainic ridges in the north. In fact, there is in that area a confused intermixture of stratified clay and till. The northern part has more relief than the southern part where the typically level lake plains occur.

Chapman and Putnam 1984:156

The Haldimand Clay Plain is situated between the Niagara Escarpment and Lake Erie, excluding the fruit belt below the Niagara Peninsula. The region covers 3,497 square kilometres (km²). The south-eastern portion of the region is fairly level, which contrasts with the remainder of the regions scattering moraines. The principle soils of the area are loamy in nature and are well adapted for most of the crops typically raised throughout

Ontario (Page 1876). Map 7 provides the soils and elevation within the vicinity of the Study Area. Hard wood trees dominate the forest cover, consisting of beech, maple and oak, with some pine (Page 1876).

The closest water source to the Study Area is the Welland River, which flows from its Headwaters in Hamilton to empty into the Niagara River and drains an area of 880 km². The river was originally called the Chippawa Creek as it drained into the Niagara River at Chippawa but like many other places in the Niagara area it was renamed by John Graves Simcoe. The Welland River is approximately 800m from the southeast portion of the Study Area. The Horseshoe Falls are located approximately 1.3 km from the northeast portion of the Study Area.

4.3 Pre-Colonial Period Chronology

The general cultural history of Southern Ontario drawn from Ellis and Ferris (1990) and spanning the entire pre-colonial period and continuing into the post-colonial period is presented in Table 5.

Table 5: Cultural Chronology for Southern Ontario

Period	Characteristic Elements	Time Period	Comments
Early Paleo-Indian	Fluted Projectiles	9000 – 8400 B.C.	Spruce parkland/caribou hunters
Late Paleo-Indian	Hi-Lo Projectiles	8400 – 8000 B.C.	Smaller but more numerous sites
Early Archaic	Kirk and Bifurcate Base Points	8000 – 6000 B.C.	Slow population growth
Middle Archaic	Brewerton-like points	6000 – 2500 B.C.	Environment similar to present
Late Archaic	Lamoka (narrow points)	2000 – 1800 B.C.	Increasing site size
	Broadpoints	1800 – 1500 B.C.	Large chipped lithic tools
	Small Points	1500 – 1100 B.C.	Introduction of bow hunting
Terminal Archaic	Hind Points	1100 – 950 B.C.	Emergence of true cemeteries
Early Woodland	Meadowood Points	950 – 400 B.C.	Introduction of pottery
Middle Woodland	Dentate/Pseudo-Scallop Pottery	400 B.C. – A.D. 550	Increased sedentism
	Princess Point	A.D. 550 – 900	Introduction of corn
Late Woodland	Early Ontario Iroquoian	A.D. 900 – 1300	Emergence of agricultural villages
	Middle Ontario Iroquoian	A.D. 1300 – 1400	Long longhouses (100m +)
	Late Ontario Iroquoian	A.D. 1400 – 1650	Tribal warfare and displacement

Period	Characteristic Elements	Time Period	Comments
Colonial Indigenous	Various Algonkian Groups	A.D. 1700 – 1875	Early written records and treaties
Late Historic	Euro-Canadian	A.D. 1796 – present	European settlement

4.3.1 Pre-Colonial Indigenous Occupation

Previous archaeological assessments and research has demonstrated that Stamford Township was intensively occupied by pre-colonial Indigenous communities from the Paleo period up to the time of contact. The following subsections outline the cultural or temporal periods recognized for southern Ontario more generally.

4.3.1.1 Paleo-Indian Period

The first human occupation of south-central Ontario begins just after the end of the Wisconsin Glacial Period. Although there were a complex series of ice retreats and advances which played a large role in shaping the local topography, south-central Ontario was finally ice free by 12,500 years ago.

The first human settlement can be traced back 11,000 years, when this area was settled by Native groups that had been living south of the Great Lakes. The period of these early Native inhabitants is known as the Paleo-Indian Period (Ellis and Deller 1990).

The current understanding of settlement patterns of Early Paleo-Indian peoples suggests that small bands, consisting of probably no more than 25-35 individuals, followed a pattern of seasonal mobility extending over large territories. One of the most thoroughly studied of these groups followed a seasonal round that extended from as far south as Chatham, Ontario, to the Horseshoe Valley north of Barrie, Ontario. Early Paleo-Indian sites tend to be located in elevated locations on well-drained loamy soils. Many of the known sites were located on former beach ridges associated with glacial lakes. There are a few extremely large Early Paleo-Indian sites, such as one located close to Parkhill, Ontario, which covered as much as 6 ha. It appears that these sites were formed when the same general locations were occupied for short periods of time over the course of many years. Given their placement in locations conducive to the interception of migratory mammals such as caribou, it has been suggested that they may represent communal hunting camps. There are also smaller Early Paleo-Indian camps scattered throughout the interior of south-western and southcentral Ontario, usually situated adjacent to wetlands.

The most recent research suggests that population densities were very low during the Early Paleo-Indian Period (Ellis and Deller 1990:54). Archaeological examples of Early Paleo-Indian sites are rare.

The Late Paleo-Indian Period (8400-8000 BC) has been less well researched and is consequently more poorly understood. By this time the environment of south-central Ontario was coming to be dominated by closed coniferous forests with some minor deciduous elements. It seems that many of the large game species that had been hunted in the early part of the Paleo-Indian Period had either moved further north, or as in the case of the mastodons and mammoths, become extinct.

Like the early Paleo-Indian peoples, late Paleo-Indian peoples covered large territories as they moved about in response to seasonal resource fluctuations. On a province wide basis, Late Paleo-Indian projectile points are far more common than Early Paleo-Indian materials, suggesting a relative increase in population.

The end of the Late Paleo-Indian Period was heralded by numerous technological and cultural innovations that appeared throughout the Archaic Period, likely a result of the dynamic nature of the post-glacial environment and region-wide population increases.

4.3.1.2 Archaic Period

During the Early Archaic Period (8000-6000 BC), the jack and red pine forests that characterized the Late Paleo-Indian environment were replaced by forests dominated by white pine with some associated deciduous trees (Ellis, Kenyon and Spence 1990:68-69). One of the more notable changes in the Early Archaic Period is the appearance of side and corner-notched projectile points. Other significant innovations include the introduction of ground stone tools such as celts and axes, suggesting the beginnings of a simple woodworking industry. The presence of these often large and not easily portable tools suggests there may have been some reduction in the degree of seasonal movement, although it is still suspected that population densities were quite low, and band territories large.

During the Middle Archaic Period (6000-2500 BC) the trend to more diverse toolkits continued, as the presence of netsinkers suggest that fishing was becoming an important aspect of the subsistence economy. It was also at this time that "bannerstones" were first manufactured.

Another characteristic of the Middle Archaic is an increased reliance on local, often poor quality chert resources for the manufacturing of projectile points. It seems that during earlier periods, when groups occupied large territories, it was possible for them to visit a primary outcrop of high quality chert at least once during their seasonal round. However, during the Middle Archaic, groups inhabited smaller territories that often did not encompass a source of high quality raw material. In these instances, lower quality materials which had been deposited by the glaciers in the local till and river gravels were utilized.

It is also during the latter part of the Middle Archaic Period that long distance trade routes began to develop, spanning the northeastern part of the continent. Native copper tools manufactured from a source located northwest of Lake Superior were being widely traded (Ellis, Kenyon and Spence 1990:66). By 3500 BC the local environment had stabilized in a near modern form (Ellis, Kenyon and Spence 1990:69).

During the Late Archaic Period (2500-950 BC) the trend towards decreased territory size and a broadening subsistence base continued. Late Archaic sites are far more numerous than either Early or Middle Archaic sites, and it seems that the local population had expanded.

This suggestion of increased territoriality is also consistent with the regionalized variation present in Late Archaic projectile point styles. It was during the Late Archaic Period that distinct local styles of projectile points appear. Also, during the Late Archaic Period, the trade networks which had been established during the Middle Archaic continued to flourish.

4.3.1.3 Woodland Period

The Early Woodland Period (940 to 400 BC) is distinguished from the Late Archaic Period primarily by the addition of ceramic technology. Furthermore, the thin, well-made projectile points which were produced during the terminal part of the Archaic Period continue in use. However, the Early Woodland variants were side-notched rather than corner-notched, giving them a slightly altered and distinctive appearance.

The trade networks which were established in the Middle and Late Archaic Periods also continued to function. During the last 200 years of the Early Woodland Period, projectile points manufactured from high quality raw materials from the American Midwest begin to appear on sites in southwestern Ontario.

In terms of settlement and subsistence patterns, the Middle Woodland (300 BC to AD 500) provides a major point of departure from the Archaic and Early Woodland Periods. While Middle Woodland peoples still relied on hunting and gathering to meet their subsistence requirements, fish were becoming an even more important part of the diet.

It is also at the beginning of the Middle Woodland Period that rich, densely occupied sites appear along the margins of major rivers and lakes. While these areas had been utilized by earlier peoples, Middle Woodland sites are significantly different in that the same location was occupied off and on for as long as several hundred years and large deposits of artifacts often accumulated. Unlike earlier seasonally utilized locations, these Middle Woodland sites appear to have functioned as base camps, occupied off and on over the course of the year.

The Late Woodland Period began with a shift in settlement and subsistence patterns involving an increasing reliance on corn horticulture (Fox 1990:185). Corn may have been introduced into southwestern Ontario from the American Midwest as early as AD 600 or a few centuries before. Corn did not become a dietary staple, however, until at least three to four hundred years later, and then the cultivation of corn gradually spread into south-central and south-eastern Ontario.

The Late Woodland Period is widely accepted as the beginning of agricultural life ways in south-central Ontario. The first agricultural villages in southern Ontario date to the 10th century AD. Unlike the riverine base camps of the Middle Woodland Period, these sites are located in the uplands, on well-drained sandy soils. Categorized as "Early Ontario Iroquoian" (AD 900-1300), many archaeologists believe that it is possible to trace a direct line from the Iroquoian groups which later inhabited southern Ontario at the time of first European contact, back to these early villagers.

The Middle Ontario Iroquoian Period (AD 1300-1400) witnessed several interesting developments in terms of settlement patterns and artifact assemblages. Changes in ceramic styles have been carefully documented, allowing the placement of sites in the first or second half of this 100-year period. Moreover, villages, which averaged approximately 0.6 ha in extent during the Early Ontario Iroquoian Period, now consistently range between one and two ha. Village size also continues to expand throughout the Late Ontario Iroquoian Period, with many of the larger villages showing signs of periodic expansions.

5.0 METHODOLOGY

5.1 Existing Conditions

The Study Area is currently operated as the Thundering Waters Golf Course and was developed in 2005. The Study Area is developed with a main clubhouse, half-way house, catering building, maintenance area and four ponds. In addition to the buildings, as with all golf courses, the Study Area is comprised of fairways, tee boxes, greens and roughs which present as manicured lawn. In addition to the manicured lawn there are areas of obstacles including sand traps and water features.

When the topography of the property occupied by the golf course is compared to the areas surrounding the Study Area by referencing aerial imagery, it is not possible to positively differentiate between the natural undulating topography and the undulations present on the playing surface.

In addition to not being able to conclusively distinguish between artificial and natural features of topographic relief it is equally difficult to ascertain if any course landscaping was the result of capping events, that would have preserved any archaeological remains contained within the natural soils below, or massive grading events that would have eradicated subsurface archaeological deposits.

The Study Area is intersected by a railway line which has been on site since at least 1934 according to aerial photography.

A series of aerial photographs of the Study Area were consulted (Section 3.0) to identify areas of previous disturbance. The consulted images date to 1934, 1960, 1969 and 1982, as well as Google Earth images from 2005, 2013 and 2017. Based on the aerial photographs the Study Area appears to have been undeveloped except for the railway line prior to 2005.

What can be conclusively stated is that areas associated with the existing club house as well as the half-way house, catering building, maintenance area and ponds represent areas of extensive land alterations that will have obliterated any underlying archaeological deposits. These areas are identified on Map 9

The assessment of aerial photos reveals that the Study Area appears to contain small areas of mature growth. In addition to these areas of undisturbed trees identified in the aerial images photographs of the golf course reveal that other sections of the property have been reforested.

The Study Area likely contains buried utilities infrastructure; the extent of which is beyond the scope of a Stage 1 assessment, however prior to Stage 2 assessment private locates will need to be acquired to delineate areas of subsurface infrastructure, installation of which may have impacted any subsurface cultural remains that may have been present.

6.0 ANALYSIS AND CONCLUSIONS

Due to the large scope of the Study Area as well as the varying degree of terrain, development, and disturbance the methodological approach will need to be varied and catered to specific terrain of individual areas within the greater Study Area. Manicured lawns, wooded areas and any undeveloped areas that fall within the areas of archaeological potential will need to be subject to a Stage 2 survey where further methodological approaches based on spatial characteristics can be determined. Due to the fact that the majority of the Study Area is currently used as an 18-hole golf course it is difficult to determine how extensive the land alterations had been during its development. While it is evident that extensive subsurface alterations have been undertaken to construct each of the sand traps present on the property it is not possible to visually identify the areas, if any, that have been subjected to deep subsurface alteration during the construction of the course fairways, greens and roughs.

6.1 Archaeological Potential

Archaeological potential is established by determining whether any features or characteristics indicating archaeological potential are located on or in the vicinity of a Study Area. Features and characteristics that indicate archaeological potential are defined within Section 1.3.1 of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011:17-18) and include:

- Previously identified archaeological sites.
- Water sources:
 - Primary water sources (e.g., lakes, rivers, streams, creeks).

- Secondary water sources (e.g., intermittent streams and creeks; springs; marshes; swamps).
- Features indicating past water sources (e.g., glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels, shorelines of drained lakes or marshes, and cobble beaches).
- Accessible or inaccessible shoreline (e.g., high bluffs, swamps or marsh fields by the edge of a lake, sandbars stretching into marsh).
- Elevated topography (eskers, drumlins, large knolls, 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.
- Resource areas including:
 - Food or medicinal plants.
 - Scarce raw minerals (e.g., quartz, copper, ochre or outcrops of chert).
 - Early Euro-Canadian industry (fur trade, logging, prospecting, mining).
- Areas of early Euro-Canadian settlement including:
 - Early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, farmstead complexes).
 - Early wharf or dock complexes, pioneer churches and early cemeteries.
- Early historical transportation routes (e.g., trails, passes, roads, bridges, railways, portage routes).
- Property listed on a municipal register or designated under the *Ontario Heritage Act* or that is a federal, provincial or municipal historic landmark or site.
- Property that local histories or informants have identified with possible archaeological sites, historical events, activities or occupations.

Many of the above features of archaeological potential have a buffer assigned to them, extending the zone of archaeological potential beyond the physical feature. The following buffers are commonly accepted by the MTCS and specifically indicated in Section 1.4 of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011:20-21).

- 300 m buffer: previously identified archaeological site; water sources; areas of early Euro-Canadian settlement; or locations identified through local knowledge or informants.
- 100 m buffer: early historical transportation route.
- No buffer, potential is restricted to the physical limits or the feature: elevated topography, pockets of well-drained sandy soil, distinctive land formations, resources areas, listed or designated properties and landmark properties.

6.1.1 Potential for Pre- and Post-Colonial Indigenous Resources

The Study Area is within a zone of general potential for the presence of pre-colonial or early colonial period Indigenous sites given the presence of both the Welland River that is approximately 800m from the Study

Area and the larger Horseshoe Falls that is just over one kilometer from the Study Area. The Study Area is also in an area of elevated topography and the soils would have been suitable for pre-colonial Indigenous agriculture. In addition, five pre-colonial Indigenous archaeological sites have been previously identified within one kilometer of the Study Area; none of the previously identified sites were located within 300m of the Study Area.

When the above noted archaeological potential criteria were applied to the Study Area, the Study Area exhibits archaeological potential for the identification of pre- and post-colonial Indigenous sites. While areas of previous disturbance eradicate the potential for the recovery of archaeological resources (Section 6.1.2), areas of no or low levels of previous disturbance retain their archaeological potential.

Map 8 illustrates areas of recognized archaeological potential from the City of Niagara Falls Heritage Master Plan. Map 9 illustrates areas of previous disturbance as well as areas recommended for Stage 2 survey.

6.1.2 Potential for Historic Euro-Canadian Resources

Following the criteria outlined above in Section 6.1 to determine historical Euro-Canadian archaeological potential, a number of factors can be highlighted. There is early map evidence that Lots 176, 189, 195, 196, 214, 215, 216 and 217 of Stamford Township have been owned and likely occupied as of the late 18th Century. The Study Area is also located within close proximity to early transportation routes; Maps 3-5 illustrate the approximate location of the study area in relation to Lundy's Lane, Portage Road, Stanley Avenue, The Canada Southern Railway and the Canada Air Line Railway. In addition, one historical Euro-Canadian archaeological site was identified within one kilometre of the Study Area but not within 300m of the Study Area.

When the above noted archaeological potential criteria were applied to the Study Area, the Study Area exhibits archaeological potential for historic Euro-Canadian sites. While areas of previous disturbance eradicate the potential for the recovery of archaeological resources, areas of no or low levels of previous disturbance retain their archaeological potential; these areas include portions of the parklands and manicured lawns.

Map 8 illustrates areas of recognized archaeological potential from the City of Niagara Falls Heritage Master Plan. Map 9 illustrates areas of previous disturbance as well as areas recommended for Stage 2 survey.

6.1.3 Archaeological Integrity

A negative indicator of archaeological potential is extensive below-grade land disturbance. This includes widespread earth movement activities that would have removed or relocated any archaeological resources to such a degree that their information potential and cultural heritage value or interest has been lost.

Activities that are recognized to cause sufficient disturbance to remove archaeological potential include: quarrying, major landscaping involving grading below topsoil, building footprints and infrastructure development. Activities including agricultural cultivation, gardening, minor grading and landscaping do not necessarily remove archaeological potential (MTCS 2011:18). The current Study Area contains areas with extensive below-grade land disturbance. However, due to the large scope of the Study Area, the Stage 1 investigation cannot omit specific areas or properties within Thundering Waters Golf Course from future archaeological assessment work without further study and survey.

Areas identified as being previously disturbed include the existing club house, half-way house, catering building, maintenance area and four ponds. Smaller areas of disturbance such as cart pathways and

sandbunkers are not mapped on Map 9 due to their small size; it is assumed they will be captured as part of the five-meter interval during the Stage 2 survey.

As discussed in section 5.1 the current use of the property as a golf course indicates that the property has been subjected to some level of subsurface disturbance, but it is not possible through visual assessment to determine to what extent the development of the golf course impacted any subsurface cultural remains that may be present in the Study Area. As stated above the *Standards and Guidelines for Consultant Archaeologists* state that “minor grading and landscaping do not necessarily affect archaeological potential” (MTCS 2011:18). Based on this it is recommended that the Study Area be subjected to a Stage 2 archaeological assessment prior to development, including areas where it was not possible to identify previous disturbance during the Stage 1 assessment.

7.0 RECOMMENDATIONS

The Stage 1 Archaeological Assessment found the Thundering Waters Golf Course Study Area located at 6000 Marineland Parkway, Niagara Falls, Ontario to exhibit potential for the recovery of intact archaeological deposits. Based on the findings of the Stage 1 assessment the following recommendations are made, as illustrated in Map 9.

- 6) Areas of manicured lawns as well as brush and wooded areas (including areas where previous disturbance could not be definitively demonstrated) exhibit archaeological potential for the recovery of archaeological remains. Stage 2 test pit survey at an interval of five meters is recommended for these areas prior to ground disturbance activities. Test pits should be approximately 30 centimetres in diameter and excavated to subsoil. If artifacts are recovered their location should be recorded with a GPS unit and test pit intervals reduced to 2.5 meters within 5 meters of the positive test pit, as well as a one-meter test unit if necessary;
- 7) Areas of previous disturbance exhibit low potential for the recovery of archaeological remains. No further assessment is recommended for these areas;
- 8) Golf cart pathways and sand bunkers are considered to be previously disturbed, however would be captured within a five-meter test pit grid; as such, individual previously disturbed golf cart paths and sand bunkers are not illustrated in Map 9; and
- 9) Given the level of unknown disturbance from soil grading within the golf course it is recommended the Stage 2 survey follow a two-phase approach. The first phase would include the survey of treed areas including those situated between and along golf hole footprints. Should these areas be found to be heavily disturbed due to deep grading, all evidence of disturbance will be photo documented. Should the treed areas be found to be previously disturbed, it is recommended that the greens and fairways also be considered to be previously disturbed. Should the first phase of test pitting reveal relatively undisturbed conditions within the treed areas, phase two will consist of Stage 2 test pit survey of the full extent of the golf course including all tees, fairways, roughs and greens. The two-phase process is illustrated in Map 9 (Phase 1 – Wooded Area, Phase 2 – Open Area).
- 10) All Stage 2 archaeological assessment should be conducted by a licensed consultant archaeologist and follow the requirements set out in the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

The MTCS is asked to review the results and recommendations presented herein and accept this report into the Provincial Register of archaeological reports. The MTCS is also asked to provide a letter concurring with the results presented herein.

8.0 ADVICE ON COMPLIANCE WITH 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*, R.S.O. 1990, c O.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the Ministry stating that there are no further concerns with regards 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 licenced 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 licenced archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating 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 representative of a new archaeological site or sites and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

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10.0 MAPS

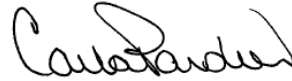
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Signature Page

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Rhiannon Fisher, M.Sc., RPA
Archaeologist

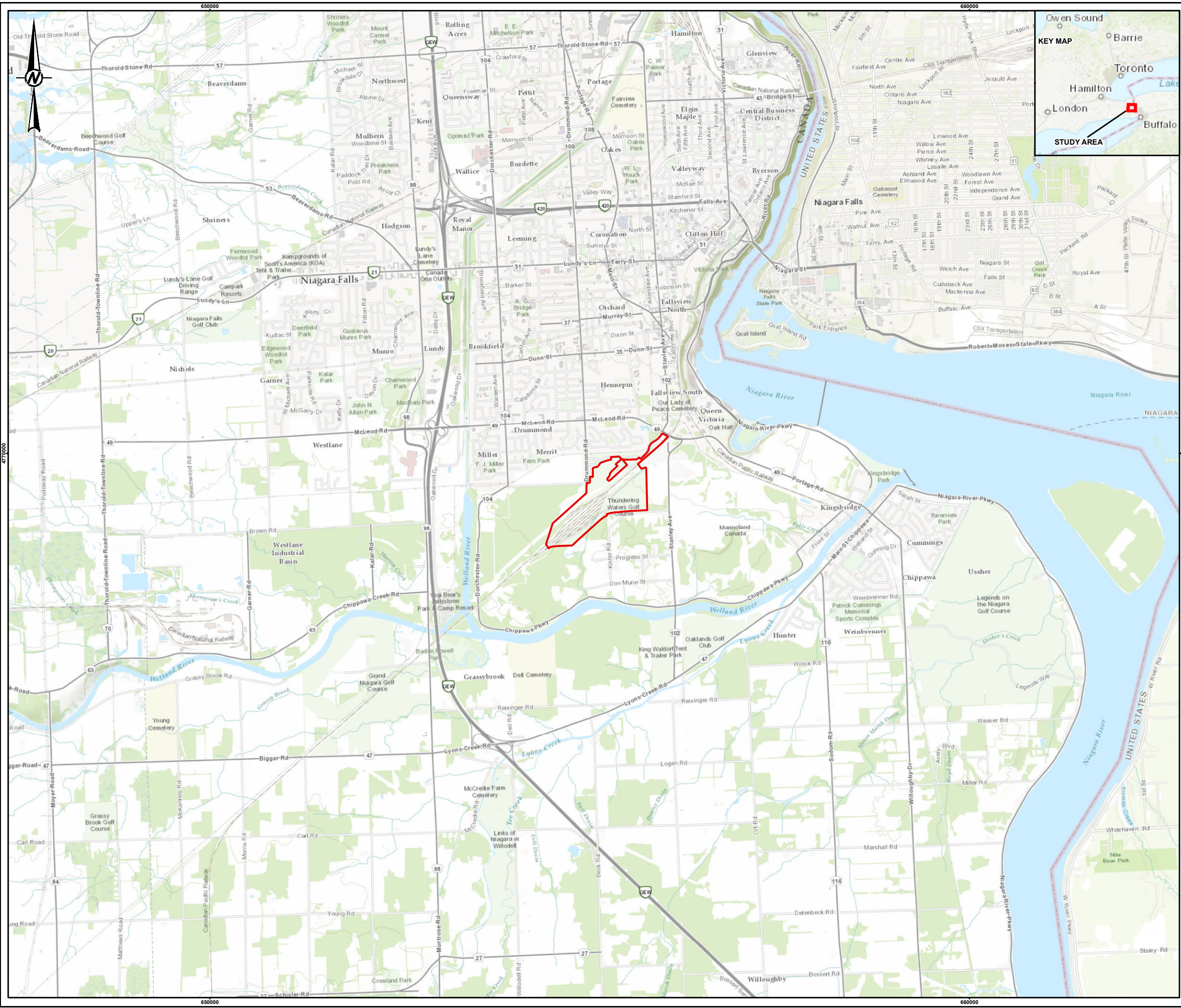


Carla Parslow, Ph.D.
Senior Archaeologist, Associate

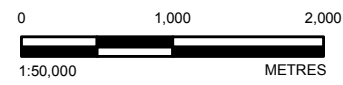
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CLIENT
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PROJECT
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TITLE
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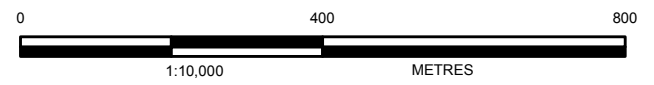
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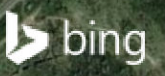
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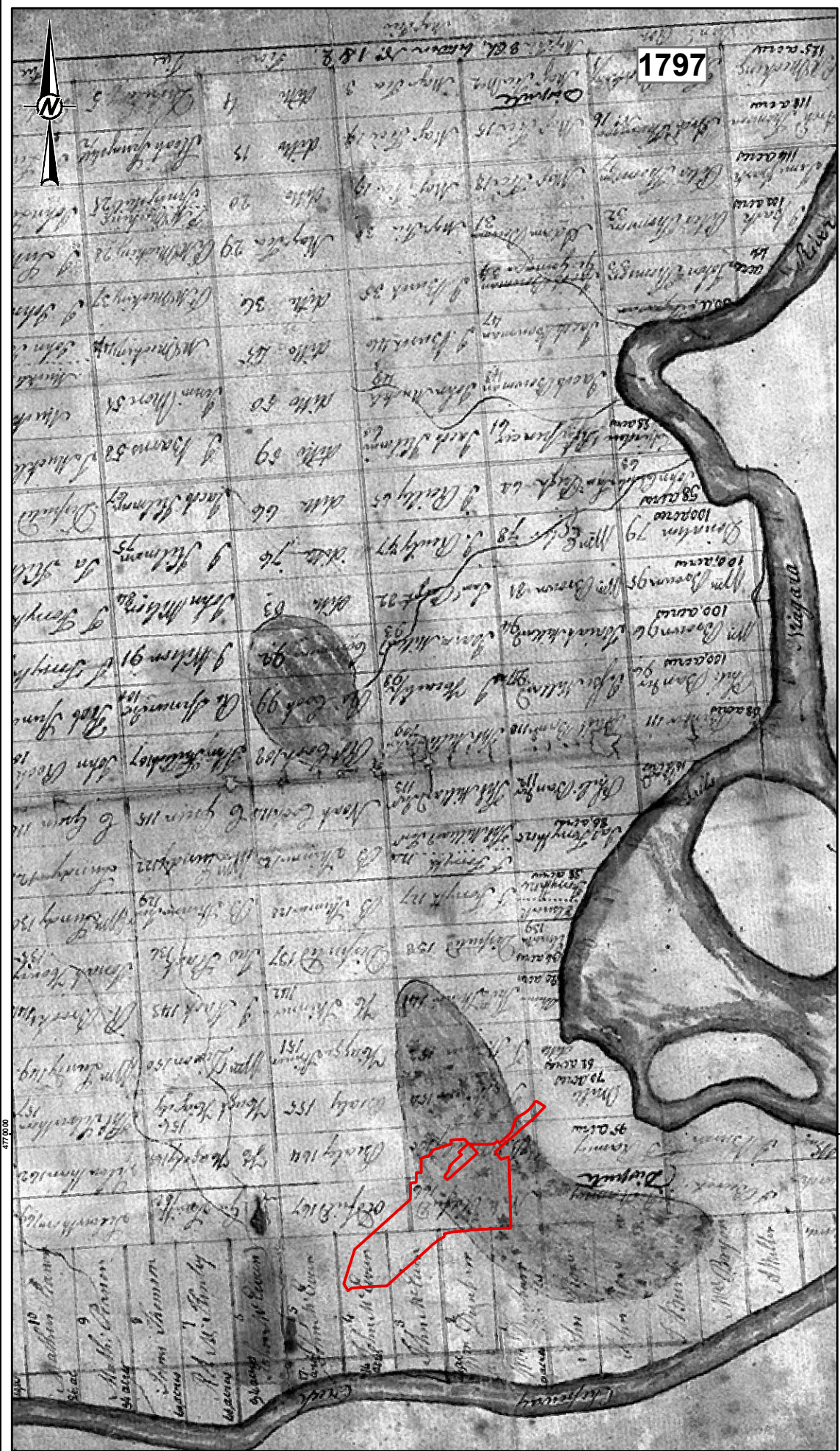
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PROJECT NO. 1784521 CONTROL 0002 REV. A FIGURE 2

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B





LEGEND
 STUDY AREA

NOTE(S)
 1. IMAGES ARE NOT TO SCALE.
 2. APPROXIMATE LOCATION. GEOREFERENCED AND SHIFTED TO BEST FIT.

REFERENCE(S)
 1. PORTION OF THE 1797 MAP OF STAMFORD TOWNSHIP – REFERENCE: BASE IMAGE OBTAINED FROM BROCK UNIVERSITY WEBSITE: [HTTP://WWW.BROCKU.CA/MAPLIBRARY/DIGITAL/MAPZOOM/MAPLIST.PHP](http://www.brocku.ca/maplibrary/digital/mapzoom/maplist.php)
 2. PORTION OF TREMAINE'S 1862 MAP OF THE COUNTIES OF LINCOLN AND WELLAND CANADA WEST – REFERENCE: TREMAINE, GEORGE. R. 1862 COUNTIES OF LINCOLN AND WELLAND, CANADA WEST
 3. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT
 PRENIX ASSOCIATES INTERNATIONAL LIMITED

PROJECT
 STAGE 1 ARCHAEOLOGICAL ASSESSMENT PROPOSED RESIDENTIAL DEVELOPMENT – THUNDERING WATERS GOLF COURSE, 6000 MARINELAND PARKWAY, REGIONAL MUNICIPALITY OF NIAGARA, CITY OF NIAGARA FALLS, ONTARIO

TITLE
STUDY AREA OVERLAID ON 1797 & 1862 HISTORICAL ATLAS MAPS

CONSULTANT	DATE
YYYY-MM-DD	2018-02-14
DESIGNED	SFC
PREPARED	SFC
REVIEWED	RF
APPROVED	

PROJECT NO.	CONTROL	REV.	FIGURE
1784521	0002	A	3





LEGEND
 STUDY AREA

1876

NOTE(S)
 1. IMAGES ARE NOT TO SCALE.
 2. APPROXIMATE LOCATION. GEOREFERENCED AND SHIFTED TO BEST FIT.

REFERENCE(S)
 1. PORTION OF THE 1876 MAP OF STAMFORD TOWNSHIP – REFERENCE: PAGE, H.R. 1876 ILLUSTRATED HISTORICAL ATLAS OF THE COUNTIES OF LINCOLN AND WELLAND, ONTARIO. H.R. PAGE & CO: TORONTO
 2. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT
 PRENIX ASSOCIATES INTERNATIONAL LIMITED

PROJECT
 STAGE 1 ARCHAEOLOGICAL ASSESSMENT PROPOSED RESIDENTIAL DEVELOPMENT – THUNDERING WATERS GOLF COURSE, 6000 MARINELAND PARKWAY, REGIONAL MUNICIPALITY OF NIAGARA, CITY OF NIAGARA FALLS, ONTARIO

TITLE
 STUDY AREA OVERLAID ON 1876 HISTORICAL ATLAS MAP

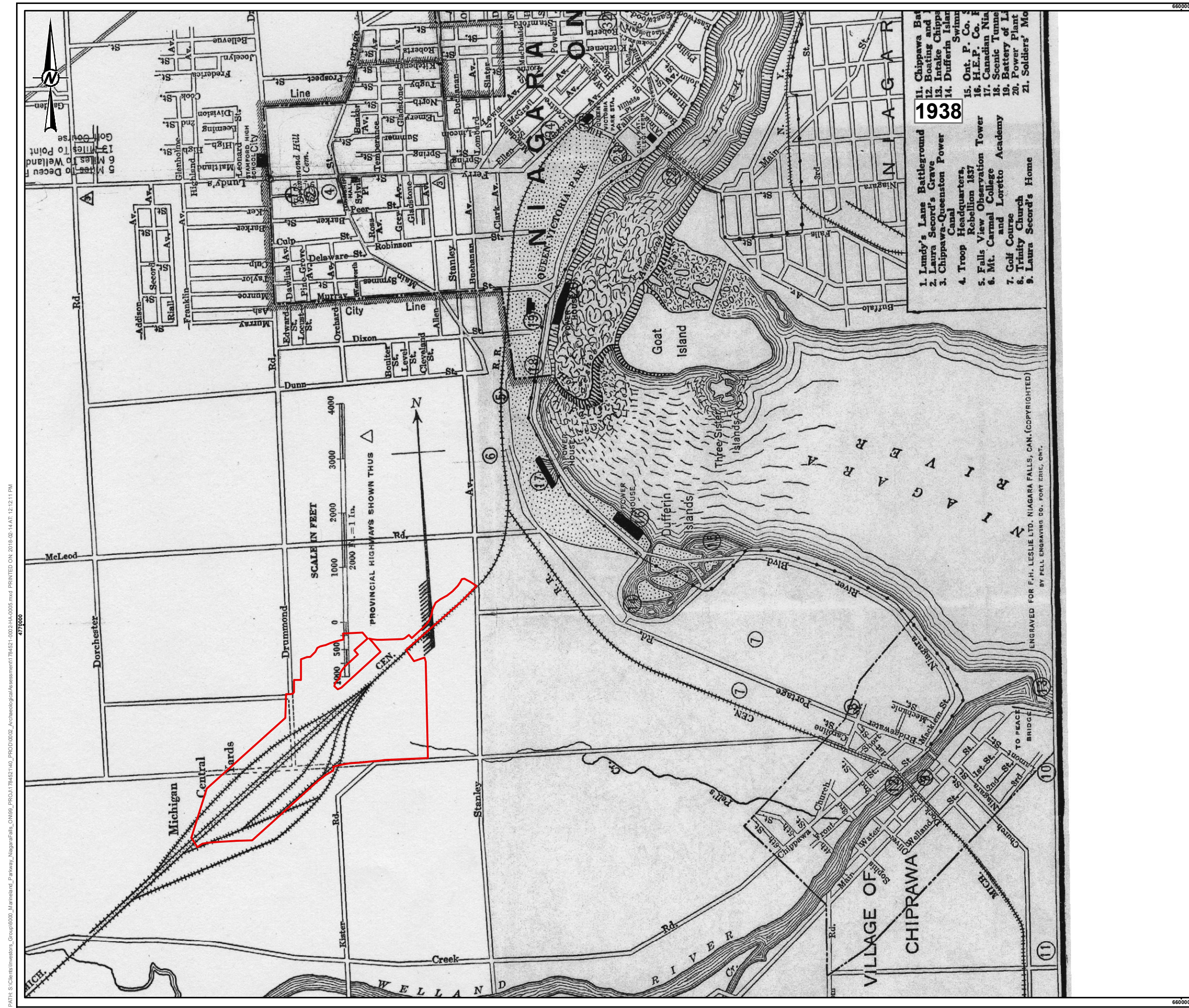
CONSULTANT	YYYY-MM-DD	2018-02-14
DESIGNED	SFC	
PREPARED	SFC	
REVIEWED	RF	
APPROVED		

PROJECT NO. 1784521 CONTROL 0002 REV. A FIGURE 4



PATH: S:\Clients\Instruments_Group\6000_Marineland_Parkway_NiagaraFalls_ON189_PROJ1784521_V01_PROD\0202_ArchaeologicalAssessment\1784521_002\1876AtlasMap.mxd PRINTED ON: 2018-02-14 AT: 12:11:36 PM 477000

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



LEGEND
 STUDY AREA

- 1938**
1. Lundy's Lane Battleground
 2. Laura Secord's Grave
 3. Chippawa-Queenston Power Canal
 4. Troop Headquarters, Rebellion 1837
 5. Falls View Observation Tower
 6. Mt. Carmel College Academy and Loretto Academy
 7. Golf Course and Trinity Church
 8. Laura Secord's Home
 9. Chippawa East
 10. Boating and Intake Chippawa
 11. Intake Chippawa
 12. Dufferin Island Swings
 13. Ont. P. Co. Sta.
 14. H.E.P. Co. Sta.
 15. Canadian Nia
 16. Scenic Tunne
 17. Battery of Li
 18. Power Plant
 19. Soldiers' Mo

NOTE(S)
 1. IMAGES ARE NOT TO SCALE.
 2. APPROXIMATE LOCATION. GEOREFERENCED AND SHIFTED TO BEST FIT.

REFERENCE(S)
 1. PORTION OF THE 1938 MAP OF NIAGARA FALLS – REFERENCE: BASE IMAGE OBTAINED FROM BROCK UNIVERSITY WEBSITE: [HTTP://WWW.BROCKU.CA/MAPLIBRARY/DIGITAL/MAPZOOM/MAPLIST.PHP](http://www.brocku.ca/maplibrary/digital/mapzoom/maplist.php)
 2. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT
 PRENIX ASSOCIATES INTERNATIONAL LIMITED

PROJECT
 STAGE 1 ARCHAEOLOGICAL ASSESSMENT PROPOSED RESIDENTIAL DEVELOPMENT – THUNDERING WATERS GOLF COURSE, 6000 MARINELAND PARKWAY, REGIONAL MUNICIPALITY OF NIAGARA, CITY OF NIAGARA FALLS, ONTARIO

TITLE
STUDY AREA OVERLAID ON 1938 HISTORICAL ATLAS MAP

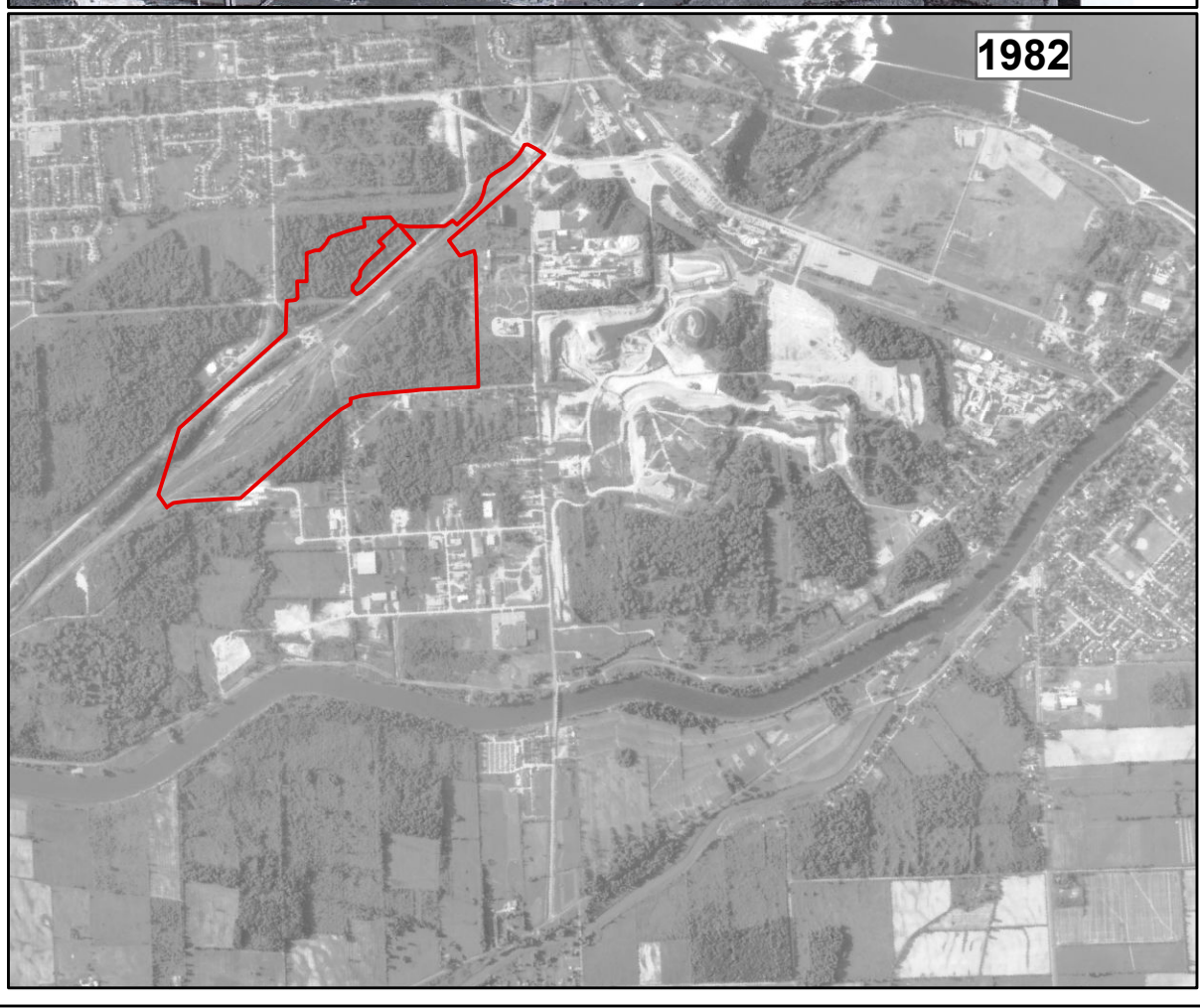
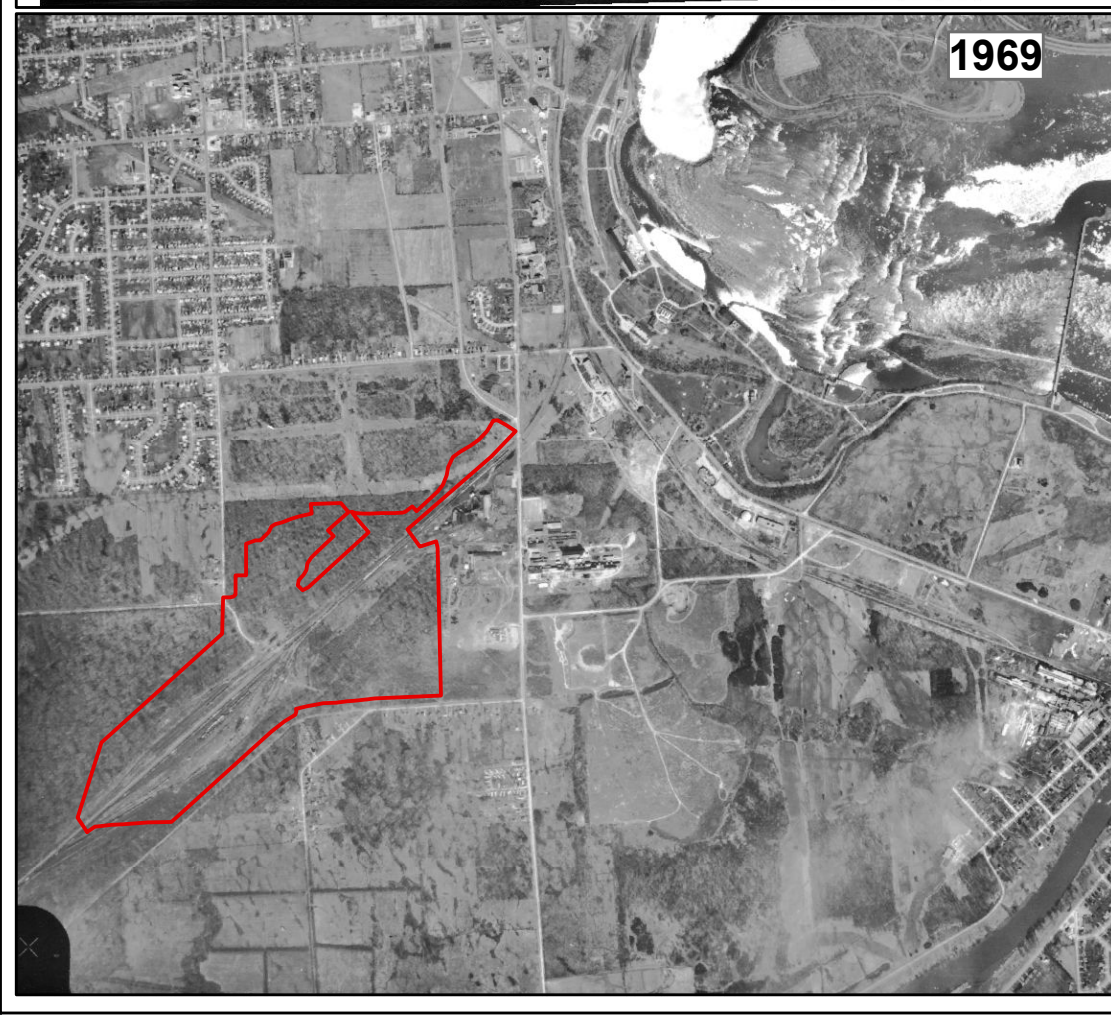
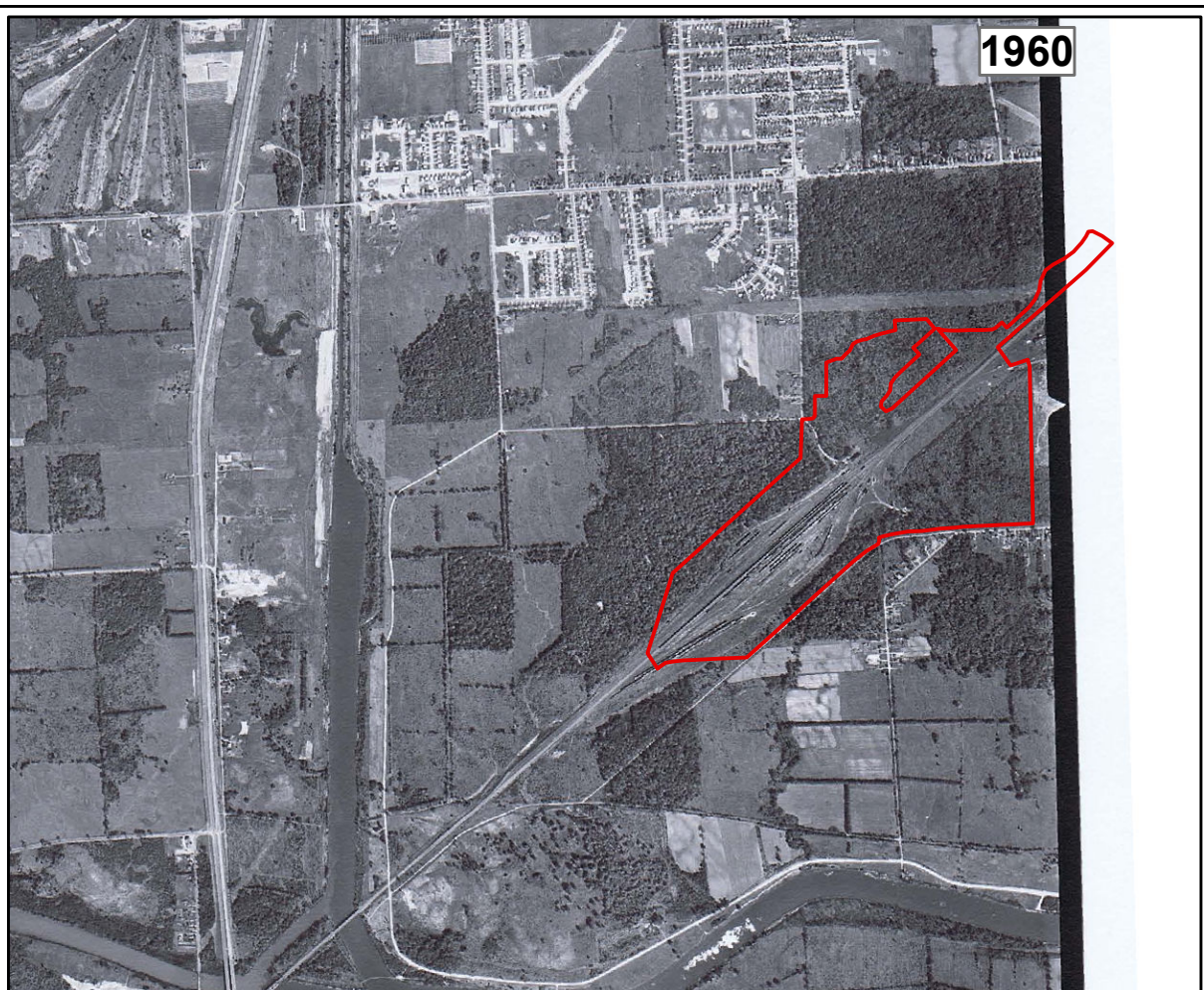
CONSULTANT	YYYY-MM-DD	2018-02-14
DESIGNED	SFC	
PREPARED	SFC	
REVIEWED	RF	
APPROVED		

PROJECT NO. CONTROL REV. FIGURE
 1784521 0002 A 5

PATH: S:\Clients\Instruments_Group\6000_Marineland_Parkway_NiagaraFalls_ON189_PROJ\1784521_V01_PROD\0202_ArchaeologicalAssessment\1784521_0003\1784521_0003.mxd PRINTED ON: 2018-02-14 AT: 12:12:11 PM
 477680

26mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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LEGEND
[Red outline symbol] STUDY AREA

NOTE(S)
1. IMAGES ARE NOT TO SCALE.
2. APPROXIMATE LOCATION. GEOREFERENCED AND SHIFTED TO BEST FIT.

REFERENCE(S)
1. AERIAL IMAGERY; CITY DIRECTORY INFORMATION SOURCE:10 VERNON'S NIAGARA FALLS, ONTARIO CITY DIRECTORY - OBTAINED FROM LGI COPY SERVICE CANADA
2. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT
PRENIX ASSOCIATES INTERNATIONAL LIMITED

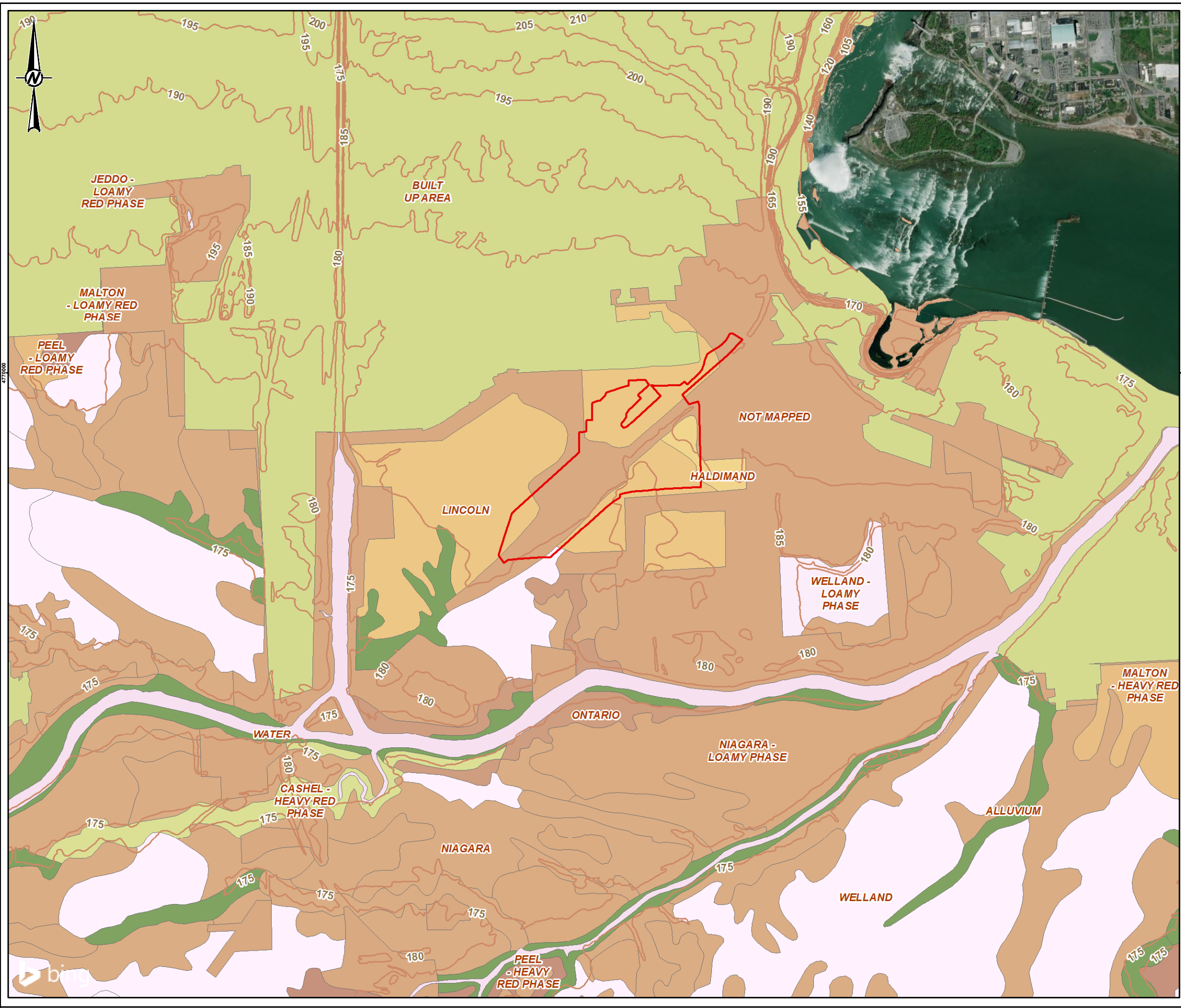
PROJECT
STAGE 1 ARCHAEOLOGICAL ASSESSMENT PROPOSED RESIDENTIAL DEVELOPMENT - THUNDERING WATERS GOLF COURSE, 6000 MARINELAND PARKWAY, REGIONAL MUNICIPALITY OF NIAGARA, CITY OF NIAGARA FALLS, ONTARIO

TITLE
STUDY AREA OVERLAID ON HISTORICAL AERIAL IMAGES

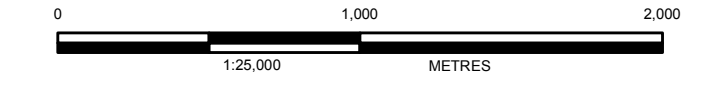
CONSULTANT	YYYY-MM-DD	2018-02-14
DESIGNED	SFC	
PREPARED	SFC	
REVIEWED	RF	
APPROVED		

PROJECT NO.	CONTROL	REV.	FIGURE
1784521	0002	A	6

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B 26mm



- LEGEND**
- CONTOUR
 - ALLUVIUM, ALU
 - BUILT UP AREA, ZBU
 - CASHEL - HEAVY RED PHASE, CSH
 - HALDIMAND, HIM
 - JEDDO - LOAMY RED PHASE, JDD
 - LINCOLN, LIC
 - MALTON - HEAVY RED PHASE, MAT
 - MALTON - LOAMY RED PHASE, MAT
 - NIAGARA - LOAMY PHASE, NGR
 - NIAGARA, NGR
 - NOT MAPPED, ZNM
 - ONTARIO, OTI
 - PEEL - HEAVY RED PHASE, PEL
 - PEEL - LOAMY RED PHASE, PEL
 - WATER, ZZZ
 - WELLAND - LOAMY PHASE, WLL
 - WELLAND, WLL
 - STUDY AREA



REFERENCE(S)

1. BASE IMAGERY - SERVICE LAYER CREDITS: © 2018 MICROSOFT CORPORATION © 2018 DIGITALGLOBE ©CNES (2018) DISTRIBUTION AIRBUS DS
2. BASE DATA: MRNF LIO 2017
3. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT
PRENIX ASSOCIATES INTERNATIONAL LIMITED

PROJECT
STAGE 1 ARCHAEOLOGICAL ASSESSMENT PROPOSED RESIDENTIAL DEVELOPMENT – THUNDERING WATERS GOLF COURSE, 6000 MARINELAND PARKWAY, REGIONAL MUNICIPALITY OF NIAGARA, CITY OF NIAGARA FALLS, ONTARIO

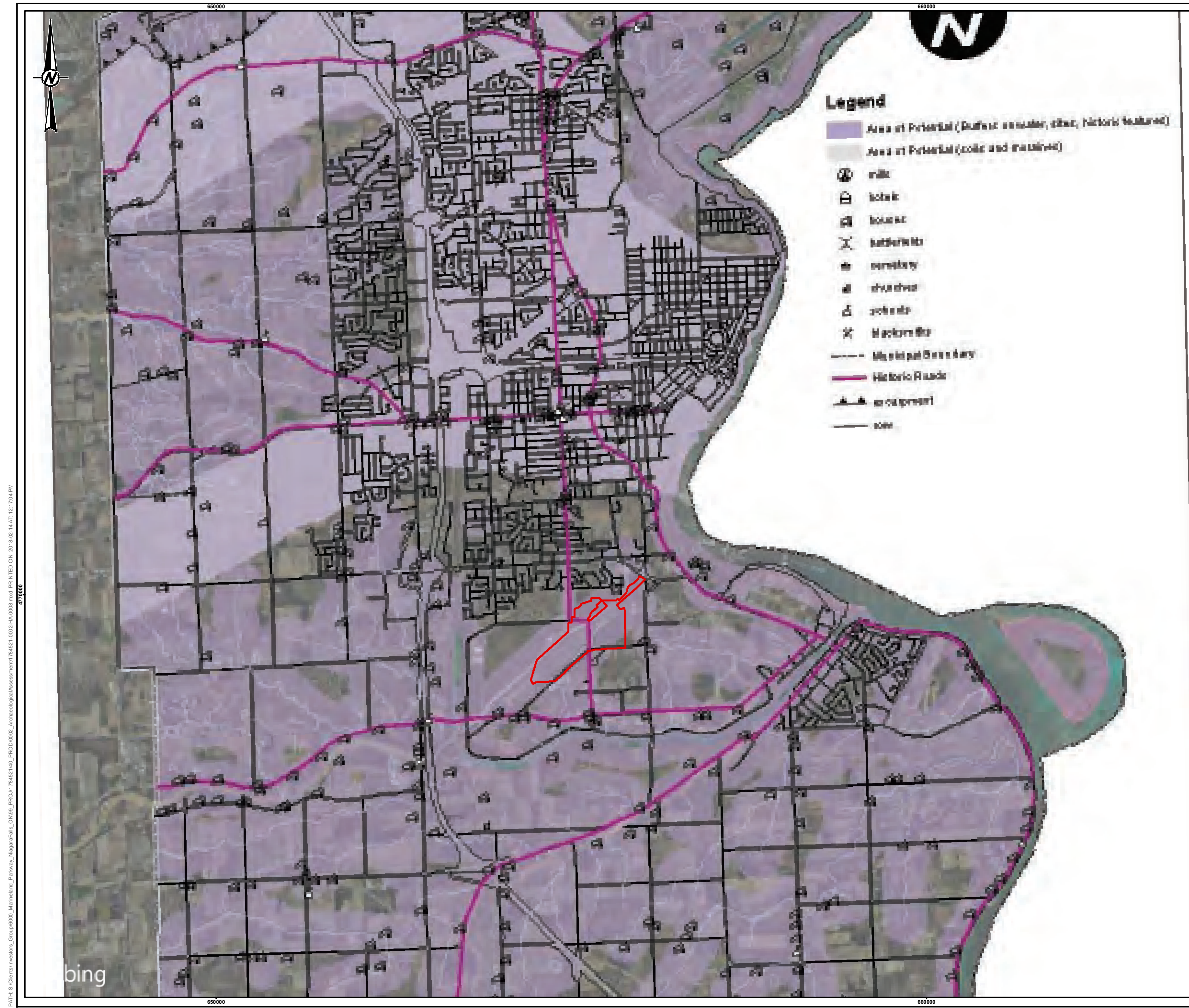
TITLE
SOILS AND ELEVATION IN AND WITHIN THE STUDY AREA

CONSULTANT	YYYY-MM-DD	2018-02-14
DESIGNED	SFC	
PREPARED	SFC	
REVIEWED	RF	
APPROVED		

PROJECT NO.	CONTROL	REV.	FIGURE
1784521	0002	A	7

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B



Legend

- Area of Potential (Buffers on water, sites, historic features)
- Area of Potential (soils and moraines)
- mills
- hotels
- houses
- battlefields
- cemetery
- churches
- schools
- blacksmiths
- Municipal Boundary
- Historic Roads
- es carpment
- row

LEGEND

- STUDY AREA
- Area of Potential (Buffers on water, sites, historic features)
- Area of Potential (soils and moraines)
- mills
- hotels
- houses
- battlefields
- cemetery
- churches
- schools
- blacksmiths
- Municipal Boundary
- Historic Roads
- es carpment
- row

NOTE(S)

1. IMAGES ARE NOT TO SCALE.
2. APPROXIMATE LOCATION. GEOREFERENCED AND SHIFTED TO BEST FIT.

REFERENCE(S)

1. CITY OF NIAGARA FALLS HERITAGE MASTER PLAN
2. BASE DATA: MRNF LIO 2017
3. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

CLIENT

PRENIX ASSOCIATES INTERNATIONAL LIMITED

PROJECT

STAGE 1 ARCHAEOLOGICAL ASSESSMENT PROPOSED RESIDENTIAL DEVELOPMENT – THUNDERING WATERS GOLF COURSE, 6000 MARINELAND PARKWAY, REGIONAL MUNICIPALITY OF NIAGARA, CITY OF NIAGARA FALLS, ONTARIO

TITLE

PORTION OF CITY OF NIAGARA FALLS HERITAGE MASTER PLAN - ARCHAEOLOGICAL POTENTIAL

CONSULTANT

YYYY-MM-DD 2018-02-14

DESIGNED

SFC

PREPARED

SFC

REVIEWED

RF

APPROVED



PROJECT NO.

1784521

CONTROL

0002

REV.

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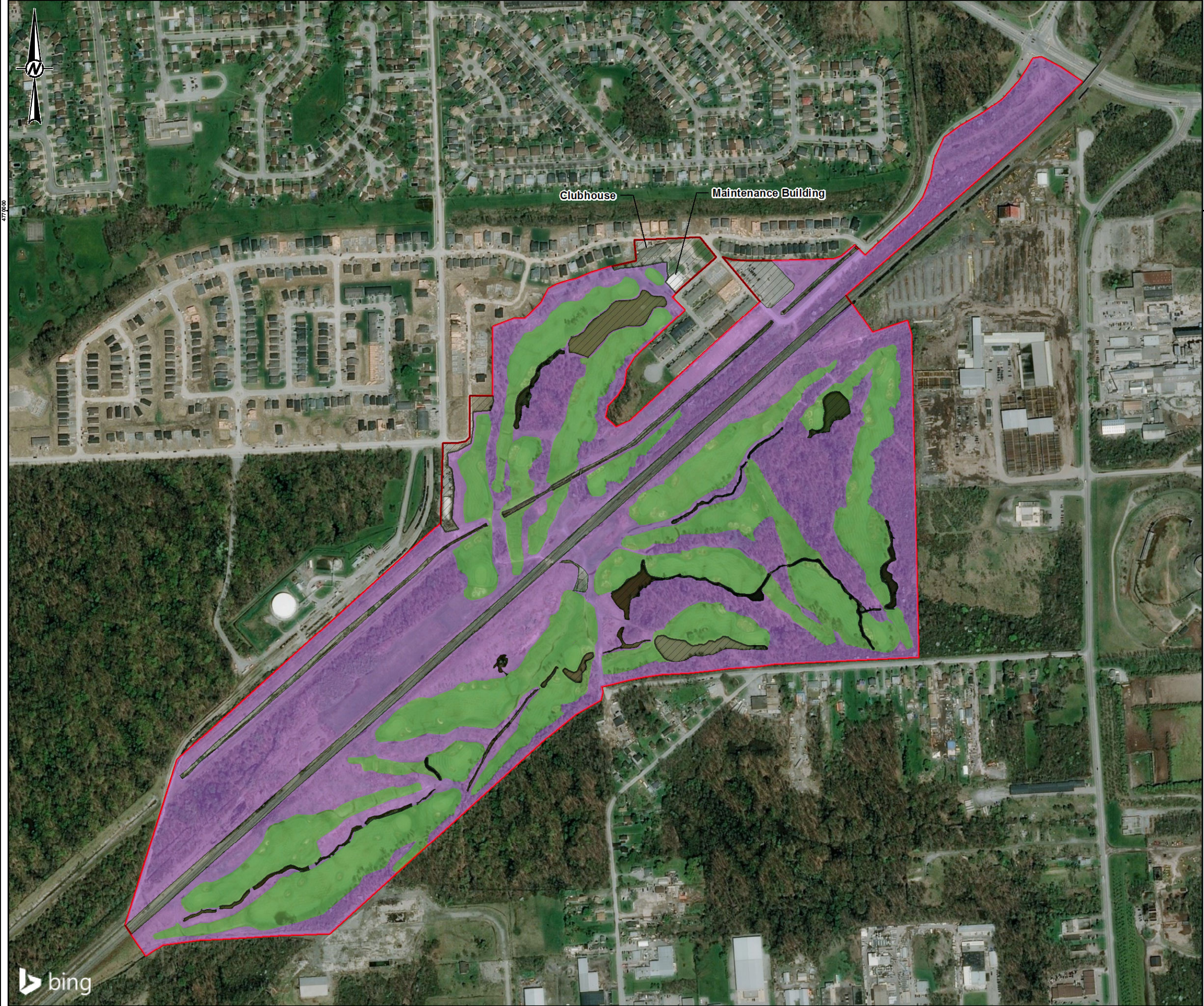
FIGURE

8

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

bing



LEGEND

- PREVIOUSLY DISTURBED
- STAGE 2 TEST PIT RECOMMENDED (OPEN AREA)
- STAGE 2 TEST PIT RECOMMENDED (WOODED / BRUSHED AREA)
- STUDY AREA



REFERENCE(S)

1. SERVICE LAYER CREDITS: © 2018 MICROSOFT CORPORATION © 2018 DIGITALGLOBE © CNES (2018) DISTRIBUTION AIRBUS DS
2. BASE DATA: MRNF LIO 2017
3. PROJECTION: TRANSVERSE MERCATOR NAD 1983 UTM ZONE 17N

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PRENIX ASSOCIATES INTERNATIONAL LIMITED

PROJECT
STAGE 1 ARCHAEOLOGICAL ASSESSMENT PROPOSED RESIDENTIAL DEVELOPMENT – THUNDERING WATERS GOLF COURSE, 6000 MARINELAND PARKWAY, REGIONAL MUNICIPALITY OF NIAGARA, CITY OF NIAGARA FALLS, ONTARIO

TITLE
AREA OF ARCHAEOLOGICAL POTENTIAL

CONSULTANT	YYYY-MM-DD	2018-02-14
DESIGNED	SFC	
PREPARED	SFC	
REVIEWED	RF	
APPROVED		

PROJECT NO. 1784521	CONTROL 0002	REV. A	FIGURE 9
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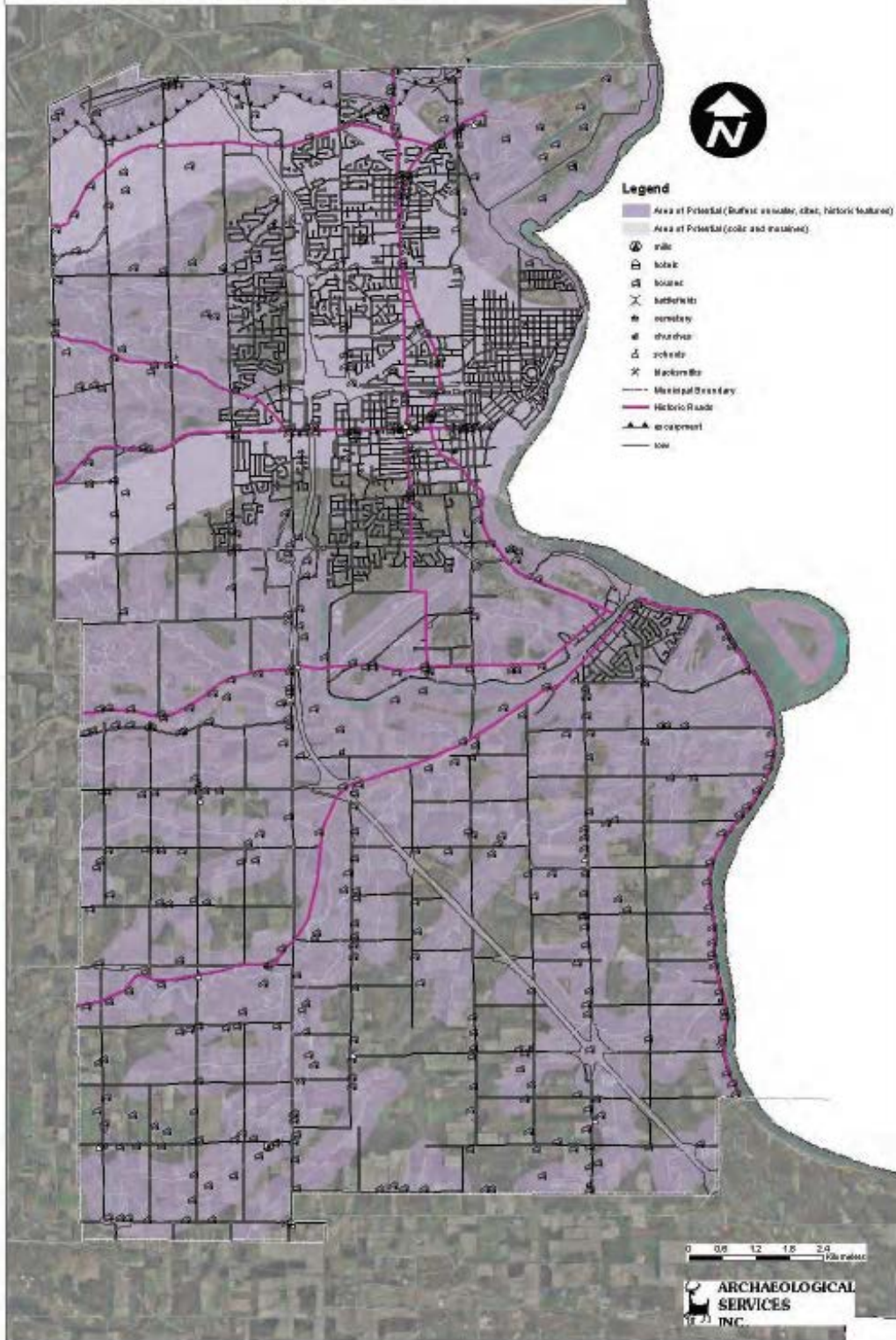
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APPENDIX A
City of Niagara Falls Heritage Master Plan – Archaeological Potential

City of Niagara Falls Heritage Master Plan Archaeological Potential





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