



ORIGINAL: 20 MARCH 2024

STAGE 1-2 ARCHAEOLOGICAL ASSESSMENT

Property Located at Killaly Street Subdivision (East Quarry Ponds) Part of Lots 31, 32 & 33, Concession 1, (Geographical Township of Humberstone) City of Port Colborne, Regional Municipality of Niagara (AMICK Corporate Project #2023-354/MCM File #P038-1330-2023)

SUBMITTED TO:

Ontario Ministry of Citizenship and Multiculturalism (MCM)

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MCM FILE NUMBER: P038-1330-2023

MCM SITE RECORD: AFGT-347

CORPORATE PROJECT NUMBER: 2023-354

01 FEBRUARY 2024

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Alex Cassidy-Neumiller (MCM Professional Archaeologist Licence #P1311)

EXECUTIVE SUMMARY

This report describes the results of the 2023 Stage 1-2 Archaeological Property Assessment of Property Located at Killaly Street Subdivision (East Quarry Ponds) Part of Lots 31, 32 & 33, Concession 1, (Geographical Township of Humberstone) City of Port Colborne, Regional Municipality of Niagara, conducted by AMICK Consultants Limited. This assessment was undertaken as a requirement under the Planning Act (RSO 1990) and was conducted under Professional Archaeologist License #P038 issued to Marilyn Cornies by the Minister of Citizenship and Multiculturalism (MCM) for the Province of Ontario. All work was conducted in conformity with Ontario Ministry of Tourism and Culture (MTC) Standards and Guidelines for Consultant Archaeologists (MTC 2011) and the Ontario Heritage Act (RSO 1990a).

The entirety of the study area is approximately 58.27 hectares (ha) in area and includes within it a concrete roadway, a ploughed field in the northeast corner of the study area, overgrown meadow areas throughout the entirety of the study area, Quarry Ponds are located in the western portion of the study area, and the remainder of the study area consists a former concrete factory. Within the study area there are several gravel trails throughout the meadow areas that did not interrupt the systemic test pit survey grid. Approximately 6.91 hectares of the study area consisted of Environmentally Protected (EP) area, which was not subject to any Stage 2 Property Assessment. This area may be entirely disturbed from previous quarrying activity; however an archaeological assessment of this area will be required should any change in permitted land use of this area be proposed in the future. Maps 5 & 6 illustrated the location of these EP lands. The study area is bounded on the north by Main Street West and Killaly Street West, on the east by existing residential development, on the south by Port Colborne Harbour Railway and on the west by an extension of the Quarry Ponds and existing residential development and was granted permission to carry out archaeological fieldwork. Following the criteria outlined by MCMS (2011) for determining archaeological potential, portions of the study area were determined as having archaeological potential for Pre-contact and Post-contact archaeological resources. Consequently, this report is being prepared in advance of the planning process for this property.

The entirety of the study area, save for EP lands, was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment which consisted of high intensity test pit methodology at a five-metre interval between individual test pits, test pit survey at a ten-metre interval to confirm disturbance and high intensity pedestrian survey at an interval of 5 metres between individual transects on 10 July & 17 October 2023. All records, documentation, field notes, photographs, and artifacts (as applicable) related to the conduct and findings of these investigations are held at the Lakelands District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the MCM on behalf of the government and citizens of Ontario.

As a result of the property Assessment of the study area, fourteen (14) isolated findspots with a total of fifteen (15) lithic artifacts were documented and one scatter of lithic artifacts, the

23-354P1 (AfGt-347) Site, was identified. Based on the characteristics of these sites and the analysis of artifacts, the following recommendations are made:

1. *The Cultural Heritage Value or Interest (CHVI) of the isolated find has been completely documented and the finds have been removed from the study area as a result of standard Stages 2 Property Assessment procedure. There is no remaining CHVI for these locations. No further archaeological assessment of the isolated finds is warranted;*
2. *As per Section 2.2 Standard 1, the Cultural Heritage Value or Interest (CHVI) of the 23-354P1 (AfGt-347) Site has been sufficiently documented and assessed;*
3. *No further archaeological assessment of the study area is warranted;*
4. *The Provincial interest in archaeological resources with respect to the proposed undertaking has been addressed;*
5. *The proposed EP lands within the planning application retain archaeological potential and must be subject to Stage 2 Property Assessment in advance of any ground alteration in these areas should any change in the zoning or intended use of these lands be proposed;*
6. *The proposed undertaking is clear of any archaeological concern.*

1.0 PROJECT CONTEXT

1.1 DEVELOPMENT CONTEXT

This report describes the results of the 2023 Stage 1-2 Archaeological Property Assessment of Property Located at Killaly Street Subdivision (East Quarry Ponds) Part of Lots 31, 32 & 33, Concession 1, (Geographical Township of Humberstone) City of Port Colborne, Regional Municipality of Niagara, conducted by AMICK Consultants Limited. This assessment was undertaken as a requirement under the Planning Act (RSO 1990) and was conducted under Professional Archaeologist License #P038 issued to Marilyn Cornies by the Minister of Citizenship and Multiculturalism (MCM) for the Province of Ontario. All work was conducted in conformity with Ontario Ministry of Tourism and Culture (MTC) Standards and Guidelines for Consultant Archaeologists (MTC 2011) and the Ontario Heritage Act (RSO 1990a).

The entirety of the study area is approximately 58.27 hectares (ha) in area and includes within it a concrete roadway, a ploughed field in the northeast corner of the study area, overgrown meadow areas throughout the entirety of the study area, Quarry Ponds are located in the western portion of the study area, and the remainder of the study area consists a former concrete factory. Within the study area there are several gravel trails throughout the meadow areas that did not interrupt the systemic test pit survey grid. Approximately 6.91 hectares of the study area consisted of Environmentally Protected (EP) area, which was not subject to any Stage 2 Property Assessment. This area may be entirely disturbed from previous quarrying activity; however an archaeological assessment of this area will be required should any change in permitted land use of this area be proposed in the future. Maps 5 & 6 illustrated the location of these EP lands. The study area is bounded on the north by Main Street West and Killaly Street West, on the east by existing residential development, on the south by Port Colborne Harbour Railway and on the west by an extension of the Quarry Ponds and existing residential development and was granted permission to carry out archaeological fieldwork. Following the criteria outlined by MCMS (2011) for determining archaeological potential, portions of the study area were determined as having archaeological potential for Pre-contact and Post-contact archaeological resources. Consequently, this report is being prepared in advance of the planning process for this property.

The entirety of the study area, save for the EP lands, was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment which consisted of high intensity test pit methodology at a five-metre interval between individual test pits, test pit survey at a ten-metre interval to confirm disturbance and high intensity pedestrian survey at an interval of 5 metres between individual transects on 20 July & 17 October 2023. All records, documentation, field notes, photographs, and artifacts (as applicable) related to the conduct and findings of these investigations are held at the Lakelands District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the MCM on behalf of the government and citizens of Ontario.

The proposed development of the study area includes a subdivision with three 8-story residential blocks, three 8-storey mixed use blocks with a parking lot, 61 regular townhouse blocks, 15 back-to-back townhouse blocks, 14 stacked townhouse blocks, six rear lane townhouse blocks, 96 single family houses, driveways, and several roads throughout the subdivision. A preliminary plan of the proposed development has been submitted together with this report to MCMS for review and reproduced within this report as Map 4.

1.2 HISTORICAL CONTEXT

1.2.1 PRE-CONTACT LAND-USE OUTLINE

Table 1 illustrates the chronological development of cultures within southern Ontario prior to the arrival of European cultures to the area at the beginning of the 17th century. This general cultural outline is based on archaeological data and represents a synthesis and summary of research over a long period of time. It is necessarily generalizing and is not necessarily representative of the point of view of all researchers or stakeholders. It is offered here as a rough guideline and as a very broad outline to illustrate the relationships of broad cultural groups and time periods.

TABLE 1 PRE-CONTACT CULTURAL CHRONOLOGY FOR SOUTHERN ONTARIO

Years ago	Period	Southern Ontario
250	Terminal Woodland	Ontario and St. Lawrence Iroquois Cultures
1000 2000	Initial Woodland	Princess Point, Saugeen, Point Peninsula, and Meadowood Cultures
3000 4000 5000 6000	Archaic	Laurentian Culture
7000 8000 9000 10000 11000	Palaeo-Indian	Plano and Clovis Cultures
		(Wright 1972)

What follows is an outline of Aboriginal occupation in the area during the Pre-Contact Era from the earliest known period, about 9000 B.C. up to approximately 1650 AD.

1.2.1.1 PALEO-INDIAN PERIOD (APPROXIMATELY 9000-7500 B.C.)

North of Lake Ontario, evidence suggests that early occupation began around 9000 B.C. People probably began to move into this area as the glaciers retreated and glacial lake levels began to recede. The early occupation of the area probably occurred in conjunction with environmental conditions that would be comparable to modern Sub-Arctic conditions. Due to the great antiquity of these sites, and the relatively small populations likely involved,

evidence of these early inhabitants is sparse and generally limited to tools produced from stone or to by-products of the manufacture of these implements.

1.2.1.2 ARCHAIC PERIOD (APPROXIMATELY 8000-1000 B.C.)

By about 8000 B.C. the gradual transition from a post glacial tundra-like environment to an essentially modern environment was largely complete. Prior to European clearance of the landscape for timber and cultivation, the area was characterized by forest. The Archaic Period is the longest and the most apparently stable of the cultural periods identified through archaeology. The Archaic Period is divided into the Early, Middle and Late Sub-Periods, each represented by specific styles in projectile point manufacture. Many more sites of this period are found throughout Ontario, than of the Palaeo-Indian Period. This is probably a reflection of two factors: the longer period of time reflected in these sites, and a greater population density. The greater population was likely the result of a more diversified subsistence strategy carried out in an environment offering a greater variety of abundant resources (Smith 2002:58-59).

Current interpretations suggest that the Archaic Period populations followed a seasonal cycle of resource exploitation. Although similar in concept to the practices speculated for the big game hunters of the Palaeo-Indian Period, the Archaic populations utilized a much broader range of resources, particularly with respect to plants. It is suggested that in the spring and early summer, bands would gather at the mouths of rivers and at rapids to take advantage of fish spawning runs. Later in the summer and into the fall season, smaller groups would move to areas of wetlands to harvest nuts and wild rice. During the winter, they would break into yet smaller groups probably based on the nuclear family and perhaps some additional relatives to move into the interior for hunting. The result of such practices would be to create a distribution of sites across much of the landscape (Smith 2002: 59-60).

The material culture of this period is much more extensive than that of the Palaeo-Indians. Stylistic changes between Sub-Periods and cultural groups are apparent, although the overall quality in production of chipped lithic tools seems to decline. This period sees the introduction of ground stone technology in the form of celts (axes and adzes), manos and metates for grinding nuts and fibres, and decorative items like gorgets, pendants, birdstones, and bannerstones. Bone tools are also evident from this time period. Their presence may be a result of better preservation from these more recent sites rather than a lack of such items in earlier occupations. In addition, copper and exotic chert types appear during the period and are indicative of extensive trading (Smith 2002: 58-59).

1.2.1.3 WOODLAND PERIOD (APPROXIMATELY 1000 B.C.-1650 A.D.)

The primary difference in archaeological assemblages that differentiates the beginning of the Woodland Period from the Archaic Period is the introduction of ceramics to Ontario populations. This division is probably not a reflection of any substantive cultural changes, as the earliest sites of this period seem to be in all other respects a continuation of the Archaic mode of life with ceramics added as a novel technology. The seasonally based system of

resource exploitation and associated population mobility persists for at least 1500 years into the Woodland Period (Smith 2002: 61-62).

The Early Woodland Sub-Period dates from about 1000-400 B.C. Many of the artifacts from this time are similar to the late Archaic and suggest a direct cultural continuity between these two temporal divisions. The introduction of pottery represents an entirely new technology that was probably acquired through contact with more southerly populations from which it likely originates (Smith 2002:62).

The Middle Woodland Sub-Period dates from about 400 B.C.-800 A.D. Within the region including the study area, a complex emerged at this time termed “Point Peninsula.” Point Peninsula pottery reflects a greater sophistication in pottery manufacture compared with the earlier industry. The paste and temper of the new pottery is finer and new decorative techniques such as dentate and pseudo-scallop stamping appear. There is a noted Hopewellian influence in southern Ontario populations at this time. Hopewell influences from south of the Great Lakes include a widespread trade in exotic materials and the presence of distinct Hopewell style artifacts such as platform pipes, copper or silver panpipe covers and shark’s teeth. The populations of the Middle Woodland participated in a trade network that extended well beyond the Great Lakes Region.

The Late Woodland Sub-Period dates from about 500-1650 A.D. The Late Woodland includes four separate phases: Princess Point, Early Ontario Iroquoian, Middle Ontario Iroquoian and Late Ontario Iroquoian.

The Princess Point phase dates to approximately 500-1000 A.D. Pottery of this phase is distinguished from earlier technology in that it is produced by the paddle method instead of coil and the decoration is characterized by the cord wrapped stick technique. Ceramic smoking pipes appear at this time in noticeable quantities. Princess Point sites cluster along major stream valleys and wetland areas. Maize cultivation is introduced by these people to Ontario. These people were not fully committed to horticulture and seemed to be experimenting with maize production. They generally adhere to the seasonal pattern of occupation practiced by earlier occupations, perhaps staying at certain locales repeatedly and for a larger portion of each year (Smith 2002: 65-66).

The Early Ontario Iroquoian stage dates to approximately 950-1050 A.D. This stage marks the beginning of a cultural development that led to the historically documented Ontario Iroquoian groups that were first contacted by Europeans during the early 1600s (Petun, Neutral, and Huron). At this stage formal semi-sedentary villages emerge. The Early stage of this cultural development is divided into two cultural groups in southern Ontario. The areas occupied by each being roughly divided by the Niagara Escarpment. To the west were located the Glen Meyer populations, and to the east were situated the Pickering people (Smith 2002: 67).

The Middle Ontario Iroquoian stage dates to approximately 1300-1400 A.D. This stage is divided into two sub-stages. The first is the Uren sub-stage lasting from approximately 1300-

1350 A.D. The second of the two sub-stages is known as the Middleport sub-stage lasting from roughly 1350-1400 A.D. Villages tend to be larger throughout this stage than formerly (Smith 2002: 67).

The Late Ontario Iroquoian stage dates to approximately 1400-1650 A.D. During this time, the cultural divisions identified by early European explorers are under development and the geographic distribution of these groups within southern Ontario begins to be defined.

1.2.2 POST-CONTACT LAND USE OUTLINE

The County of Welland was formed in 1851 and was named after the Welland River. It should be noted that Welland County was one of the first major settlements within Upper Canada (Wikipedia.org 2010). Many of its first settlers were Loyalists and moved to the area as a result of the American Revolution. Due to the presence of the Welland River and to Niagara Falls, this allowed the area to develop rapidly as the River offered easy transportation and energy production. The construction of the Welland Canal began in 1824 and would connect Lake Ontario to Lake Erie. The canal was at first a wooden structure and would later be replaced with stone (Welland.ca 2010). The counties of Lincoln and Welland were amalgamated into the Regional Municipality of Niagara in 1970 (Wikipedia.org 2010).

The Township of Humberstone was first named Sugarloaf for the lakeside hill that reminded early settlers from Pennsylvania of a tasty loaf eaten common to that area. The City of Port Colborne was named for Lieutenant-Governor Sir John Colborne who was instrumental in securing funding for the canal project. The city's growth pattern has been determined greatly by the Welland Canal that bisects the city and throughout the 19th century Port Colborne developed into a business community as it served the marine trade along the canal. By the 1880's Port Colborne became a heavily trafficked tourist area that continues to present day. In 1966 Port Colborne was officially granted the status of 'City' (portcolborne.ca/page/history).

Map 2 is a facsimile segment from Tremaine's Map of the Counties of Lincoln and Welland, Canada West (Tremaine 1862). Map 2 illustrates the location of the study area and environs as of 1862. Lot 33 of the study area is shown to belong to J. Augustine, Lot 32 is not shown to belong to anyone, and Lot 31 is shown to belong to D. Steel; no structures are shown to be within the study area. In addition, this map illustrates the Buffalo and Lake Huron Railway running directly adjacent to the south of the study area, and a settlement road is depicted as adjacent to the study area to the north. This road is the current Main Street West and Killaly Street West.

Map 3 is a facsimile segment of the Township of Humberstone map reproduced from the Illustrated Historical Atlas of the Counties of Lincoln and Welland, Ont. (Walker & Miles 1876). Map 3 illustrates the location of the study area and environs as of 1876. Lot 33 of the study area is shown to belong to Carter, Lot 32 of the study area is shown to belong to John Scholfield, and Lot 32 of the study area is shown to belong to David Steele; one structure and an orchard are shown to be within Lot 33 the study area. This demonstrates that the original property of which the study area is a part was settled by the time that the atlas data was

compiled. Accordingly, it has been determined that there is potential for archaeological deposits related to early Post-contact settlement within the study area. In addition, this map illustrates the Grand Trunk Railway running directly adjacent to the south of the study area, and a settlement road is depicted as adjacent to the study area to the north. This road is the current Main Street West and Killaly Street West.

A draft plan of the study area is included within this report as Map 4, respectively. Current conditions encountered during the Stage 1-2 Property Assessment are illustrated in Maps 5 - 13.

1.2.3 SUMMARY OF HISTORICAL CONTEXT

The brief overview of readily available documentary evidence indicates that the study area is situated within an area that was close to historic transportation routes and in an area well populated during the nineteenth century and therefore has potential for sites relating to early Post-contact settlement in the region. However, it also appears that while the area was moving toward urban development by the fourth quarter of the 19th century, it was still predominantly rural in character and the likelihood of locating significant Post-contact archaeological deposits of cultural heritage value or interest (CHVI) on a very small parcel of the original township lot is not likely. Background research indicates the property contains Quarry Ponds, which were man-made in the 20th century for the previous concrete factory. These ponds do not indicate potential for archaeological resources of Native origins. However, there is an intermittent water course, which is associated with low-lying wet areas that connect to Lake Erie, located in close proximity to the southwest corner of the study area.

1.3 ARCHAEOLOGICAL CONTEXT

The study area is located near Lake Erie and is bounded on the north by Main Street West and Killaly Street West, on the east by existing residential development, on the south by Port Colborne Harbour Railway and on the west by an extension of the Quarry Ponds and existing residential development.

Elgin Street West, a ploughed field in the northeast corner of the study area, overgrown meadow areas throughout the entirety of the study area, Quarry Ponds are located in the western portion of the study area, and the remainder of the study area consists a former concrete factory. Within the study area there are several gravel trails throughout the meadow areas that did not interrupt the systemic test pit survey grid. Approximately 6.91 hectares of the western portion of the study area consisted of Environmentally Protected (EP) area, which was not subject to any Stage 2 Property Assessment.

1.3.1 PHYSIOGRAPHIC REGION

The study area is situated within the Haldimand Clay Plain physiographic region. The Haldimand Clay Plain lies between the Niagara Escarpment and Lake Erie, and consists of an intermixture of stratified clay and till. The study area falls within an area of the plain where good silt loam is prime for orchards and vineyards of grapes, pears and apples (Chapman and Putnam 1984: 156-159).

1.3.2 SURFACE WATER

An intermittent stream course is located south of the southwest corner of the study area, which is connected to several low-lying wet areas that connect to Lake Erie. The man-made Quarry Ponds are present within the study area.

1.3.3 LITHIC SOURCES

The study area is located on the Onondaga Formation which has outcrops of Onondaga chert. Onondaga chert is a member of the Middle Ordovician Onondaga Formation (Eley and von Bitter 1989:17) and is found mainly in beds and secondary blocks along the north shore of Lake Erie. Generally speaking, Onondaga chert is a ubiquitous material throughout archaeological sites in southern Ontario and it has significant temporal depth, being found on sites dating from the Archaic to Woodland periods (Fox 2009: 361). The prevalence of Onondaga chert at both Loci is not surprising as sites in Southern Ontario normally display an overwhelming reliance on this material. This widespread trend has significant temporal depth, extending until traditional implements were replaced by European goods

1.3.4 REGISTERED ARCHAEOLOGICAL SITES

The Archaeological Sites Database administered by the MCMS indicates that there are no (0) previously documented sites within 1 kilometre of the study area. However, it must be noted that this assumes the accuracy of information compiled from numerous researchers using different methodologies over many years. AMICK Consultants Limited assumes no responsibility for the accuracy of site descriptions, interpretations such as cultural affiliation, or location information derived from the Archaeological Sites Database administered by MCMS. In addition, it must also be noted that a lack of formerly documented sites does not indicate that there are no sites present as the documentation of any archaeological site is contingent upon prior research having been conducted within the study area.

1.3.4.1 PRE-CONTACT REGISTERED SITES

A summary of registered and/or known archaeological sites within a 1-kilometre radius of the study area was gathered from the Archaeological Sites Database, administered by MCMS. As a result, it was determined that no (0) archaeological sites relating directly to Pre-contact habitation/activity had been formally registered within the immediate vicinity of the study area. However, the lack of formally documented archaeological sites does not mean that Pre-contact people did not use the area; it more likely reflects a lack of systematic archaeological research in the immediate vicinity. Even in cases where one or more

assessments may have been conducted in close proximity to a proposed landscape alteration, an extensive area of physical archaeological assessment coverage is required throughout the region to produce a representative sample of all potentially available archaeological data in order to provide any meaningful evidence to construct a pattern of land use and settlement in the past.

1.3.4.2 POST-CONTACT REGISTERED SITES

A summary of registered and/or known archaeological sites within a 1-kilometre radius of the study area was gathered from the Archaeological Sites Database, administered by MCMS. As a result, it was determined that no (0) archaeological sites relating directly to Post-contact habitation/activity had been formally registered within the immediate vicinity of the study area.

1.3.4.3 REGISTERED SITES OF UNKNOWN CULTURAL AFFILIATION

A summary of registered and/or known archaeological sites within a 1-kilometre radius of the study area was gathered from the Archaeological Sites Database, administered by MCMS. As a result, it was determined that no (0) archaeological sites of unknown cultural affiliation have been formally registered within the immediate vicinity of the study area.

1.3.5 PREVIOUS ARCHAEOLOGICAL ASSESSMENTS

On the basis of information supplied by MCMS, no archaeological assessments have been conducted within 50 metres of the study area. AMICK Consultants Limited assumes no responsibility for the accuracy of previous assessments, interpretations such as cultural affiliation, or location information derived from the Archaeological Sites Database administered by MCMS. In addition, it must also be noted that the lack of formerly documented previous assessments does not indicate that no assessments have been conducted.

1.3.5.2 PREVIOUS REGIONAL ARCHAEOLOGICAL POTENTIAL MODELLING

The study area is situated within an area (Niagara Region) that is in the process of creating an Archaeological Management Plan. In 2021, the Region of Niagara produced the Niagara Region Archaeological Management Plan: Phase 5 Report Draft (ASI 2021). The study involved creating areas of archaeological potential for both Pre-contact and Historical archaeological sites. Table 2 describes the modelling criteria by which the Niagara Region

archaeological potential modelling for Pre-contact archaeological sites was calculated, while Table 3 describes the modelling criteria for Historical archaeological sites.

TABLE 2 PRE-CONTACT ARCHAEOLOGICAL SITE POTENTIAL MODELLING CRITERIA

Environmental or Cultural Feature	Buffer Distance (metres)	Buffer Qualifier
Rivers and streams	250	<ul style="list-style-type: none">• from top of bank for former; from centreline for latter
Lakes and ponds	250	<ul style="list-style-type: none">• exterior buffer from current limits
Wetlands	250	<ul style="list-style-type: none">• including pre-settlement wetlands
Registered Indigenous archaeological sites	100	<ul style="list-style-type: none">• Camps and other small settlements
	250	<ul style="list-style-type: none">• Villages

TABLE 3 HISTORICAL ARCHAEOLOGICAL SITE POTENTIAL MODELLING CRITERIA

Environmental or Cultural Feature	Buffer Distance (metres)	Buffer Qualifier
Historical settlement centres	polygon as mapped	<ul style="list-style-type: none"> no buffer, override integrity
Domestic sites	100	<ul style="list-style-type: none"> none
Breweries and distilleries	100	<ul style="list-style-type: none"> none
Hotels/taverns	100	<ul style="list-style-type: none"> none
Historical schools and churches	100	<ul style="list-style-type: none"> none
Historic mills, forges, extraction industries	100	<ul style="list-style-type: none"> none
Early settlement roads	100	<ul style="list-style-type: none"> both sides
Early railways	50	<ul style="list-style-type: none"> both sides
Cemeteries	10 100	<ul style="list-style-type: none"> Registered cemeteries with known limits. 10 m beyond limits of cemetery Suspected cemetery or pioneer cemetery. 100m around point
Registered historical archaeological sites	100	<ul style="list-style-type: none"> none

1.3.6 ENVIRONMENTAL SITE ASSESSMENTS

Background research shows that two (2) environmental site assessments have taken place within the study area. For further information see:

King ECMP (2021). *Environmental Site Assessment Phase I Report at Maplevue Port Colborne Part of Lots 31, 32, & 33, Concession 1, Township of Humberstone, City of Port Colborne, Killaly Street West, Ontario*. Uxbridge, Ontario.

King ECMP (2022). *Environmental Site Assessment Phase II Report at Part of Lots 31, 32, & 33, Concession 1, Township of Humberstone, City of Port Colborne, Killaly Street West, Ontario*. Uxbridge, Ontario.

1.3.6.1 KING ECMP (2021)

In 2021, King ECMP conducted a Phase I Environmental Site Assessment of Part of Lots 31, 32 & 33, Concession 1, Township of Humberstone, City of Port Colborne, Killaly Street West, Regional Municipality of Niagara, Ontario. The following is the executive summary and conclusions from the assessment.

Executive Summary:

“King EPCM (the Engineer) was retained by Sean Talaei, 1000046816 Ontario Limited (the Client) to conduct a Phase I Environmental Site Assessment (ESA). The Phase I ESA property is located at Part of Lots 31, 32 & 33, Concession 1, Township of Humberstone, City of Port Colborne, Killaly Street West, Regional Municipality of Niagara, Ontario (the Site).

It is understood that the Phase I ESA documented herein is being undertaken by the Client for the sole purpose of the intention to purchase the property. The Phase I ESA report may be submitted to the due diligence teams for banks and financial institutions. The Records of Site Condition (RSC) submission is required based on the proposed development needs of Client, and would be required in the future for the property development.

The date of last work on all of the records review, interviews and site reconnaissance for the Phase I ESA is December 17th, 2021 (per Section 28 of O. Reg. 153/04).

The Phase I property is approximately 563,000 m² (139 acres) according to the Site Survey from Chambers and Associates Surveying Ltd. (Surveyor). The Site is situated at the south of Highway 3, west of Killaly Street, east of Cement Road, north of Gord Harry Conservation Trail, Port Colborne, Ontario. The Site was on the industrial land use, with residential properties to the north, east and south, and a quarry pond to the west followed by the agricultural area.

The scope of the investigation for the Site included an extensive review of historical records associated with the Site, site reconnaissance and the interviews based on the Reg. 153/04 requirements. The report documented the findings based on relevant information, and made conclusions for likelihood of Areas of Potential Environmental Concern (APEC's) associated with the Potentially Contaminating Activities (PCA's).

The Phase I ESA identified that the Site was previously used as a concrete factory with the operational activities for production onsite. In addition, topsoil, earth fill, and stockpiles of mixed sand and gravel, remnants of railway ties and rails, paint containers were noted in the previous environmental records. Therefore a Phase II ESA is required to further investigate the APEC's associated with these PCA's.”

Conclusions:

“It is understood that the Phase I ESA documented herein is being undertaken by the Client for the sole purpose of the intention to purchase the property. Based on the investigation for historical information and reconnaissance for the current Site situation, the Phase I ESA revealed that there were PA's in the previous concrete factory onsite, and the APEC's with the associated COC's needed to be further investigated. Therefore a Phase I ESA is required for this Site.”

1.3.6.2 KING ECMP (2021)

In 2021, King ECMP conducted a Phase II Environmental Site Assessment of Part of Lots 31, 32 & 33, Concession 1, Township of Humberstone, City of Port Colborne, Killaly Street West, Regional Municipality of Niagara, Ontario. The following is the executive summary and conclusions from the assessment.

Executive Summary:

“King EPCM (the Engineer) was retained by 1000046816 Ontario Limited (the Client) to conduct a Phase II Environmental Site Assessment (ESA) of the property on the previous concrete factory area, located at Maplevue Port Colborne, Part of Lots 31, 32 & 33, Concession 1, Township of Humberstone, Killaly Street West, City of Port Colborne, Ontario (the Site. It is understood that the Phase II ESA documented herein is being undertaken by the Client for the purpose of due diligence for financial institutions. The Records of Site Condition (RSC) submission would be required in the future for the property development.

The date of the last work on all of the planning for the scope of work, conducting the Site investigation, and receiving and evaluating the information gathered during the Site inspection for the Phase II ESA (per Section 33.5 (1) (a) of O. Reg. 153/04) is March 29th, 2022. For the purposes of filing an RSC, the Certification Date of the Phase II ESA (per Section 17 (3) of O. Reg. 153/04) is March 11th, 2022.

The Site has an area of approximately 563,000 m² (139 acres) and is situated at the south of Highway 3, west of Killaly Street, east of Cement Road, north of Gord Harry Conservation Trail, Port Colborne, Ontario. The Site was on the industrial land use, with residential properties to the north, east and south, and a quarry pond to the west followed by the agricultural area. The previous concrete factory area was located southeast of the Site.

The Phase II ESA was undertaken to assess the following Contaminates of Concerns (COC's), identified in the Phase I ESA and proposed in the Phase II ESA investigation scope of work, for nine borehole soil samples and three groundwater monitoring well samples in the Areas of Potential Environmental Concerns (APEC's), associated with the previous Potentially Contaminating Activities (PCA's).

- 1. Petroleum hydrocarbons (PHC F1 - F4, BTEX)*
- 2. Volatile organic compounds (VOCs, BTEX included in PHC)*

3. Metals (metal for soil, dissolved metals for groundwater)

4. General chemistry (Conductivity, SAR, pH, etc.)

The soil and groundwater criteria from the Ministry of Environment, Conservation and Parks (MECP) was applied, Table 7: Generic Site Condition Standards for Shallow Soils in a Non-Potable Ground Water Condition, with Land Use of Residential/Parkland/Institutional Property, with coarse textured soils, Soil, Ground Water and Sediment Standards for Use Under Part XV.I of the Environmental Protection Act (March 2021), (Criteria).

The Phase II ESA identified that the following soil samples from the depth of 0.5 m in the previous concrete factory area exceeded the Criteria for some metals and F3 concentrations:

Unit: ug/g

BH1: Nickel 664 > 100

Benzene VOC 0.25 > 0.21

BH3: Nickel 568 > 100

BH4: Nickel 107 > 100

BH5: Lead 172 > 120

BH6: Lead 173 > 120;

F3 1630 > 300

BH8: Cadmium 1.38 > 1.2

BH9: Cobalt 34.8 > 22

The Phase II ESA indicated that the following groundwater samples near the stockpile area exceeded the Criteria for benzene concentration:

Unit: ug/L

BH103MW: Benzene from BTEX: 1.2 > 0.5

Benzene from VOC's: 0.6 > 0.5

Based on the findings of the Phase II ESA, it is the professional opinion from King EMPC that a remediation program is required for the surficial soil contaminated in the previous factory area.

Since the Site is situated in a shallow soil property (less than 2 m deep beneath the soil surface), the shallow soil remediation options for the previous factory location including removal of the remnant concrete foundation and rebar residue would be recommended. New overburden clean soil would be introduced onto the top of the remediated area, in order to change the shallow soil feature to stratified soil feature, and the applicable Criteria might be also changed from Table 7 of shallow soils to Table 5 of stratified site.

Groundwater wells would be further purged, in order to remove the impact of stagnant water in the wells potentially associated with the drilling process.

Groundwater monitoring wells would be then allowed to recharge. After the completion of full purging and recharging, the groundwater monitoring wells would be re-sampled.”

Conclusions:

“The Phase II ESA identified that the soil quality for surface soil at the previous concrete factory area exceeded the Criteria for heavy metals and hydrocarbon concentrations as follows:

Unit: ug/g:

BH1: Nickel 664 > 100

Benzene VOC 0.25 > 0.21

BH3: Nickel 568 > 100

BH4: Nickel 107 > 100

BHS: Lead 172 > 120

BH6: Lead 173 > 120;

F3 1630 > 300

BH8: Cadmium 1.38 > 1.2

BH9: Cobalt 34.8 > 22

Based on the findings of the Phase II ESA, it is the professional opinion from King EMPC that a remediation program is required for the surficial soil contaminated in the previous factory area.

Unfortunately, due to the very shallow soil cover is very shallow BHI - BH9 showed soil cover between Om and 0.6m in thickness), King EPCM estimates that the off-site removal required is between 9,600m³ ~ 28,800m³ (1000 ~ 3000 truck loads) of soil, primarily for heavy metals contamination and a VERY small area of petroleum hydrocarbon contamination around BH6.

Groundwater shall be fully purged multiple times in order to wash out any drilling contaminates, and re-sampled at a later date, and currently does not pose a significant risk to the project.”

1.3.7 HISTORIC PLAQUES

There are no relevant plaques associated with the study area, which would suggest an activity or occupation within, or near, the study area that may indicate potential for associated archaeological resources of significant CHVI.

1.3.8 SUMMARY OF ARCHAEOLOGICAL CONTEXT

The study area contains an Elgin Street West, a ploughed field in the northeast corner of the study area, overgrown meadow areas throughout the entirety of the study area, Quarry Ponds are located in the western portion of the study area, and the remainder of the study area consists a former concrete factory. Within the study area there are several gravel trails throughout the meadow areas that did not interrupt the systemic test pit survey grid. Approximately 6.91 hectares of the western portion of the study area consisted of Environmentally Protected (EP) area, which was not subject to any Stage 2 Property Assessment.

Current conditions within the study area indicate that some areas of the property may have no or low archaeological potential and do not require Stage 2 Property Assessment or should be excluded from Stage 2 Property Assessment. These areas would include the footprint of

structures, and areas under concrete and gravel. A significant proportion of the study area does exhibit archaeological potential and therefore a Stage 2 Property Assessment is required.

Background research also indicates that the study area is situated in the Haldimand Clay Plain physiographic region, which is characterized by an intermixture of stratified clay and till. In addition, the study area is located on the Onondaga Formation which has outcrops of Onondaga chert.

No previously registered archaeological sites have been documented within 1km of the study area.

The study area is situated within an area subject to Niagara Region Archaeological Management Plan: Phase 5 Report Draft (ASI 2021). There are no relevant plaques associated with the study area.

The study area has potential for archaeological resources of Native origins based on proximity to a source of potable water. Background research also suggests potential for archaeological resources of Post-contact origins based on proximity to a historic roadway, and proximity to areas of documented historic settlement.

2.0 FIELD WORK METHODS AND WEATHER CONDITIONS

2.1 INTRODUCTION

A property inspection was carried out in compliance with Standards and Guidelines for Consultant Archaeologists (MTC 2011) to document the existing conditions of the study area to facilitate the Stage 2 Property Assessment. All areas of the study area were visually inspected and select features were photographed as a representative sample of each area defined within Maps 5 & 6. Observations made of conditions within the study area at the time of the inspection were used to inform the requirement for Stage 2 Property Assessment for portions of the study area as well as to aid in the determination of appropriate Stage 2 Property Assessment strategies. The locations from which photographs were taken and the directions toward which the camera was aimed for each photograph are illustrated in Maps 5 & 6 of this report.

The Stage 2 Assessment of the study area was carried out on 10 July & 17 October 2022 and consisted of high intensity test pit methodology at a five-metre interval between individual test pits, test pit survey at a ten-metre interval to confirm disturbance and by high intensity pedestrian survey at an interval of 5 metres between individual transects which was conducted in compliance with the Standards and Guidelines for Consultant Archaeologists, section 2.1.1: Pedestrian Survey, 2.1.2: Test Pit Survey and 2.1.8: Property Survey to Confirm Previous Disturbance (MTC 2011). Weather conditions were appropriate for the necessary fieldwork required to complete the Stage 2 Property Assessment and to create the documentation appropriate to this study.

EP lands within the study area may be excluded from Stage 2 Property Assessment if appropriate documentation is provided that must accompany an archaeological assessment report when submitted for review purposes.

- a map depicting the exact limits of the area;
- a copy of the existing or proposed formal condition, zoning bylaw or easement agreement confirming prohibition of alteration;
- a copy of a statement from the approval authority that it has implemented or is about to implement the constraint (in writing, by letter or email, submitted as part of the supplementary documentation);
- a copy of confirmation from the proponent regarding the manner in which “no-go” instructions to construction crews will be implemented (in writing, by letter or email, submitted as part of the supplementary documentation).

Any applicable proposed EP lands within the planning application for which the above documentation cannot be provided must be subject to Stage 2 Property Assessment before the Stage 2 Property Assessment report can be submitted.

2.2 PEDESTRIAN SURVEY

Approximately 8.8 ha of the study area was subjected to pedestrian survey at 5m transect intervals. All actively or recently cultivated agricultural land within the study area was recently ploughed deep enough to provide total topsoil exposure but not deeper than previous ploughing and was weathered by a heavy rainfall. In addition, approximately 98% of the ploughed field surface was exposed and visible per Section 2.1.1, Standards 1-6 (MTC 2011). All work was photo-documented.

While conducting the pedestrian survey, archaeological resources were identified and survey transects were reduced to 1m intervals over a minimum of a 20m radius around individual finds. All artifacts found on the surface were marked with numbered flags. The artifacts were collected and bagged according to the numbered location where each was found. Every find location was individually recorded using GPS with an accuracy of 5 metres or less. All artifacts were collected. As a result of the completion of the CSPs on all archaeological locations, this component of Stage 3 Site-specific Assessment has been completed and is not required for subsequent investigations of these sites.

2.3 TEST PIT SURVEY

Approximately 0.70 ha of the study area was a former concrete factory, now a vacant lot with meadow areas that cannot be strip ploughed/occupied by existing landscaping or infrastructure that would be damaged where ploughing or cultivation would not be viable and was subjected to test pit survey at 5m intervals per Section 2.1.2, Standard 1 (MTC 2011).

All test pits were excavated within 1m of all built structures, were at least 30cm in diameter and were excavated into the first 5cm of subsoil to examine stratigraphy, cultural features and evidence of fill. All soils were screen through mesh no greater than 6mm and all test pits were backfilled. All work was photo documented.

During the 5m test pit survey, no archaeological resources were encountered.

2.4 CONFIRMATION OF DISTURBANCE

Approximately 35 ha of the study area was subject to test pit survey at 10m intervals to confirm disturbance. Areas of suspected disturbance within the study area consists of an area identified as disturbance from the activities of the former concrete factory and previous quarrying activities. AMICK Consultants Limited tested the suspected disturbed area at a 10-metre interval to confirm disturbance in a manner consistent with the objectives to ensure that the area is accurately delimited and properly identified. This procedure demonstrated that the entire disturbed portion of the study area consists of fill deposited within a deeply disturbed context. There is no archaeological potential within this area.

Approximately 0.70% of the study area consisted of meadow area that was test pit surveyed at an interval of 5 metres between individual test pits. Approximately 60% of the study area was a former concrete factory that was test pit surveyed at an interval of 10 metres between individual test pits to confirm disturbance. Approximately 8.8% of the study area was pedestrian surveyed at an interval of 5 metres between individual transects. Approximately 5% of the study area was not assessable due to the presence of the foundation of structures and disturbed gravel paths and concrete roadway. Approximately 11% of the western portion of the study area consisted of Environmentally Protected (EP) area, which was not subject to any Stage 2 Property Assessment Maps 5 – 13 of this report illustrate the Stage 2 Assessment methodology within the study area.

3.0 RECORD OF FINDS

3.1 INTRODUCTION

As a result of the Stage 1-2 Assessment of the study area, 14 isolated Pre-contact lithic findspots with 15 artifacts, and one Pre-contact lithic site, named 23-354P1 (AfGt-347), were encountered. The number and types of artifacts collected from the 23-354P1 (AfGt-347) site and are listed below in Table. Descriptions of the artifact types and the resulting catalogue collected from the 23-354P1 (AfGt-347) site can be found below in section 3.3 and appended to this report in Appendix B, respectively. The isolated find spots are described below in section 3.2. The catalogue of the isolated findspots can be found appended to this report as Appendix A. Detailed description of the location of the 23-354P1 (AfGt-347) site and isolated findspots can be found appended to this report as Appendix C.

3.2 ISOLATED FINDS

The catalogue of this report details artifact categories, material, provenience, measurements and heat alteration where applicable. The following sources were consulted: Cherts of Southern Ontario (Eley & von Bitter 1989), The Basics of Biface Knapping in the Eastern Fluted Point Tradition, a Manual for Flintknappers and Lithic Analysts. (Callahan, Errett 1979), SW Ontario Point Chronology, (Kewa, 1980), The Production of Stone Tools, (Museum of Indian Archaeology n.d.), A Typology and Nomenclature for the New York Projectile Points (Ritchie, 1961), Lithic Identification and Analysis (SCARF 2013), The Archaeology of Southern Ontario to A. D. 1650 (Ellis & Ferris 1990), Ceramic Types in Ontario (Latta, 1983) and the Ontario Iroquois Tradition (Wright, 1973) and the library of AMICK Consultants Limited.

Isolated Find 1

Isolated Find 1 (CAT# 40) consists of a single secondary flake of Onondaga chert. This artifact retains a minor platform and bulb of percussion and has cortex present on its distal end.

Isolated Find 2

Isolated Find 2 (CAT# 41) consists of a single spokeshave of Onondaga chert. This artifact retains its platform and bulb of percussion, displays flake scars on its dorsal face, and has semi-circular retouch present on the proximal portion of one lateral edge of its ventral face.

Isolated Find 3

Isolated Find 3 (CAT# 42) consists of a single secondary flake of Onondaga chert. This artifact retains its platform and displays cortex on its proximal end.

Isolated Find 4

Isolated Find 4 (CAT# 43) consists of a single tertiary of Onondaga chert. This artifacts retains its platform and bulb of percussion and has flake scars on its dorsal face.

Isolated Find 5

Isolated Find 5 (CAT# 44) consists of a single thinning flake of Onondaga chert. This artifact has snap fractures on its proximal end and displays flake scarring on its dorsal face.

Isolated Find 25

Isolated Find 6 (CAT# 45) consists of a single shatter of Onondaga chert.

Isolated Find 28

Isolated Find 28 (CAT# 46) consists of a single retouched flake of Onondaga chert. This artifact is missing its platform, has flake scars on its dorsal face, and displays retouch on part of its distal end on its dorsal face.

Isolated Find 29

Isolated Find 29 (CAT# 47) consists of a spokeshave of Onondaga chert. This artifact retains its platform and bulb of percussion, its dorsal face is approximately 50% cortex, has flake scarring on the remainder of the dorsal face, and displays semi-circular retouch on the proximal end of its dorsal face.

Isolated Find 30

Isolated Find 30 (CAT# 48) consists of a single retouched flake of Onondaga chert. This artifact retains its platform and bulb of percussion, has flake scarring on its dorsal face, and displays retouch on the distal end of its dorsal face.

Isolated Find 32

Isolated Find 32 (CAT# 49) consists of a single thinning flake of Onondaga chert. This artifact is missing its platform and bulb of percussion, and displays flake scarring on its dorsal face.

Isolated Find 33

Isolated Find 33 (CAT# 50) consists of a single tertiary flake of Onondaga chert. This artifact retains its platform and bulb of percussion, and displays flake scarring on its dorsal face.

Isolated Find 34

Isolated Find 34 consists of two thinning flakes of Onondaga chert (CAT# 51 & CAT# 52). These artifacts retain their platform and display flake scarring on their dorsal face.

Isolated Find 36

Isolated Find 36 (CAT# 53) consists of a single tertiary flake of Onondaga chert. This artifact is missing its platform and bulb of percussion, and displays flake scarring on its dorsal face.

Isolated Find 52

Isolated Find 52 (CAT# 54) consists of a single tertiary flake of Onondaga chert. This artifact retains its platform and has flake scarring on its dorsal face.

3.3 23-354P1 (AFGT-347)

The 23-354P1 (AfGt-347) is a Pre-Contact site that consists of 41 lithic artifacts covering an area approximately 95 metres from north to south and 94 metres from west to east. The site contains one end scraper (CAT# 34), one end scraper fragment (CAT# 4), one graver (CAT# 12), 32 pieces of lithic debitage (eight secondary flakes, ten tertiary flakes, eleven thinning flakes, and three flaking shatter), four retouched flakes (CAT# 3, CAT# 11, CAT# 32, & CAT# 35), and two spokeshaves (CAT# 5 & CAT# 38). None of the artifacts are heat treated. As none of the artifacts are diagnostic, the site cannot be dated at this time. The number and types of artifacts collected from the Arnott site (AjGw-473) are listed below in Table 4. Descriptions of these artifact types can be found appended to this report in Appendix C.

TABLE 4 23-354P1 (AFGT-347) ARTIFACT COUNTS AND TYPES

DESCRIPTION	FREQUENCY	PERCENTAGE
End Scraper	1	2.44%
End Scraper Fragment	1	2.44%
Graver	1	2.44%
Lithic Debitage - Secondary Flake	8	19.51%
Lithic Debitage - Tertiary Flake	10	24.39%
Lithic Debitage - Thinning Flake	11	26.83%
Lithic Debitage - Flaking Shatter	3	7.32%
Retouched Flake	4	9.76%
Spokeshave	2	4.88%
Total	41	100.00%

The collection of artifacts from this assessment is packaged in a single banker's box and housed at the Exeter office of AMICK Consultants Limited until such time as an appropriate permanent location, as approved by MCM, is located and appropriate arrangements for the transfer of the collection and associated responsibilities for the material is made.

The documentation produced during the field investigation conducted in support of this report includes: one sketch map, one page of photo log, one page of field notes, and 70 digital photographs.

4.0 ANALYSIS AND CONCLUSIONS

4.1 STAGE 1 ANALYSIS AND CONCLUSIONS

4.1.1 CHARACTERISTICS INDICATING ARCHAEOLOGICAL POTENTIAL

Section 1.3.1 of the Standards and Guidelines for Consultant Archaeologists specifies the property characteristics that indicate archaeological potential (MTC 2011). Factors that indicate archaeological potential are features of the local landscape and environment that may have attracted people to either occupy the land or to conduct activities within the study

area. One or more of these characteristics found to apply to a study area would necessitate a Stage 2 Property Assessment to determine if archaeological resources are present. These characteristics include:

- 1) Within 300m of Previously Identified Archaeological Sites
- 2) Within 300m of Primary Water Sources (e.g., lakes, rivers, streams, and creeks)
- 3) Within 300m of Secondary Water Sources (e.g., intermittent streams and creeks, springs, marshes, and swamps)
- 4) Within 300 m of 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 indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, and cobble beaches)
- 5) Within 300m of an Accessible or Inaccessible Shoreline (e.g., high bluffs, swamp, or marsh fields by the edge of a lake, sandbars stretching into marsh)
- 6) Elevated Topography (e.g., eskers, drumlins, large knolls, and plateaux)
- 7) Pockets of Well-drained Sandy Soil, especially near areas of heavy soil or rocky ground.
- 8) 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.
- 9) Resource Areas, including:
 - food or medicinal plants (e.g., migratory routes, spawning areas, and prairie)
 - scarce raw materials (e.g., quartz, copper, ochre or outcrops of chert)
 - resources of importance to early Post-contact industry (e.g., logging, prospecting, and mining)
- 10) Within 300m of Areas of Early Post-contact Settlement, including:
 - military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, and farmstead complexes)
 - early wharf or dock complexes, pioneer churches and early cemeteries
- 11) Within 100m of Early Historical Transportation Routes (e.g., trails, passes, roads, railways, portage routes)

- 12) Heritage Property – A property listed on a municipal register or designated under the Ontario Heritage Act or is a federal, provincial, or municipal historic landmark or site.

- 13) Documented Historical or Archaeological Sites – property that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations. These are properties which have not necessarily been formally recognized or for which there is additional evidence identifying possible archaeological resources associated with historic properties in addition to the rationale for formal recognition.

The study area is situated immediately north of an intermittent water course that is connected to low-lying and wet areas that connects directly to Lake Erie. The study area contains a historic farmstead identified on the historic atlas map of 1876. The study area is situated within 100m of an early settlement road that appears on the historic atlas maps of 1862 and 1876. This historic road corresponds to the road presently known as Main Street West and Killaly Street West, which is directly adjacent to the study area on its northern edge. The study area is situated within 100m of a railway line indicated on the historic atlas map of 1862 and 1876.

4.1.2 CHARACTERISTICS INDICATING REMOVAL OF ARCHAEOLOGICAL POTENTIAL

Section 1.3.2 of the Standards and Guidelines for Consultant Archaeologists specifies the property characteristics which indicate no archaeological potential or for which archaeological potential has been removed (MTC 2011). These characteristics include:

- 1) Quarrying

- 2) Major Landscaping Involving Grading Below Topsoil

- 3) Building Footprints

- 4) Sewage and Infrastructure Development

The study area contains a former concrete factory, with a road, Elgin Street West in the western portion, several gravel paths throughout the entirety of the study area, the man-made quarry ponds, a gravel surfaces. Approximately 6.91 hectares of the western portion of the study area consisted of Environmentally Protected (EP) area, which was not subject to any Stage 2 Property Assessment.

4.1.3 SUMMARY OF ARCHAEOLOGICAL POTENTIAL

Table 5 below summarizes the evaluation criteria of the Ministry of Citizenship and Multiculturalism together with the results of the Stage 1 Background Study for the proposed undertaking. Based on the criteria, the property is deemed to have archaeological potential on

the basis of proximity to water, proximity to historic settlement structures, and the location of and early historic settlement road and railway adjacent to the study area.

TABLE 5 EVALUATION OF ARCHAEOLOGICAL POTENTIAL

FEATURE OF ARCHAEOLOGICAL POTENTIAL	YES	NO	N/A	COMMENT
1 Known archaeological sites within 300m		N		If Yes, potential determined
PHYSICAL FEATURES				
2 Is there water on or near the property?	Y			If Yes, what kind of water?
2a Primary water source within 300 m. (lakeshore, river, large creek, etc.)		N		If Yes, potential determined
2b Secondary water source within 300 m. (stream, spring, marsh, swamp, etc.)	Y			If Yes, potential determined
2c Past water source within 300 m. (beach ridge, river bed, relic creek, etc.)		N		If Yes, potential determined
2d Accessible or Inaccessible shoreline within 300 m. (high bluffs, marsh, swamp, sand bar, etc.)		N		If Yes, potential determined
3 Elevated topography (knolls, drumlins, eskers, plateaus, etc.)		N		If Yes, and Yes for any of 4-9, potential determined
4 Pockets of sandy soil in a clay or rocky area		N		If Yes and Yes for any of 3, 5-9, potential determined
5 Distinctive land formations (mounds, caverns, waterfalls, peninsulas, etc.)		N		If Yes and Yes for any of 3-4, 6-9, potential determined
HISTORIC/PREHISTORIC USE FEATURES				
6 Associated with food or scarce resource harvest areas (traditional fishing locations, agricultural/berry extraction areas, etc.)		N		If Yes, and Yes for any of 3-5, 7-9, potential determined.
7 Early Post-contact settlement area within 300 m.	Y			If Yes, and Yes for any of 3-6, 8-9, potential determined
8 Historic Transportation route within 100 m. (historic road, trail, portage, rail corridors, etc.)	Y			If Yes, and Yes for any 3-7 or 9, potential determined
9 Contains property designated and/or listed under the Ontario Heritage Act (municipal heritage committee, municipal register, etc.)		N		If Yes and, Yes to any of 3-8, potential determined
APPLICATION-SPECIFIC INFORMATION				
10 Local knowledge (local heritage organizations, Pre-contact, etc.)		N		If Yes, potential determined
11 Recent disturbance not including agricultural cultivation (post-1960-confirmed extensive and intensive including industrial sites, aggregate areas, etc.)	Y			If Yes, no potential or low potential in affected part (s) of the study area.

If **YES** to any of 1, 2a-c, or 10 Archaeological Potential is **confirmed**

If **YES** to 2 or more of 3-9, Archaeological Potential is **confirmed**

If **YES** to 11 or No to 1-10 Low Archaeological Potential is **confirmed** for at least a portion of the study area.

4.2 STAGE 2 ANALYSIS AND CONCLUSIONS

As a result of the Stage 2 Property Assessment, fourteen (14) isolated Pre-contact findspots with a total of fifteen (15) lithic artifacts and one (1) Pre-Contact lithic site, the 23-354P1 (AfGt-347) Site were encountered.

The isolated findspots do not exhibit potential to produce further data of significance beyond what has been collected already from the isolated find locations and they are not part of larger site areas. Therefore, the isolated finds are not considered to have any further CHVI.

The 23-354P1 (AfGt-347) Site is a Pre-Contact site that consists of forty-one (41) lithic artifacts from thirty-seven (37) surface findspot locations, covering an area approximately 95 metres from north to south and 94 metres from west to east. The 23-354P1 (AfGt-347) Site contains several tools, such as one end scraper (CAT# 34), one end scraper fragment (CAT# 4), one graver (CAT# 12), four retouched flakes (CAT# 3, CAT# 11, CAT# 32, & CAT# 35), and two spokeshaves (CAT# 5 & CAT# 38). The site also contains 32 pieces of lithic debitage (eight secondary flakes, ten tertiary flakes, eleven thinning flakes, and three flaking shatter). None of the artifacts in the assemblage have been exposed to heat. Due to the fact that none of the artifacts are diagnostic, the site cannot be dated at this time.

The 23-354P1 (AfGt-347) Site does not contain any diagnostic lithic artifacts nor at least ten (10) non-diagnostic lithic artifacts within any ten metre by ten metre pedestrian survey area, and therefore the 23-354P1 (AfGt-347) site does not retain CHVI and is not recommended for Stage 3 Site Specific Assessment.

5.0 RECOMMENDATIONS

5.1 STAGE 1-2 RECOMMENDATIONS

As a result of the property Assessment of the study area, fourteen (14) isolated findspots with a total of fifteen (15) lithic artifacts were documented and one scatter of lithic artifacts, the 23-354P1 (AfGt-347) Site, was identified. Based on the characteristics of these sites and the analysis of artifacts, the following recommendations are made:

1. *The Cultural Heritage Value or Interest (CHVI) of the isolated find has been completely documented and the finds have been removed from the study area as a result of standard Stages 2 Property Assessment procedure. There is no remaining CHVI for these locations. No further archaeological assessment of the isolated finds is warranted;*
2. *As per Section 2.2 Standard 1, the Cultural Heritage Value or Interest (CHVI) of the 23-354P1 (AfGt-347) Site has been sufficiently documented and assessed;*
3. *No further archaeological assessment of the study area is warranted;*
4. *The Provincial interest in archaeological resources with respect to the proposed undertaking has been addressed;*

5. *The proposed EP lands within the planning application retain archaeological potential and must be subject to Stage 2 Property Assessment in advance of any ground alteration in these areas should any change in the zoning or intended use of these lands be proposed*
6. *The proposed undertaking is clear of any archaeological concern.*

6.0 ADVICE ON COMPLIANCE WITH LEGISLATION

While not part of the archaeological record, this report must include the following standard advisory statements for the benefit of the proponent and the approval authority in the land use planning and development process:

- a. *This report is submitted to the Minister of Citizenship and Multiculturalism as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c. 0.18. The report is reviewed to ensure that it complies with the standards and guidelines 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 Citizenship and Multiculturalism, 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.*
- b. *It is an offence under Sections 48 and 69 of the Ontario Heritage Act for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the Ontario Heritage Act.*
- c. *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 archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the Ontario Heritage Act.*
- d. *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.*

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

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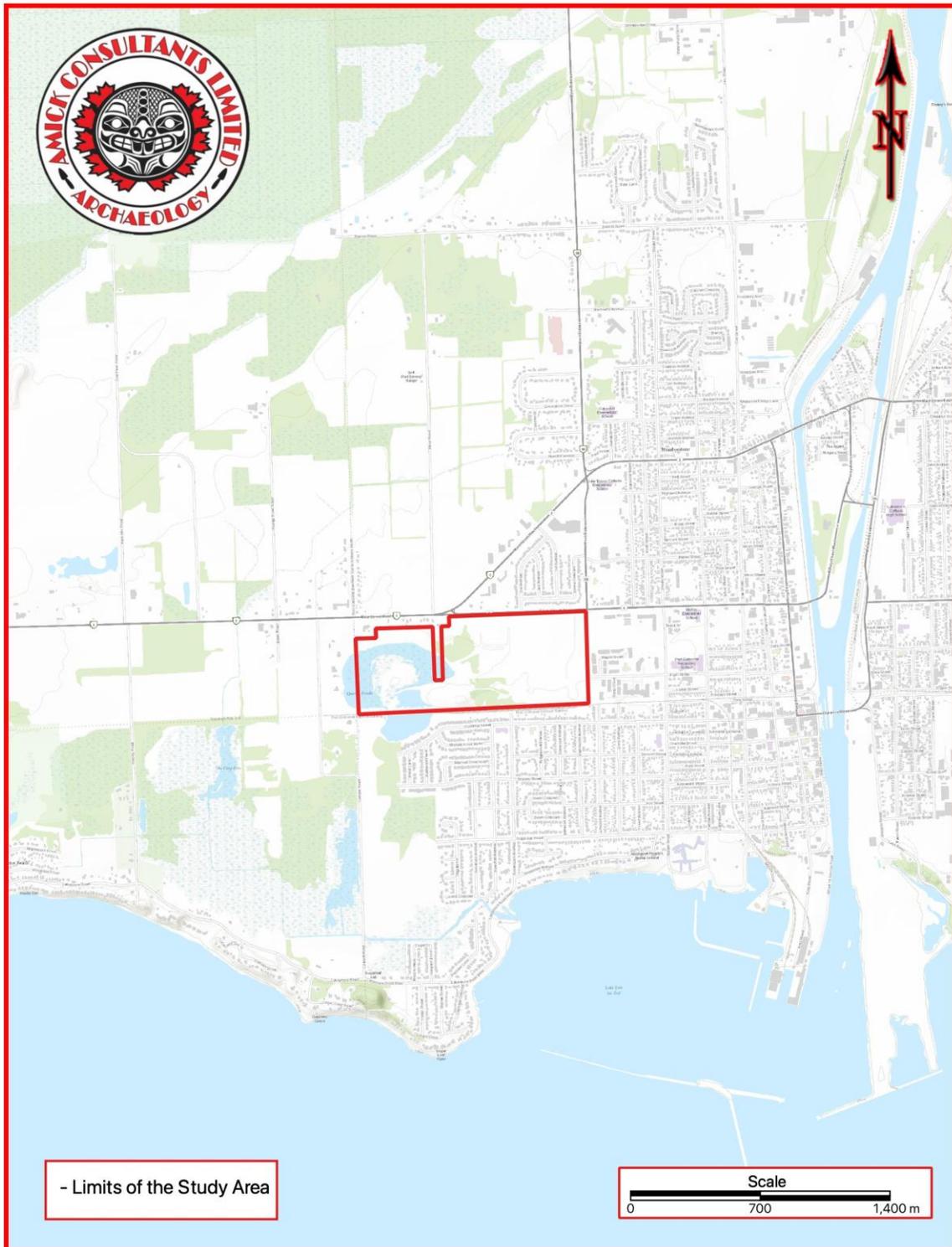
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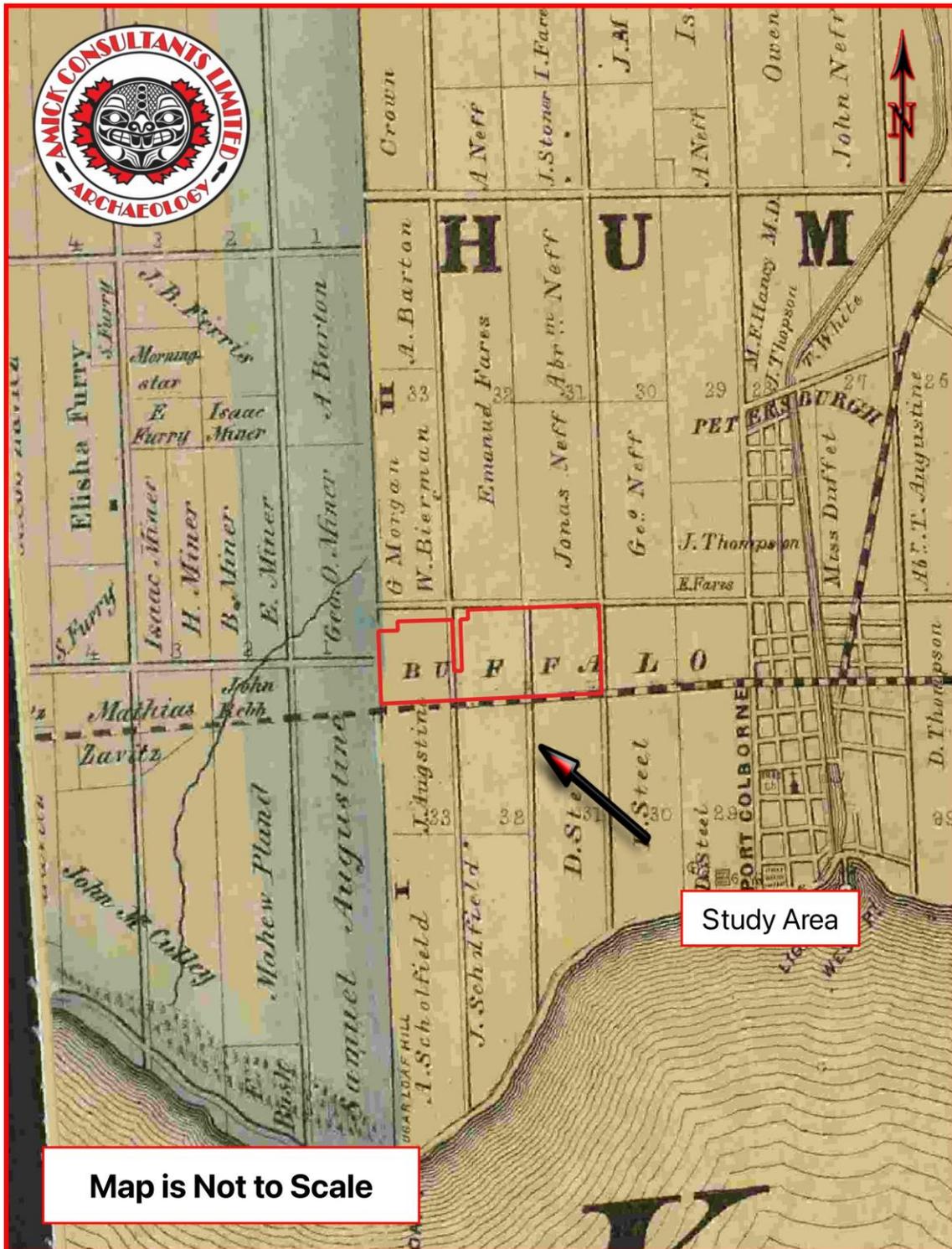
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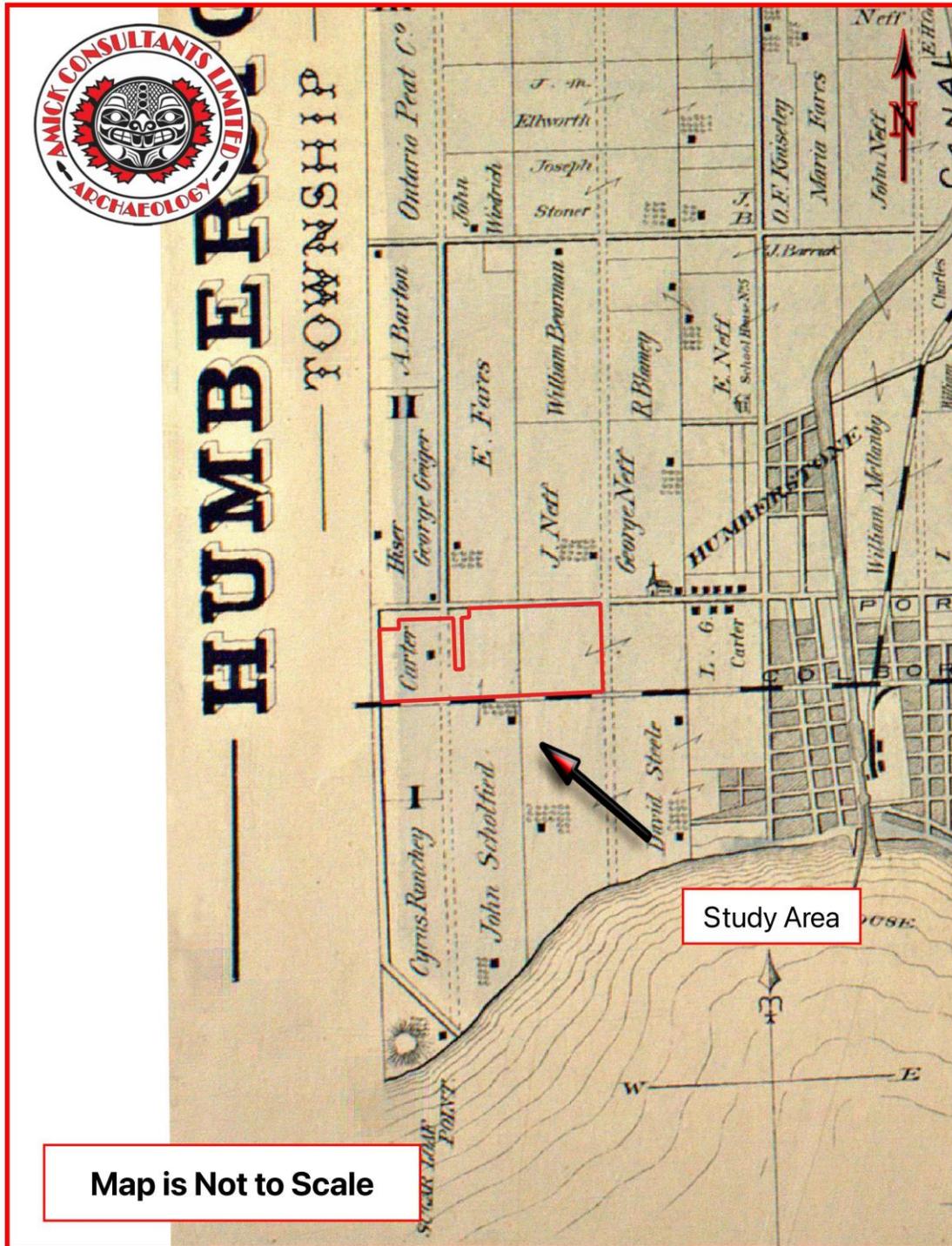
MAPS



MAP 1 LOCATION OF THE STUDY AREA (ESRI 2019)



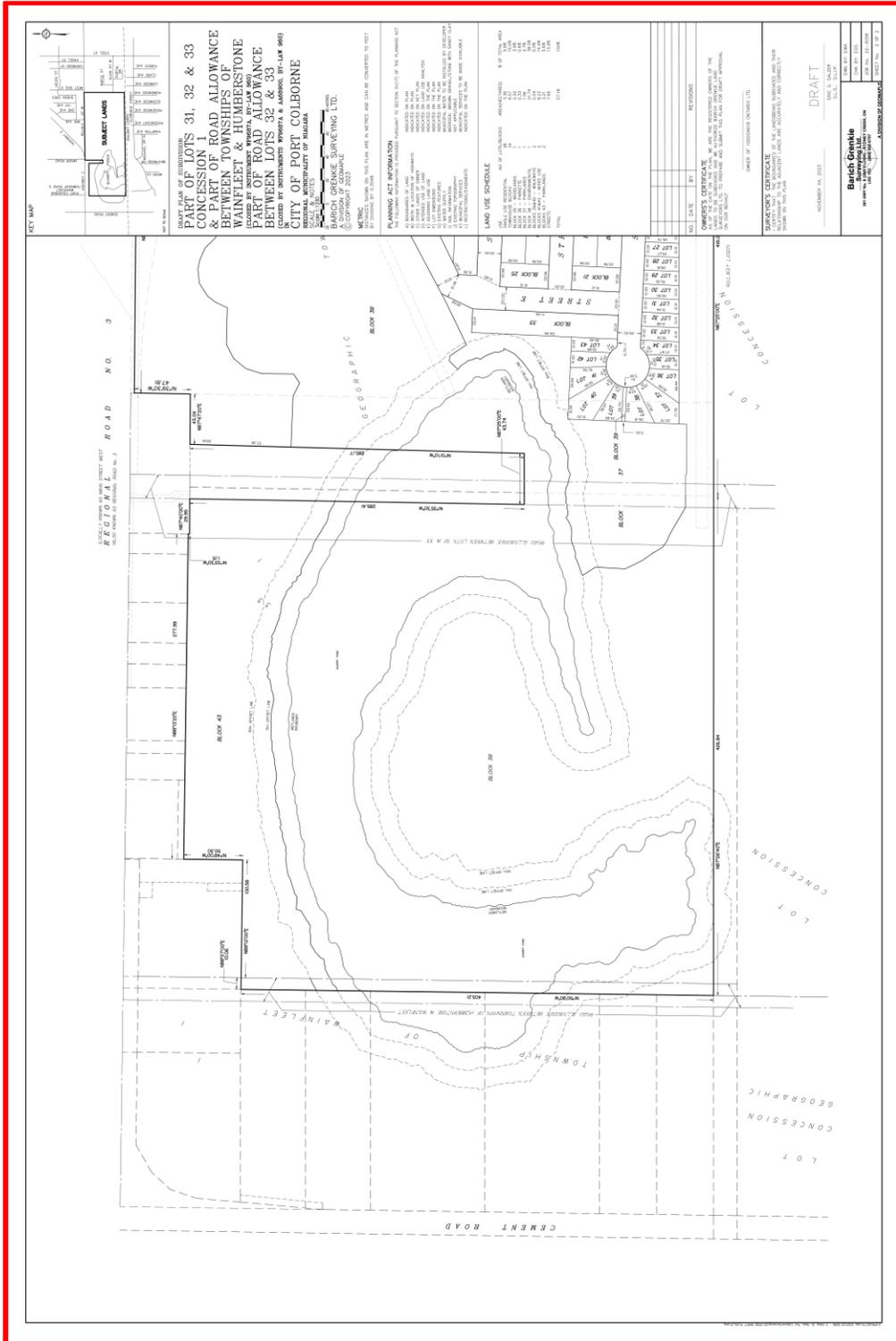
MAP 2 FACSIMILE SEGMENT OF TREMAINE'S MAP OF THE COUNTIES OF LINCOLN AND WELLAND, CANADA WEST (TREMAINE 1862)



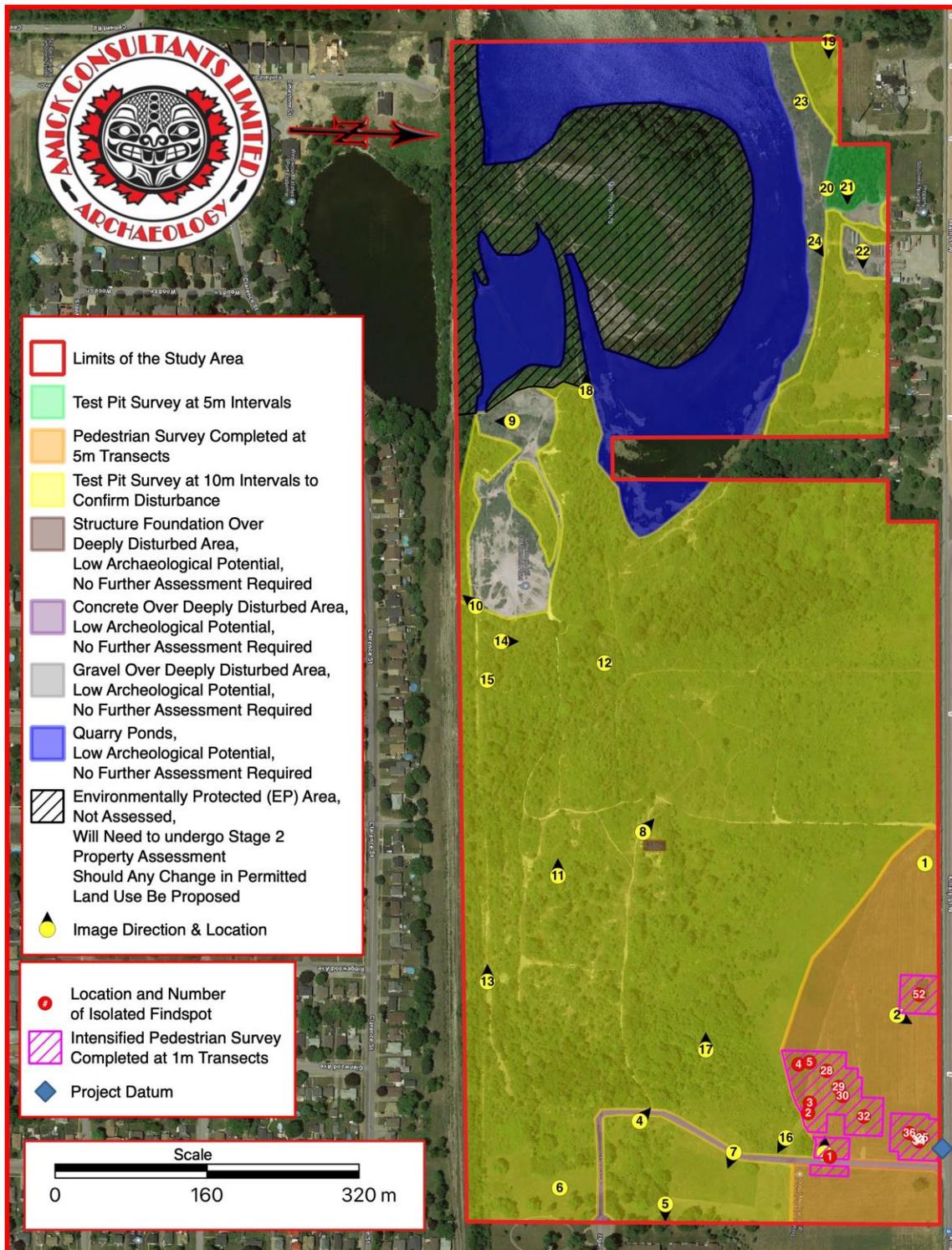
MAP 3 FACSIMILE SEGMENT OF THE ILLUSTRATED HISTORICAL ATLAS OF THE COUNTIES OF LINCOLN AND WELLAND, ONT. (PAGE & CO. 1876)



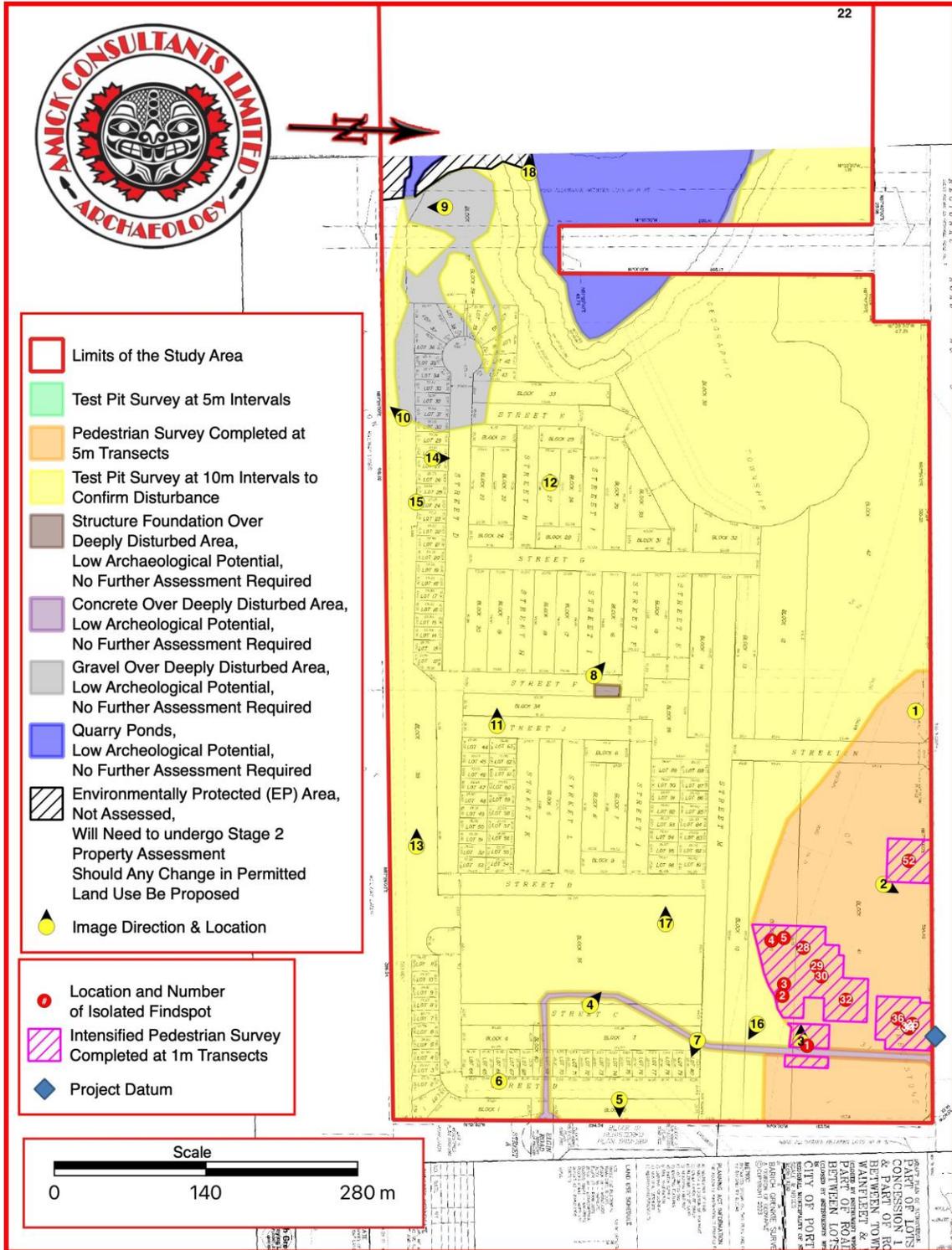
MAP 4 EAST PORTION OF DRAFT PLAN (BARICH GRENKIE SURVEYING LTD. 2023)



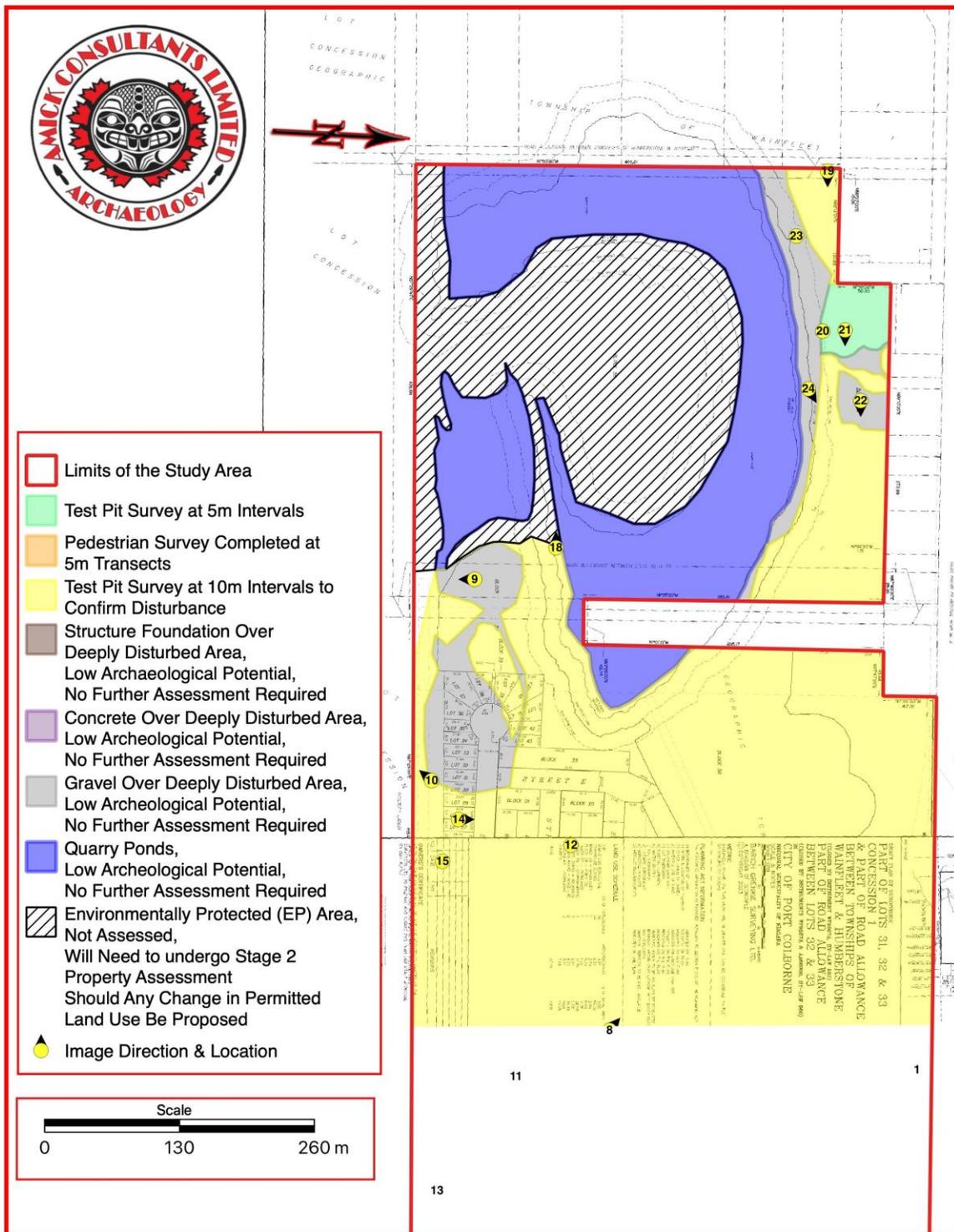
MAP 4.1 WEST PORTION OF DRAFT PLAN (BARICH GRENKIE SURVEYING LTD. 2023)



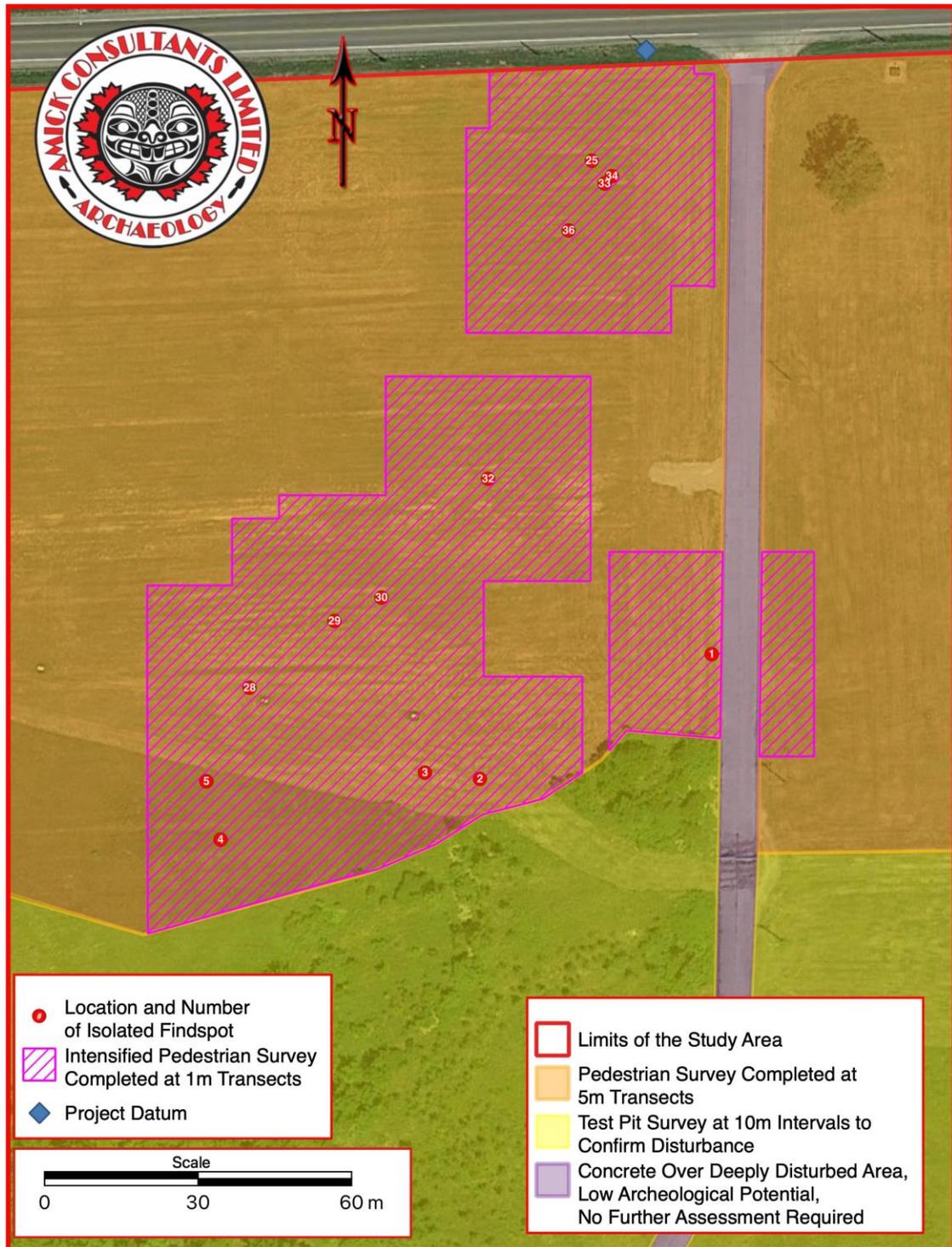
MAP 5 AERIAL PHOTO OF THE STUDY AREA AND LOCATION OF ISOLATED FINDSPOTS (GOOGLE EARTH 2016)



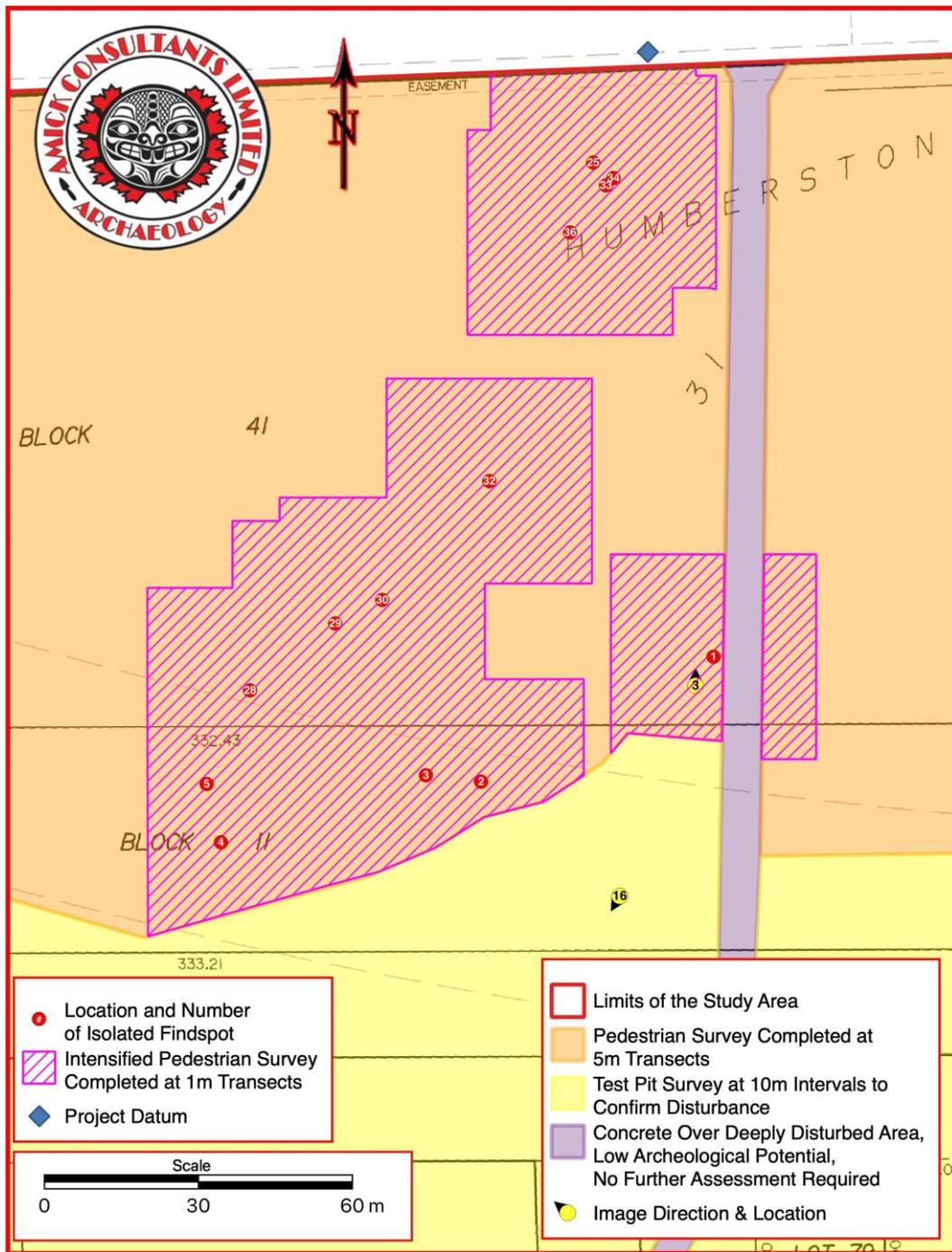
MAP 6.1 DETAILED EAST PORTION OF DRAFT PLAN OF THE STUDY AREA AND LOCATION OF ISOLATED FINDSPOTS (AFTER BARICH GRENKIE SURVEYING LTD. 2023)



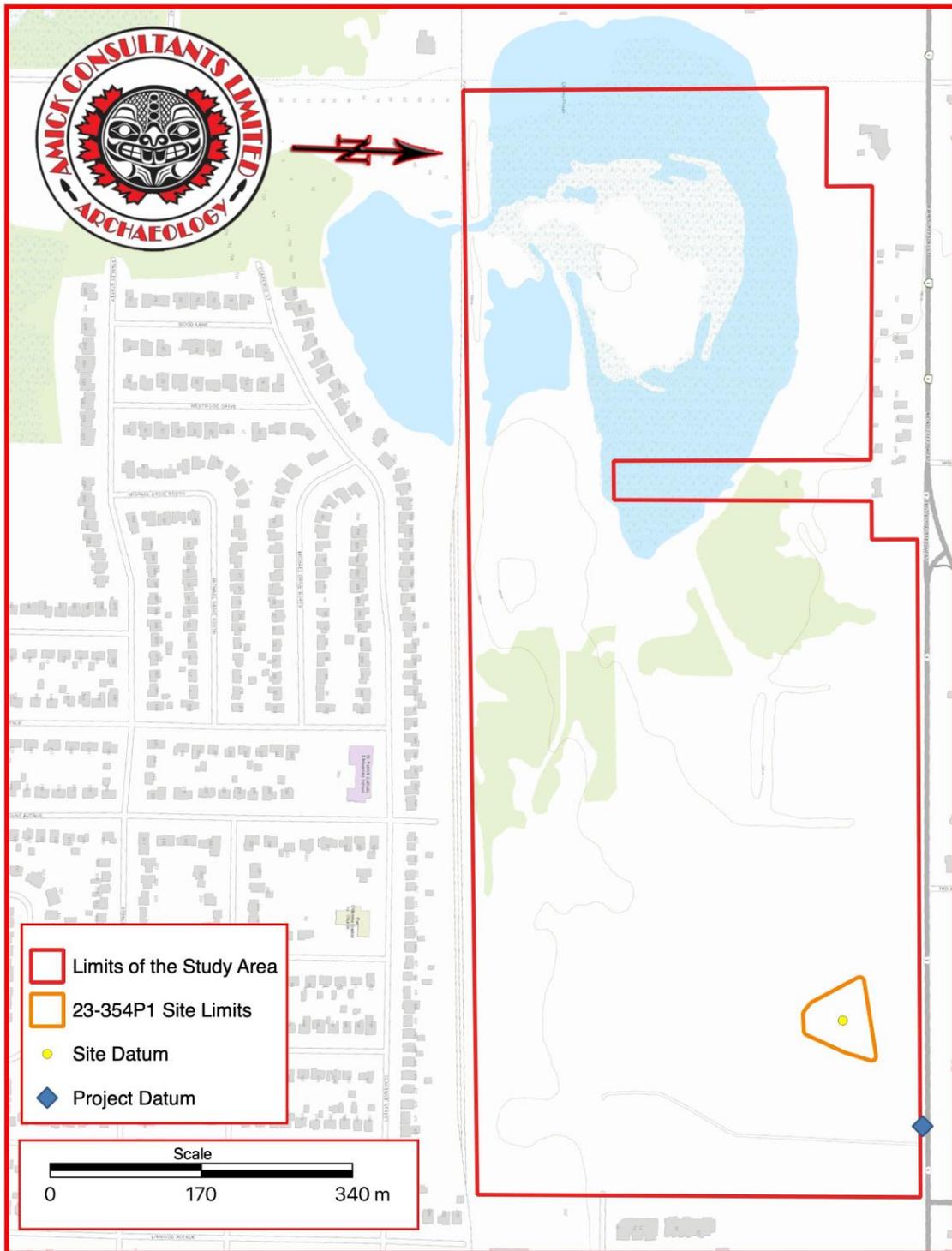
MAP 6.2 DETAILED WEST PORTION OF DRAFT PLAN OF THE STUDY AREA (AFTER BARICH GRENKIE SURVEYING LTD. 2023)



MAP 7 ZOOMED IN AERIAL MAP DEPICTING THE LOCATION OF ISOLATED FINDSPOTS (GOOGLE EARTH 2016)



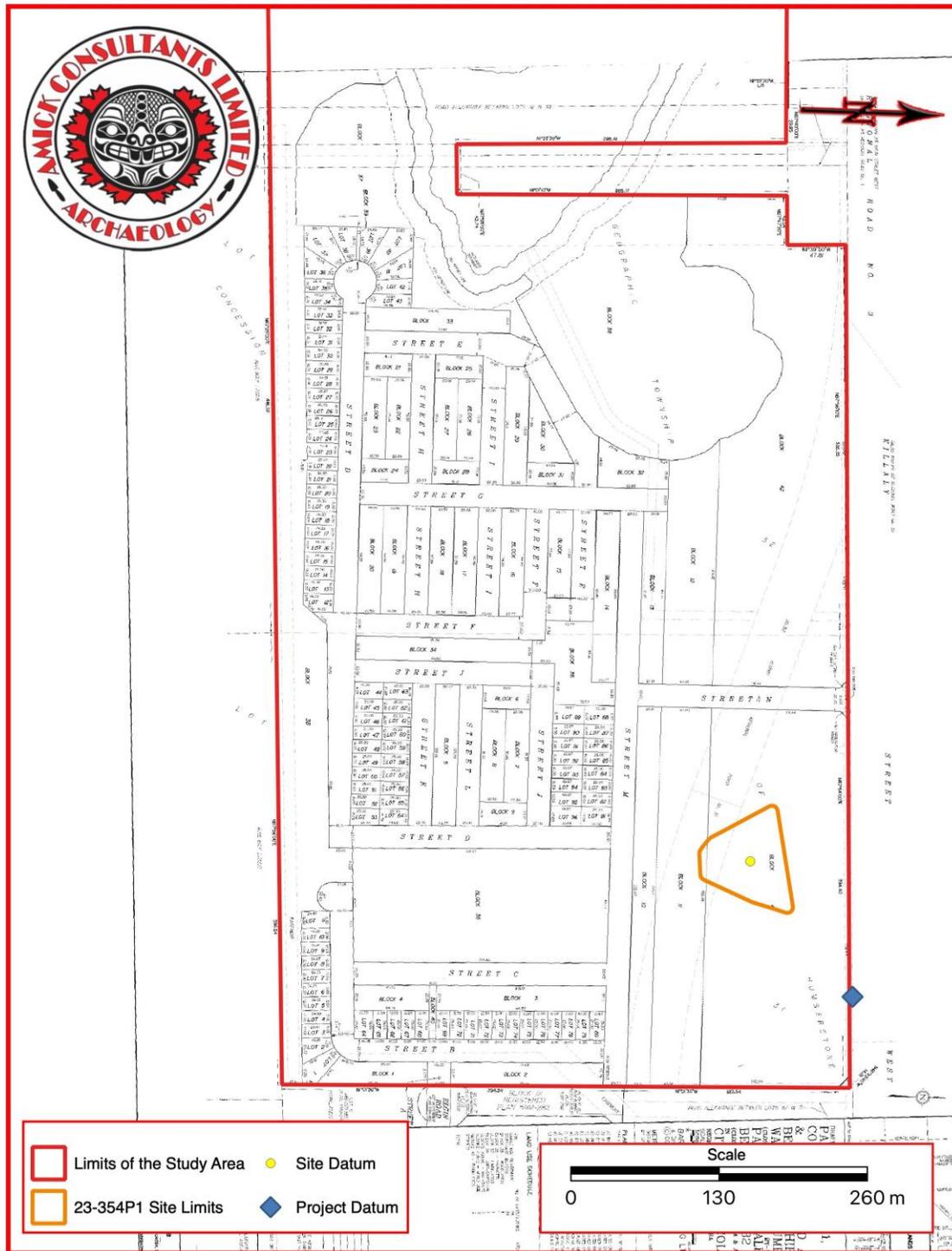
MAP 8 ZOOMED IN DETAILED EAST PORTION OF DRAFT PLAN OF THE STUDY AREA DEPICTING THE LOCATION OF ISOLATED FINDSPOTS (AFTER BARICH GRENKIE SURVEYING LTD. 2023)



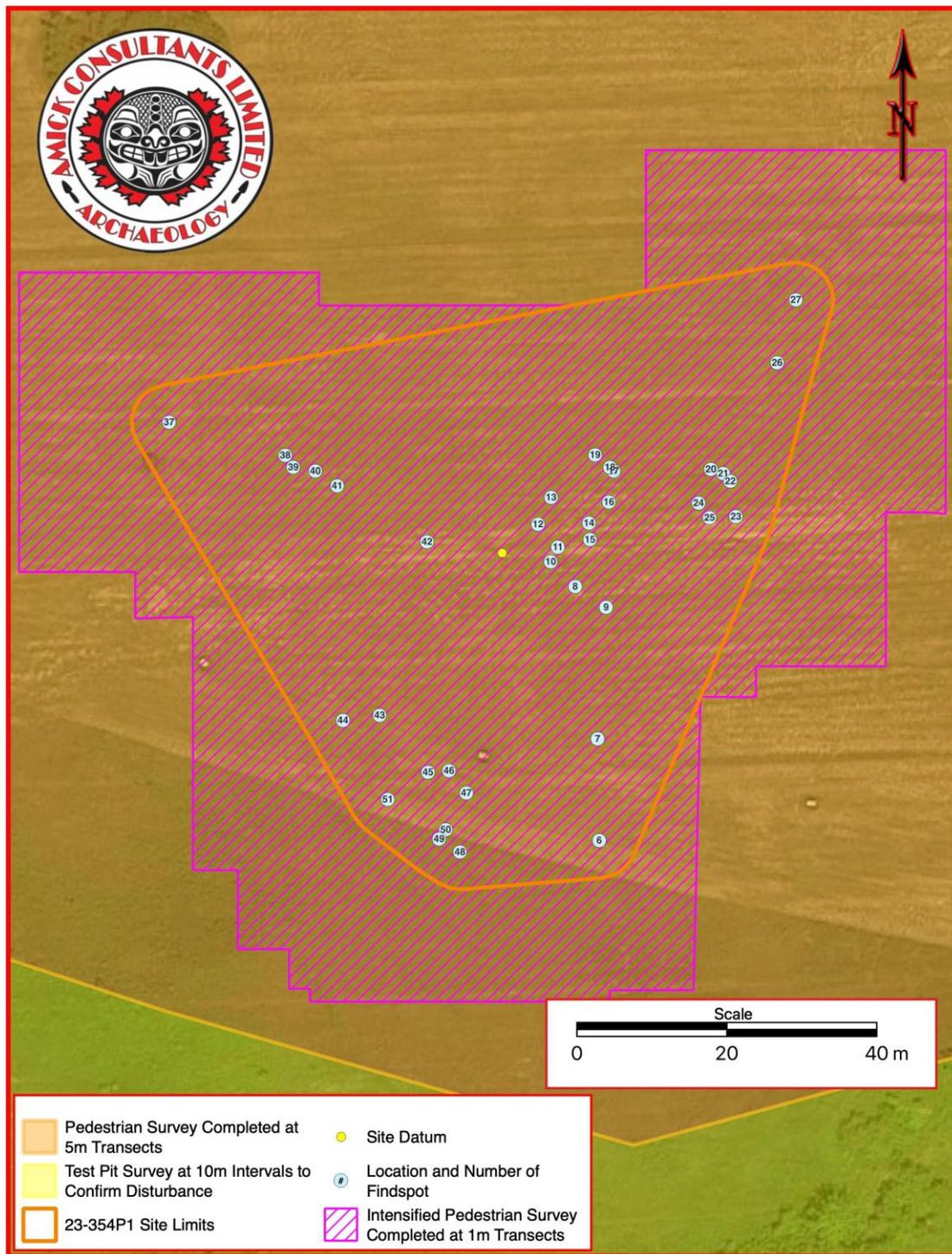
MAP 9 TOPOGRAPHIC MAP ILLUSTRATING LOCATION OF 23-354P1 (AFGT-347) (ESRI 2019)



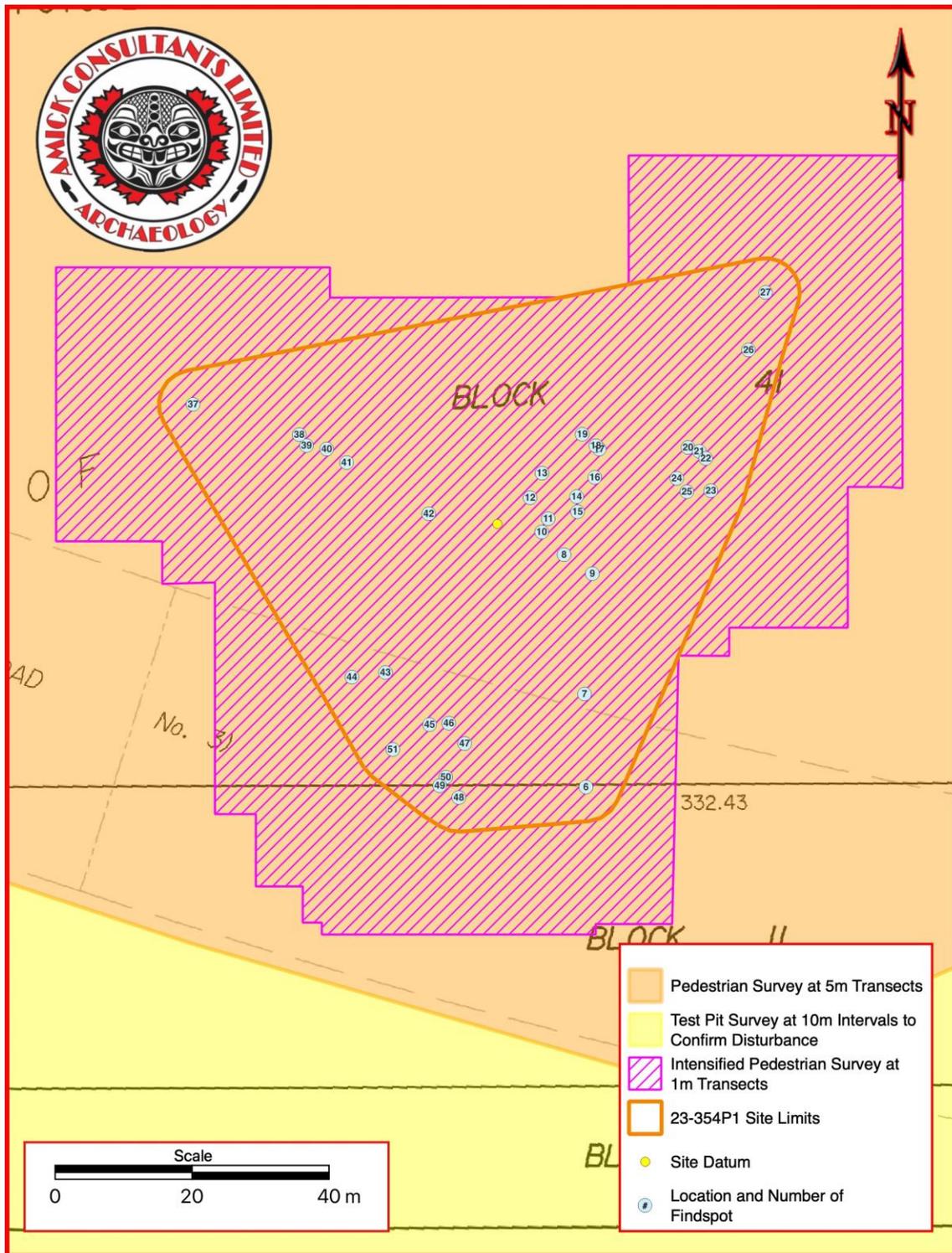
MAP 10 AERIAL MAP ILLUSTRATING LOCATION OF 23-354P1 (AFGT-347) (GOOGLE EARTH 2016)



MAP 11 EAST PORTION OF DRAFT PLAN ILLUSTRATING LOCATION OF 23-354P1 (AFGT-347) (AFTER BARICH GRENKIE SURVEYING LTD. 2023)



**MAP 12 AERIAL MAP ILLUSTRATING LOCATION OF 23-354P1 (AFGT-347) FINDSPOTS
(GOOGLE EARTH 2016)**



MAP 13 EAST PORTION OF DRAFT PLAN ILLUSTRATING LOCATION OF 23-354P1 (AFGT-347) FINDSPOTS (AFTER BARICH GRENKIE SURVEYING LTD. 2022)

IMAGES



IMAGE 1 PLOUGHED FIELD SURFACE CONDITIONS



IMAGE 2 CREW CONDUCTING TEST PIT SURVEY AT 5M INTERVALS



IMAGE 3 OVERVIEW OF PLOUGHED FIELD



IMAGE 4 OVERVIEW OF STUDY AREA



IMAGE 5 CREW CONDUCTING TEST PIT SURVEY AT 10M INTERVALS TO CONFIRM DISTURBANCE



IMAGE 6 DISTURBED TEST PIT



IMAGE 7 CONCRETE ROADWAY



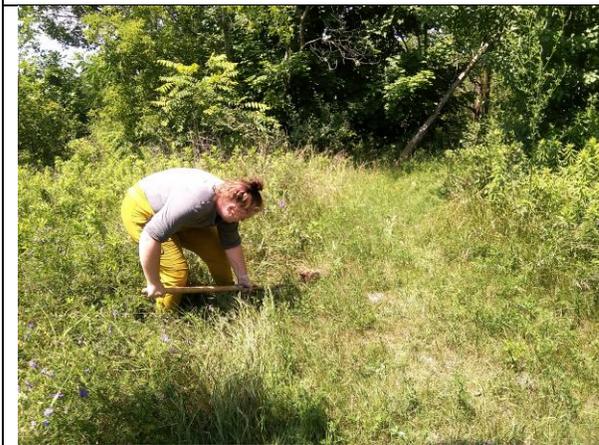
IMAGE 8 OVERVIEW OF STUDY AREA



IMAGE 9 GRAVEL SURFACE



IMAGE 10 GRAVEL SURFACE



**IMAGE 11 CREW CONDUCTING TEST PIT SURVEY
AT 10M INTERVALS**



IMAGE 12 DISTURBED TEST PIT



**IMAGE 13 GRAVEL TRAIL – DID NOT INTERRUPT
10M TEST PIT TO CONFIRM DISTURBANCE GRID**



IMAGE 14 OVERVIEW OF STUDY AREA



IMAGE 15 DISTURBED TEST PIT



IMAGE 16 OVERVIEW OF STUDY AREA



IMAGE 17 DISTURBED TEST PIT



IMAGE 18 QUARRY PONDS



IMAGE 19 OVERVIEW OF STUDY AREA



IMAGE 20 COMPLETED TEST PIT



IMAGE 21 CREW CONDUCTING TEST PIT SURVEY
AT 5M INTERVALS



IMAGE 22 GRASS COVERED GRAVEL SURFACE



IMAGE 23 GRAVEL SURFACE



IMAGE 24 QUARRY PONDS

APPENDIX A: ISOLATED FINDSPOT ARTIFACT CATALOGUE

CAT #	Provenience #	Layer	Description	Material	Type	Burnt	L (mm)	W (mm)	Th (mm)	Comments	Qty
40	1	N/A	Lithic Debitage	Onondaga Chert - Tan & Medium Gray	Secondary Flake	N				Retains minor platform and bulb of percussion; cortex present on distal end of flake	1
41	2	N/A	Spokeshave	Onondaga Chert - Medium Gray	Secondary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face; semi-circular retouch present on proximal portion of one lateral edge of ventral face	1
42	3	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Secondary Flake	N				Retains platform; some cortex present on proximal end of flake	1
43	4	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Tertiary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face	1
44	5	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Thinning Flake	N				Snap fractures on proximal end of flake; flake scars on dorsal face	1
45	25	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Shatter	N					1

46	28	N/A	Retouched Flake	Onondaga Chert - Tan & Medium Gray	Tertiary Flake	N				Missing platform; flake scars on dorsal face; retouch present on part of distal end of dorsal face	1
47	29	N/A	Spokeshave	Onondaga Chert - Dark Gray	Secondary Flake	N				Retains platform; cortex present on approximately 50% of dorsal face; flake scars on rest of dorsal face; semi-circular retouch present on proximal end of dorsal face	1
48	30	N/A	Retouched Flake	Onondaga Chert - Medium Gray	Tertiary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face; some retouch present on distal end of dorsal face	1
49	32	N/A	Lithic Debitage	Onondaga Chert - Tan & Dark Gray	Thinning Flake	N				Missing platform and bulb of percussion; flake scars on dorsal face	1
50	33	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Tertiary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face	1
51	34	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Thinning Flake	N				Retains platform; flake scars on dorsal face	1

52	34	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Thinning Flake	N				Retains platform; flake scars on dorsal face	1
53	36	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Tertiary Flake	N				Missing platform and bulb of percussion; flake scars on dorsal face	1
54	52	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Tertiary Flake	N				Retains platform; flake scars on dorsal face	1

APPENDIX B: 23-354P1 (AFGT-347) ARTIFACT CATALOGUE

CAT #	Provenience #	Layer	Description	Material	Type	Burnt	L (mm)	W (mm)	Th (mm)	Comments	Qty
37	6	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Tertiary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face	1
26	7	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Thinning Flake	N				Retains minor platform and bulb of percussion; errailure scar present on proximal end of ventral face; flake scars on dorsal face	1
22	8	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Thinning Flake	N				Missing platform; flake scars on dorsal face	1
18	9	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Thinning Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face	1
31	10	N/A	Lithic Debitage	Onondaga Chert - Tan & Medium Gray	Secondary Flake	N				Retains platform and bulb of percussion; some flake scars on dorsal face; minor area of retouch present along part of one lateral edge of dorsal face	1
27	11	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Thinning Flake	N				Retains platform; flake scars on dorsal face	1
39	12	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Secondary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face; some cortex present on proximal end of flake	1

19	13	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Thinning Flake	N				Retains platform; flake scars on dorsal face	1
25	14	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Thinning Flake	N				Missing platform; flake scars on dorsal face	1
29	15	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Tertiary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face; possible retouch present on part of distal end of ventral face	1
36	16	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Secondary Flakes	N				Retain platforms and bulbs of percussion; cortex present on parts of flakes	2
35	17	N/A	Retouched Flake	Onondaga Chert - Medium Gray	Tertiary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face; retouch present along one lateral edge of dorsal face	1
20	18	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Shatter	N					1
21	18	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Tertiary Flake	N				Proximal end of flake snapped off; flake scars on dorsal face	1
23	19	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Tertiary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face	1
38	20	N/A	Spokeshave	Onondaga Chert - Dark Gray	Secondary Flake	N				Retains platform; some flake scars on dorsal face; cortex present on proximal end of flake; semi-circular retouch	1

									present on part of one lateral edge of ventral face	
30	21	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Shatter	N				1
28	22	N/A	Lithic Debitage	Onondaga Chert - Medium Gray	Thinning Flake	N			Retains platform; flake scars on dorsal face; part of distal end of flake snapped off	1
34	23	N/A	End Scraper	Onondaga Chert - Tan & Dark Gray	Secondary Flake	N			Retain platform and bulb of percussion; flake scars on dorsal face; retouch present along distal end of dorsal face	1
33	24	N/A	Lithic Debitage	Onondaga Chert - Tan & Dark Gray	Secondary Flake	N			Retain platforms and bulbs of percussion; cortex present on parts of flakes	2
24	26	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Tertiary Flake	N			Retains platform and bulb of percussion; flake scars on dorsal face	1
32	27	N/A	Retouched Flake	Onondaga Chert - Tan & Dark Gray	Tertiary Flake	N			Missing platform and bulb of percussion; flake scars on dorsal face; retouch present along distal end of dorsal face	1
17	31	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Tertiary Flake	N			Retains platform and minor bulb of percussion; flake scars on dorsal face; possible minor retouch on distal end of flake	1
16	37	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Secondary Flake	N			Retains platform and bulb of percussion; flake scars on dorsal face	1

12	38	N/A	Graver	Onondaga Chert - Dark Gray	Tertiary Flake	N				Retains platform; flake scars on dorsal face; small area of retouch present on one lateral edge of ventral face to form point	1
4	39	N/A	End Scraper Fragment	Onondaga Chert - Dark Gray	Tertiary Flake	N				Proximal end of flake snapped off; flake scars on dorsal face; retouch present along distal end of dorsal face	1
3	40	N/A	Retouched Flake	Onondaga Chert - Dark Gray	Tertiary Flake	N				Proximal end of flake snapped off; flake scars on dorsal face; retouch present along one lateral edge of dorsal face	1
2	41	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Tertiary Flake	N				Proximal end of flake snapped off; flake scars on dorsal face	1
6	42	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Thinning Flake	N				Retains platform; flake scars on dorsal face; minor retouch present on distal end of ventral face	1
11	43	N/A	Retouched Flake	Onondaga Chert - Dark Gray	Tertiary Flake	N				Retains platform & minor bulb of percussion; flake scars present on dorsal face; retouch present along lateral edge/distal end of ventral face	1
15	44	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Tertiary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face	1
7	45	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Shatter	N				Flake scars on dorsal face	1

8	45	N/A	Lithic Debitage	Onondaga Chert - Tan & Dark Gray	Thinning Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face	1
13	46	N/A	Lithic Debitage	Onondaga Chert - Tan & Dark Gray	Secondary Flake	N				Retains platform and bulb of percussion; minor cortex present on proximal end of dorsal face; flake scars on dorsal face	1
14	47	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Tertiary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face	1
5	48	N/A	Spokeshave	Onondaga Chert - Tan & Dark Gray	Tertiary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face; retouch present along one lateral edge of dorsal face; semi-circular retouch present on distal end	1
1	49	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Tertiary Flake	N				Retains platform and bulb of percussion; flake scars on dorsal face	1
9	50	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Thinning Flake	N				Retains platform; flake scars on dorsal face	1
10	51	N/A	Lithic Debitage	Onondaga Chert - Dark Gray	Thinning Flake	N				Retains platform; flake scars on dorsal face	1

APPENDIX C: GPS COORDINATE DATA

GPS Receiver:

TRIMBLE TD600 SPECIFICATIONS		
Form-factor		All-in-one GNSS data collector and smartphone; Ultra-rugged design with MIL-STD-810G certification
CPU Speed		Qualcomm Snapdragon 626, Octa-core, Clock frequency: 2.2GHz
OS		Android 10
RAM		4GB RAM
Storage		64GB Flash Memory
Card slots		1 MicroSDHC memory card slot; 2 NanoSIM
Satellites		GPS, GLONASS, Galileo, QZSS, BeiDou, SBAS
GNSS Receiver		U-blox Neo-M8T
GNSS Accuracy		1.5m or less
Wireless		Integrated 4G cellular data, text and voice capability; 5MP front camera and 13 MP rear camera; Bluetooth v 4.1; Wi-Fi IEEE 802-11 a/b/g/n/ac, 2.4 GHz / 5 GHz dual-band; integrated speaker and microphone

Project Datum – Hydro Pole

Project datum is a hydro pole on the west side of the concrete entrance in the northeast corner of the study area, to the south of Killaly Street West.

Latitude/Longitude

42.889543, -79.266389

UTM Grid reference

17N 641558.187966 Easting, 4750006.670803 Northing

NAD 27

23-354P1 (AfGt-347) Site Coordinates

Site Datum (Centre Point)

Latitude/Longitude

42.888721, -79.267830

UTM Grid reference

17N 641442.440047 Easting, 4749912.857624 Northing
NAD 27

Site Extent Coordinates

Extent	Easting	Northing
North	641482.110766	4749951.647994
East	641486.610727	4749946.695549
South	641437.206986	4749867.925368
West	641393.012827	4749930.861334

Isolated Findspot Coordinates

Findspot	Coordinates	
	Easting	Northing
4	641489.729484	4750073.729504
52	641411.786622	4750197.942481
30	641521.158858	4750121.055970
1	641585.704547	4750109.979692
29	641511.981274	4750116.478638
3	641529.665208	4750086.828095
25	641562.273137	4750206.466228
5	641486.962262	4750085.134040
2	641540.419483	4750085.586810
34	641566.202179	4750203.436452
33	641564.747764	4750201.999259
32	641542.015301	4750144.278943
28	641495.394797	4750103.416483
36	641557.748214	4750192.819165

APPENDIX D: PRE-CONTACT ARTIFACT TYPE DESCRIPTIONS

The following descriptions serve as a general description of tool types or pottery styles and represents a comprehensive, but not exhaustive, reference guide for identifiable objects and is not limited to finds specific to a particular project or site assemblage.

Pottery

Rim Sherds and Fragmentary Rim Sherds

The presence of diagnostic artifacts such as decorated pottery fragments known as castellations, rim sherds and fragmentary rim sherds assist in the determination of the temporal and cultural affiliation of sites. Middle to Late Woodland typology of the Niagara area has not been developed to the extent of Iroquoian ceramics. Therefore, the rims have been documented through attribute analysis.

For the purposes of this discussion, a rim sherd must possess sufficient portions of the interior, lip, rim, exterior, and neck portions of the original vessel. An artifact possessing some but not all of the above mentioned attributes is considered a fragmentary rim sherd.

Fragmentary Sherds

Fragmentary sherds are those pieces which are smaller than a 25 cent piece, are missing either the interior or exterior and are undecorated. Construction method is very difficult to determine in such small or incomplete pieces.

Lithics

Lithic Debitage

Debitage or chipping detritus, is the remaining waste material as a result of the tool manufacturing process. The category is further divided into primary, secondary, tertiary, and (biface) thinning flakes. Primary flakes exhibit cortex on the dorsal face and cortex; secondary flakes exhibit cortex on approximately half of the dorsal face but have no cortex on the platform; tertiary flakes exhibit little to no cortex; thinning flakes are relatively flat, have broad, shallow flake scars, the proximal end of the flake often retains the edge of the biface and, if the platform is retained, it often exhibits a low angle and evidence of crushing or grinding. If a flake is missing the proximal, or distal ends it is described as fragmentary; if a piece ofdebitage is recovered without a distinct ventral or dorsal surface, it is described as shatter.

Retouched/Utilized Flakes

A retouched flake exhibits unifacial or bifacial reworking often as a means of creating or maintaining a working edge. Retouched flakes often exhibit small flake scars. A utilized flake is unifacially reduced and generally considered to be expedient. Polishing, rounding, and microchipping fractures are all indicators of use and can be accurately identified using at least 100X magnification. Since microscopic analysis was not performed on the current assemblage, the characterization of use-wear cannot be accurately determined; therefore, only the presence or absence of macroscopically visible flake scars were noted.

Shatter

Shatter is also categorized as debitage. Shatter consists of waste fragments that are angular and blocky and do not show the typical characteristics of a reduction flake (i.e., absence of bulb of percussion, striking platforms, or dorsal flake scars).

Projectile Points/Point Fragments/Point Preforms

A projectile point is an object that was hafted to weapon that was capable of being thrown or projected, such as a spear, dart, or arrow, or perhaps used as a knife.

A projectile point preform is often an ovate or triangular shaped rock that has been flaked on both sides using percussion and pressure flaking techniques. A projectile point fragment is often an ovate or triangular shaped rock that has been flaked on both sides using percussion and pressure flaking techniques and conforms to the general size and shape of a projectile point but has been fractured and discarded. This type of artifact was likely either in the early stages of becoming some form of tool before it was discarded by the flintknapper, was fractured in use or was reworked until exhaustion.

Formal Tool Types

Bifaces

The term biface here is used to describe an artifact that was subject to flake reduction on both surfaces but cannot be assigned to a formal tool category.

Scrapers

A scraper is a unifacial tool of varying in shape, size, and location of the working edge(s). Scrapers are typically formed by chipping the end of a flake of stone in order to create one sharp side and to keep the rest of the sides dull to facilitate grasping it. Most scrapers are either circle or blade-like in shape. The working edges of scrapers tend to be convex, and many have trimmed and dulled lateral edges to facilitate hafting. Scrapers are thought to have been used for hide-working and woodworking.

Spokeshave

A spokeshave is a unifacial tool of varying in shape, size, and location of the working edge(s). Similar to scrapers, spokeshaves exhibit a pronounced concave working edge thought to have been used to shape spear or arrow shafts and bows.

Drills

A drill is an elongated tool used for making holes and perforations. When made of stone, drills are frequently a bifacially worked tool of equal width and thickness and often t-shaped to facilitate hafting; however, examples of thin t-shaped drills have been encountered. Drills could sometimes be repurposed tips of exhausted bifaces or projectile points.

Perforators/Gravers

Perforators, gravers, piercers, borers and awls are formal tools that exhibit fine unifacial or bifacial retouching in order to accentuate a fine, triangular point. These tools serve a variety of purposes that involve piercing, incising, or engraving materials.

Informal Tool Types

Cores

Cores are the initial nodes of material that are subject to the reduction process in order to manufacture tools using either the waste flakes struck off the core or the core itself. An exhausted core is node which no longer produces desirable flakes and was discarded by the flint knapper.

Fire bow drill base

A bow drill base is an object of stone or wood that was used to hold the base of the drill shaft and tinder to create an ember used to start a fire. The downward pressure and rotation of the drill shaft against the stone creates heat, which eventually creates powdered charcoal and ignites to form a small ember. Bow drill bases exhibit horizontal striations within small, circular boreholes.

Ground Stone Tools

Adzes, Axes, and Celts

An adze is an elongated ground stone tool with one sharpened edge typically used as a wood-working tool. An adze differs from an axe or celt in a couple of typological and ethnographically documented ways. Typologically, adzes are bifacial tools with a pronounced asymmetry and a plano-convex cross-section; axes are generally symmetrical bifacial tools with biconvex cross-sections. Ethnographically, axes are used for hewing trees and the ground stone tool head is set in the handle so the working edge is parallel to the handle. In contrast, adzes are used for shaping wood and the ground stone tool head is set in

the handle so the working edge is perpendicular to the handle. The difference between celts and axes is that celts are ungrooved.

Hammerstone

A hammerstone is a hard, stone cobble used to remove lithic flake from cores during lithic tool reduction. Hammerstones can also be used to grind, crush, and polish tool edges; to process minerals such as iron ore; or in food-processing (nuts, marrow extraction).

Abraders

Abraders are a multi-functional tool type that can be used for sharpening, shaping, grinding, polishing, or smoothing organic and inorganic materials. Abraders are usually made of granular, relatively soft stone, such as sandstone, and can range in size from large and flat to hand-sized stones. They are typified by abrasion marks or worn grooves along the surface of the stone in U- or V-shapes, the width of which can imply what materials the abrader was used to manipulate. Abraders will often exhibit a polished edge.

Faunal Tools

Modified Bone Fragments

Modified bone fragments are those pieces which are not formal artifact types but exhibit evidence of cultural modification.

Bone Awls

Bone awls are perforating tools, manufactured primarily from long bones and tapered to a point at one end.