ORIGINAL REPORT

Stage 1 and 2 Archaeological Assessment

20 Frank Nighbor Place, Part of Lot 2, Concession 1, March Township, Carleton County, City of Ottawa, Ontario.

MTCS PIF Number: P1077-0043-2018
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Submitted to:

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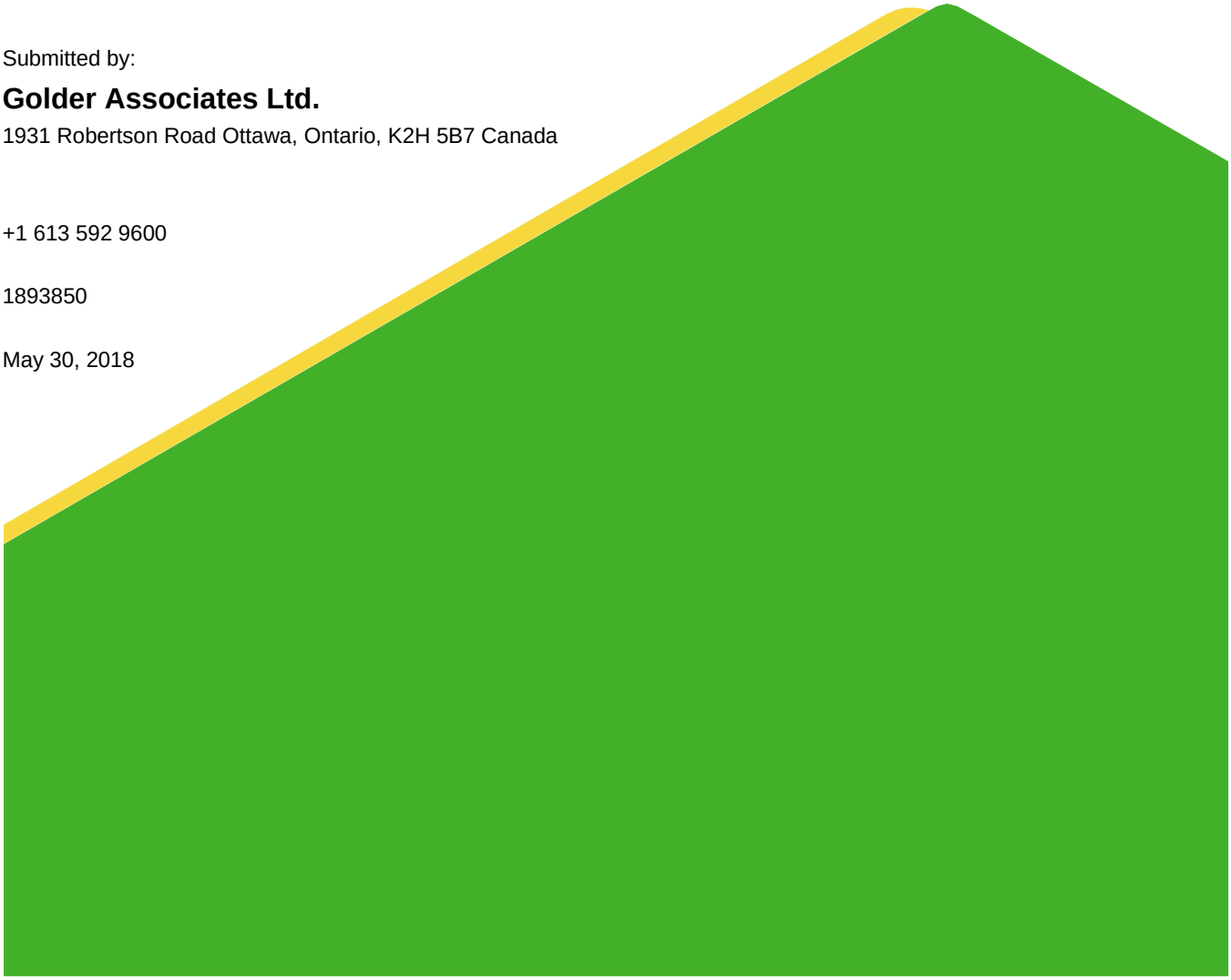

Distribution List

1 e-copy - SiteCast Construction Corp.

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Executive Summary

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

Golder Associates Limited (Golder) was retained by SiteCast Construction Corp. (SiteCast) to complete a Stage 1 and 2 archaeological assessment for the property located at 20 Frank Nighbor Place, situated within part of Lot 2, Concession 1, March Township, Carleton County, City of Ottawa, Ontario (Map 2).

The primary objectives of this Stage 1 and 2 archaeological assessment were to provide information about the property's geography, history, previous archaeological fieldwork and current land condition, evaluate the archaeological potential, document all archaeological resources within the study area to be impacted by the project, to determine whether these archaeological resources require further assessment, and where applicable, to recommend appropriate Stage 3 assessment strategies for any archaeological sites identified.

Evidence for human occupation of Eastern Ontario dates to at least 9,000 BP following the retreat of the Champlain Sea. During the Archaic Period (9,000 to 2,500 BP), the environment of Ontario approached modern conditions. The Ottawa River served as a major transportation route for Archaic peoples who traded copper mined from surface deposits near Lake Superior. The Woodland Period (2,500 BP to 400 BP) saw the introduction of pottery and agriculture which led to the development of semi-permanent and permanent villages in southern Ontario. Within eastern Ontario, Woodland subsistence strategies were still based on hunting and gathering and their migratory routes followed seasonal patterns to proven hunting locations rather than following migrating herds. The first European to pass through what would become the Ottawa area was Étienne Brûlé in 1610. Settlement of March Township began in 1819.

The Stage 1 portion of this assessment included the review of available archaeological and environmental literature pertaining to the property, consultation with the Ministry of Tourism, Culture, and Sport's database for registered archaeological sites, and the review of primary historic documentation including aerial photographs and historic maps. The Stage 1 archaeological assessment determined that the study area had archaeological potential due to its proximity to the Carp River which may have provided an important navigable access corridor between the Ottawa River and the environmentally diverse uplands of the Carp Ridge (ASI and GII 1999).

The Stage 2 archaeological assessment of the 6.8 hectare study area was completed on 24 May 2018, and consisted of a pedestrian survey within the ploughed field and a test pit survey within lands that could not be ploughed. At the time of this assessment, the study area consisted primarily of agricultural fields with wood lot located along its western border. The natural soils typically consisted of approximately 25 centimetres of moderately compact dark grey brown loam over brown clay or silty clay subsoil. There was some evidence of disturbance in the immediate vicinity of a previously installed sanitary sewer line that extends through the centre of the study area.

The Stage 1 and 2 archaeological assessment did not identify any archaeologically significant resources and based on the results, it was concluded that no further archaeological investigations are recommended in the study area, as identified on Map 14.

This report is submitted to the Ministry of Tourism, Culture and Sport (MTCS) 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 the licensed consultant archaeologist has met the terms and conditions of their archaeological license, and that the archaeological field work and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

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

Project Personnel

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Report Abbreviations

MTCS	Ministry of Tourism, Culture and Sport
ASDB	Archaeological Site Database
PIF	Project Information Form (MTCS Project File Number)
BP	Before Present
CHVI	Cultural Heritage Value or Interest

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1.0 PROJECT CONTEXT

1.1 Development Context

Golder Associates Limited (Golder) was retained by SiteCast Construction Corp. (SiteCast) to complete a Stage 1 and 2 archaeological assessment for the property located at 20 Frank Nighbor Place, situated within part of Lot 2, Concession 1, March Township, Carleton County, City of Ottawa, Ontario (Map 1).

The subject property encompasses approximately 6.8 hectares (16.8 acres) and is proposed to be incorporated into a commercial development. The study area is located immediately east of the Carp River flood plain and south of Highway 417 (Map 2 and Map 3).

This Stage 1 and 2 archaeological assessment was triggered by the *Planning Act*, and was prepared prior to submission of the commercial site plan application to the City of Ottawa. No development specific plan is currently available.

Permission to access the site was provided by Shawn Hickey, SiteCast Construction Corp., with no restrictions or limitations.

1.2 Project Objectives

This Stage 1 and 2 archaeological assessment was completed to identify known archaeological resources on or in the vicinity of the study area, as well as to assess the archaeological potential of the subject property.
The investigation will determine if additional archaeological assessments are required. The objectives of a Stage 1 and 2 archaeological assessment are based on principals outlined in the *Ontario Heritage Act* (Consolidated 2007) and the *Standards and Guidelines for Consultant Archaeologists* (2011). More specifically, this Stage 1 and 2 archaeological assessment was completed with the following objectives:

- To provide information about the property's geography, history, previous archaeological fieldwork and current land condition;
- To evaluate in detail the property's archaeological potential and determine whether the property contains archaeological resources requiring additional archaeological assessment;
- To document archaeological resources on the property;
- Determine whether further work within the study area is required based on findings of the current investigation; and,
- To recommend appropriate Stage 3 assessment strategies for archaeological sites identified, if applicable.

2.0 HISTORIC CONTEXT

2.1 Regional Indigenous History

The Ottawa Valley was covered by the Laurentide ice sheet until approximately 11,000 years before present (BP). Following the period of deglaciation, the Ottawa Valley was inundated by the Champlain Sea which is interpreted to have extended from Rideau Lakes in the south, along the Ottawa Valley and St. Lawrence areas and terminating around Petawawa in the west. The exact western boundary is unknown as current elevation levels reflect the isostatic adjustment of the land following the melting of the glaciers and cannot be used to determine the exact location of the Champlain Sea at the time of its existence. The eastern portion of the sea extended into the Atlantic Ocean.

The earliest possible settlement in the Ottawa area would have occurred following the recession of the Champlain Sea when the vegetation and wildlife had the opportunity to develop within the area and enable the sustainability of humans (Watson 1999a). The ridges and old shorelines of the Champlain Sea and early Ottawa River channels reflect areas most likely to contain evidence of Paleo-Indian Period occupation in the region. Archaeological and geological investigations in the Ottawa Valley have suggested these early sites may be identified within the 550 foot (167.6 metres) or higher contour topography, although additional research may be required to confidently assess this correlation (Kennedy 1976).

During the Early and Middle Paleo-Indian Periods (12,000–10,500 BP) Ottawa would have remained inundated by the Champlain Sea, but as the Champlain Sea receded during the Late Paleo-Indian Period (10,500–9,500 BP) it is possible that people migrated along the changing waterfront eventually moving into the Ottawa Valley (Watson 1999a).

Identifying the location and dates of the ancient Champlain Sea shorelines and the possible Paleo-Indian archaeological sites that may have been associated with this evolving landscape has proved challenging. These boundaries are not marked by a continuous identifiable shoreline, especially along the western periphery where rocky conditions were not favorable to the formation of beach ridges (Chapman and Putman 1973). Attempts to use mollusk shells as a source for radiocarbon dates have provided unreliable results as shells absorb carbon at different rates according to their depth below the surface and geological context (Robinson 2012). Additionally, earlier interpretations implying discrete stages of regression (Chapman 1937) have not been supported by the geological record. Unlike the catastrophic flood events during the Younger Dryas climatic event that led to the rapid formation of the Champlain Sea, its regression was a slow process occurring as sea waters drained during isostatic rebound (Robinson 2012). The interpreted presence of shorelines is further complicated by the fact that isostatic rebound may have raised the Ottawa region above its modern elevation before it receded to its current level (Fulton and Richard 1987). As a consequence, only the margins of the Champlain Sea at its maximum extent, a time when the Ottawa region would have been fully submerged, have been reliably mapped due to the rapid inundation creating pronounced shoreline features (Loring 1980). Although recent studies using various dating techniques that do not rely upon deposits of mollusk shells have provided some favourable results (Tremblay 2008), considerable work remains in developing the chronology of the Champlain Sea's regression.

The identification of Paleo-Indian sites in the Middle Ottawa Valley region has also been hindered by the erosion of accessible locations during the environmental changes associated with the transition from the Late Paleo-Indian Period to the succeeding Archaic Period (9,500-2,500 BP). The potential use of watercraft by Paleo-Indian peoples (Engelbrecht and Seyfert 1995; Jodry 2005) and evidence for the abundance of marine resources (Loring 1980; Robinson 2012) raises the possibility of occupation sites situated on accessible landforms. For example, the Ottawa River delta that prograded eastward as the Champlain Sea regressed (Fulton *et al* 1987) would have been impacted by periods of overflow from glacial Lake Agassiz. The inundation of flood waters from the glacial lake may have eroded or buried archaeological remains within these potential occupation landscapes.

Paleo-Indians were characterized as highly mobile hunters and gatherers who primarily relied on a subsistence strategy based on caribou, small game, fish and wild plants typically found in the sub-arctic environment of the time. The majority of the Paleo-Indian Period materials recovered in southeastern Ontario represent isolated findspots supporting the interpretation of a nomadic lifestyle rather than extended occupation sites (Storck 1984). Although evidence exists documenting Paleo-Indian occupation in Ontario as early as 11,000 years BP, minimal evidence exists for occupation within the Ottawa Valley during this period.

Evidence suggesting limited occupation and land use during the Paleo-Indian Period in the Ottawa Valley includes two bi-facially fluted projectile points found near the Rideau Lakes which would have been located near the shoreline of the Champlain Sea during this period (Watson 1999b), a Late Paleo-Indian Period Dovetail point recovered in Ottawa South sometime around 1918 (Pilon and Fox 2015) and additional interpretations of Paleo-Indian Period material identified during archaeological investigations near Greenbank Road (Swayze 2003) Albion Road and Rideau Road (Swayze 2004). The closest site with an interpreted Late Paleo-Indian component is situated just almost four kilometres southwest of the project corridor where a number of lithic artifacts have been recovered at the Holy Spirit site (BhFx-33), which is suggested to represent a campsite (MTCS 2018a).

The environment of Ontario approached modern conditions during the succeeding Archaic Period (9,500-2,500 BP). Stone tool technologies evolved during this time as a broader range of tool types were created, although the skill and workmanship is considered to have declined from earlier Paleo-Indian standards. Ground stone tools appeared, such as adzes and gouges, tool types indicating increased wood working and greater adaptation to evolving environmental conditions.

During the Early Archaic Period (9,500 BP – 8,000 BP), the jack and red pine forests that characterized the Late Paleo-Indian Period environment were replaced by landscapes dominated by white pine with some associated deciduous trees (Ellis, Kenyon and Spence 1990). One of the more notable changes during the Early Archaic Period was the appearance of side and corner-notched projectile points. Other significant innovations included the introduction of ground stone tools such as celts and axes, which suggest the beginning of a simple woodworking industry. The presence of these often large and not easily portable tools also implies there may have been some reduction in the degree of seasonal movement, although it is suspected that population densities were quite low with band territories continuing to travel across large areas.

During the Middle Archaic Period (8,000 BP – 4,500 BP) the trend towards more diverse toolkits continued, as the presence of netsinkers and fish weirs suggests that fishing was becoming an important component of the subsistence strategy. It was also during this period that stone tools especially designed for the preparation of wild plant foods were crafted and also when ‘bannerstones” were first manufactured, which are carefully crafted ground stone devices that served as a counterbalance for *atlatls* or spear-throwers.

Another characteristic of the Middle Archaic Period is an increased reliance on local, often poor quality, chert resources for manufacturing projectile points. While groups occupied larger territories during the Paleo-Indian and Early Archaic Periods, and were able to visit primary outcrops of high quality chert at least once during their seasonal round, during the Middle Archaic Period groups traveled within comparatively smaller territories which did not always possess a source of high quality raw materials. In these instances, lower quality materials which had been previously deposited by the glaciers in the local till and river gravels were utilized.

This reduction in territory size was likely the result of gradual region-wide population growth which led to infilling of the landscape. This process resulted in a reorganization of Indigenous subsistence strategies, as more people had to be supported from the resources extracted from a smaller area.

It was also during the latter part of the Middle Archaic Period that long distance trade routes began to develop, spanning the northeastern part of the continent. In particular, native copper tools manufactured from a source located northwest of Lake Superior were being widely traded (Ellis, Kenyon and Spence 1990). During the Middle and Late segments of the Archaic Period, copper was being mined from surface outcrops around Lake Superior and traded into southern Ontario, with the Ottawa River acting as a significant transportation route facilitating this trade network (Chapdelaine *et al* 2001). These trade connections also brought marine shell artifacts from as far away as the Mid-Atlantic coast, which are frequently encountered as items associated with burial deposits (Ellis, Kenyon and Spence 1990; Ellis, Timmins and Martelle 2009).

Sites with Archaic components which demonstrate this expanding trade network include Morrison's Island and Allumette Island in the Outaouais region of the Ottawa River (Chapdelaine *et al* 2001; Clermont 1999), sites identified at Lake Leamy near the junction of the Gatineau and Ottawa Rivers, and also in the Rideau Lakes area (Watson 1982). Additional significant occupation sites with Archaic Period components along Ottawa Valley waterways which were likely influenced by these trade routes include Jessup Falls near the mouth of the South Nation River and at Spencerville near the source of the South Nation River (Daechsel 1980).

Trade connections across vast territories continued into the Late Archaic Period (4,500 BP – 2,500 BP), when the trend towards decreased territory size and a broadening subsistence strategy continued. Late Archaic sites have been discovered in greater numbers compared to Early and Middle Archaic sites, suggesting the local population was rapidly expanding. It is during the Late Archaic Period that the first defined cemeteries are identified, as prior to this period individuals were regularly interred close to the location where they died. During the Late Archaic Period, when an individual died while their group was away from the territorial cemetery, the remains would be kept until the group returned to the home cemetery where they could be interred. Consequently, it is not unusual to find disarticulated skeletons, or even skeletons lacking minor elements such as fingers, toes or ribs, in Late Archaic Period burial pits.

The appearance of burial pits during the Late Archaic Period has been interpreted as a response to increased population densities and competition between local groups for access to natural resources. It has been theorized that cemeteries and burial grounds may have provided strong symbolic claims over a local territory and the surrounding resources. These burial grounds are often located within areas of elevated topography containing well-drained sandy and gravel soils adjacent to major watercourses.

There are twenty-two known archaeological sites with an Archaic Period component within a six kilometre radius of the study area. One of the closest, and most significant, is the Akandoo site (BhFx-62) identified along the Carp River floodplain and situated less than 600 metres north of the subject property. Among the artifacts recovered from this site were modified and utilized lithic debitage, biface thinning flakes, faunal fragments, lithic shatter, utilized cores and biface fragments manufactured primarily from local chert material (NAA 2017).

The Archaic Period was followed by the Woodland Period, beginning around 2,500 years ago in Ontario and lasting until 450 years ago. The Early Woodland Period is distinguished from the Late Archaic Period primarily by the addition of ceramic technology. The first pots were very crudely constructed, thick walled, friable vessels, and essentially imitated containers originally constructed out of steatite during the Archaic Period. These vessels were not easily portable, and their fragile nature suggests they may have required regular replacement. It has been suggested these ceramic containers were used in the processing of nut oils by boiling crushed nut fragments in water and skimming off the oil (Spence, Pihl and Murphy 1990). One example of this type of ceramic pot was located along the Ottawa River at registered site CaGi-1 in Hull, Québec (Watson 1999b). Over time, pottery became more refined and began to incorporate elaborate decorative patterns and styles distinct for specific regional populations as well as specific date ranges (Laliberté 1999).

There have also been numerous Early Woodland sites identified where no ceramics were observed, suggesting these poorly constructed, undecorated vessels had yet to assume a central position within the daily lives of Early Woodland peoples.

The trade networks which were established in the Middle and Late Archaic Periods also continued to flourish, although there does not appear to have been as much exchange of marine shell during the Early Woodland Period. Through the last 200 years of the Early Woodland Period, projectile points manufactured from high quality raw materials from the American Midwest begin to appear in southern Ontario (Spence, Pihl and Murphy 1990).

Towards the end of the Middle Woodland Period (approximately 1,500 years ago) agriculture was introduced and developed into a significant role in subsistence strategies. It began with the cultivation of corn, beans and tobacco, which eventually led to the development of semi-permanent and permanent villages. Many of these villages were surrounded by palisades, suggesting increased hostilities between neighbouring groups, which was more common in regions with arable land such as southern Ontario. The impact of these changes did not appear to significantly influence people occupying areas north of the St. Lawrence Valley who continued to utilize the region as a hunting area and trade route with many groups retaining a semi-nomadic lifestyle. Middle Woodland Period sites have been identified in the South Nation Drainage Basin (Daechsel 1980), near Casselman (Clark 1905), within the City of Ottawa west of Bank Street (Golder 2014) and along the Ottawa River at Constance Bay (Watson 1972), as well as Marshall's and Sawdust Bays (Daechsel 1981).

During the Late Woodland Period, the South Nation River basin appears to have been a zone of interaction between Iroquoian speaking populations who relied primarily on domesticated crops to the south and Algonquian speaking groups who continued a primarily hunter-gatherers lifestyle to the north. The Huron peoples along the north shore of Lake Ontario had moved to the Lake Simcoe – Georgian Bay region, leaving the area of eastern Ontario, except for some small Algonquin groups, unoccupied by the time early French explorers arrived in the area around the beginning of the seventeenth century. Six St. Lawrence Iroquoian villages dating to *ca*. 1400 AD have been found in the Spencerville area documenting the significant occupation in this area.

Evidence of occupation and land utilization within the vicinity of the study area during the Woodland Period is evident at the BhFx-66 site which is located three kilometres north of the study area and the Jinkinson/Keyes site situated ten kilometres southwest of the project corridor. One of the most significant sites in the region with a Woodland Period component is the BiFw-101 site located along the Rideau River almost twenty kilometres east of the study area where archaeological excavation provided evidence of prolonged habitation extending from the Late Archaic to Late Woodland Periods, documenting a sustained, although likely only seasonal, occupation over a period of almost 3,000 years (MTCS 2018a).

The Algonquin historical hunting territory may have extended as far east as the St. Maurice River in Quebec and into the lowlands south of the St. Lawrence River after the disappearance of the St. Lawrence Iroquois in the late 16th century (Trigger and Day 1994). Following European contact, Algonquin occupation along the river networks used by the French for transportation provided an opportunity to monopolize the early fur trade and the two entities developed close relations following Champlain's expedition in 1603. Competition for commodities such as furs and hides increased existing tensions between the Algonquin and their neighbours including the Haudenosaunee Nations such as the Mohawk residing to the south in the modern New York State area. The 17th century saw a prolonged period of conflict known as the Beaver Wars between the Algonquin and the Haudenosaunee resulting in the significant disruption to traditional lifestyles, with Mohawk raids against Algonquin Villages in the upper Ottawa and St. Lawrence Valleys resulting in the abandonment or destruction of many Algonquin villages in these areas (Trigger and Day 1994).

The French brokered a peace treaty in 1701 at Montreal where the Algonquin, Haudenosaunee and French representatives agreed to peacefully share the lands around the Great Lakes (INAC 2011). In exchange for peace, the Algonquin gave the Haudenosaunee secure access to furs which the Haudenosaunee used to develop their alliance with the British. Following the Seven Years' War (1754-1764), the defeat of the French and their Algonquin allies by the British and the Haudenosaunee resulted in the further loss of Algonquin hunting territories in southern Quebec and Eastern Ontario as the British exerted control over former French colonies. The extension of Quebec's boundaries in 1774 through the Quebec Act and the use of the Ottawa River as the boundary of Upper and Lower Canada following the 1791 Constitution Act separated the Algonquin peoples between two government administrations (AOP 2012).

Britain's colonial policy differed from the French with the British Crown increasingly more interested in securing land surrenders from the Indigenous populations for settlement by European immigrants. The Royal Proclamation of 1763 issued by King George III enabled the Crown to monopolize the purchase of Indigenous lands west of Quebec. Although the proclamation recognized Indigenous land rights, it also provided a way through which these rights could be taken away (Surtees 1994). Land cession agreements increased following the War of 1812 as a new wave of settlers arrived in Upper Canada primarily from Britain. The Crown also implemented the annuity system in the purchase of lands from Indigenous peoples where the interest payments of settlers on the land would cover the cost of the annuity rather than pay a one-time lump sum. By the 1850s, Indigenous groups had become disenfranchised with these agreements and began to demand the retention of reserved land and preservation of hunting and fishing rights (Surtees 1994).

At a council held on 31 May 1819, Crown agent John Ferguson met with approximately 250 Mississauga community members of the Bay of Quinte and Kingston areas who claimed ownership of land within the Ottawa area. The Algonquin population who lived in the Ottawa Valley, a portion of which was negotiated and transferred to the Crown, were not invited and as a result never legally succeeded their lands. The Rideau Purchase Tract, as it was known, included one million hectares of land, which the Mississauga agreed to sell for an annuity of £642 10s (Surtees 1994).

The absence of a treaty demonstrating the Algonquin sale of their lands to the Crown enabled them to achieve a historic land claim victory in October, 2016. The Algonquin and the Government of Canada signed an agreement in principal to transfer 117,500 acres of Crown lands in eastern Ontario to the Algonquin (INAC 2011; Tasker 2016) and includes a $300 million monetary settlement from the Ontario and Federal governments.

2.2 Initial Euro-Canadian Settlement in the Ottawa Valley

The St. Lawrence Iroquois disappeared from the Ottawa Valley in the sixteenth century not long after initial contact with Jacques Cartier in 1535. Étienne Brûlé is reported to have been the first European to pass through what is now the Ottawa area when he portaged at the Rideau Falls in 1610, followed by Nicholas de Vignau in 1611 and Samuel de Champlain in 1613. The Ottawa River served as a major route for explorers, traders and missionaries throughout the seventeenth and eighteenth centuries, with a series of trading posts and forts being constructed by the French along the river in the early eighteenth century. Champlain's navigation of the Rideau and Ottawa River systems became a principal route for succeeding explorers, missionaries and traders travelling from the St. Lawrence River to the interior. This route remained an important link in the French fur trade throughout the seventeenth and eighteenth centuries.

A seigneury was established east of the study area at L'Orignal in 1674 and granted to Nathaniel Hazard Treadwell, with a French trading post also established near the mouth of the Le Lievre River, close to the present community of Buckingham, Quebèc, during the eighteenth century. Although there was an increased European presence within the region, very few settlers arrived or established residences within the area during this period

The majority of European contact with Indigenous populations was sporadic and primarily facilitated through trade and religious missionary excursions. The recovery of European trade goods (e.g. iron axes, copper kettle fragments and glass beads) from Indigenous sites throughout the Ottawa River drainage basin provides evidence of the extent of contact between the Indigenous population and the European explorers traversing this transportation corridor during this period. The English also continued to utilize the Ottawa River as an important transportation corridor following French administrative withdrawal from New France following the Treaty of Paris in 1763.

Settlement in the Ottawa area was not actively encouraged by the colonial government until the late eighteenth century. Within two years following the 1791 division of the Province of Quebec into Upper and Lower Canada, John Stegmann, the Deputy Surveyor for the Province of Upper Canada, surveyed four township (Nepean, North Gower, Osgoode and Gloucester) straddling the Rideau River near its junction with the Ottawa River. This survey was undertaken under the initiative instituted by John Graves Simcoe, Lieutenant Governor of the Province of Upper Canada, associated with his proclamation aimed at attracting new settlers to the region.

Commonly acknowledged as the first permanent European resident in the area, Philemon Wright settled in Hull Township with five families and thirty-three men in 1800 (Bond 1984). This community grew over the next few years along the north shore of the Ottawa River and by 1805 Wright had established a significant lumbering industry in the area.

Settlement along the south shore was very slow through the early nineteenth century. In 1809, Jehiel Collins erected a store at what was to become known as Bellows and later Richmond Landing and in 1810 Ira Honeywell constructed a cabin west of the Chaudière Rapids (Bond 1984). Another early settler was Braddish Billings, who constructed a small cabin in Gloucester Township in 1812. Billings went into the lumbering business with Philemon Wright and developed his homestead into a large family estate along the banks of the Rideau River. The lumber industry created the impetus for early settlement in the area, providing employment for early settlers and contributed to the general economic stability through the mid-19th century.

2.3 March Township General History

March Township was officially surveyed in 1820, though Euro-Canadian immigrant settlers began to arrive the previous year. At this time March Township was part of the District of Johnstown, becoming part of the District of Bathurst in 1822, and eventually integrating into Carleton County in the 1840s.

March Township was primarily settled by retired officers of the Napoleonic wars in 1819 who were offered free land grants as a reward for their loyal service, with the amount of land given to each serviceman proportional to their military rank. Under this system, colonels became entitled to a substantial plot of land, being as much as 1,600 acres, whereas privates may only be provided with a half lot, encompassing 100 acres (Burns *et al* 1972). Settlers were also given a starter tool kit consisting of various necessary implements and supplies needed to settle and work the land including axes, shovels and nails, as well as a blanket, kettle and panes of glass. Additionally, each soldier was offered a year's rations (Belden 1879) intended to provide them with the required necessitates until they could become self-sufficient. Several distinguished English officers chose to settle in March and selected plots adjacent to the river. Among them were Captains Landell, John B. Monk, Benjamin Street, Weatherby, Cox, Stephens, General Arthur Lloyd and Lieutenant Thomas Reid (Belden 1879; Walker and Walker 1975; Burns *et al* 1972).

Another prominent settler along the Ottawa River was Hamnett Kirkes Pinhey, a former merchant from Plymouth, England. As a civilian, Pinhey won distinction during the Napoleonic wars by getting messages through the French blockade, an honour that later earned him 1,000 acres in March Township (Burns *et al* 1972). In 1820, he settled on Lot 23 of Concessions 6 and 7 with his wife, Mary Ann.

Pinhey had considerable wealth and leveraged it to build an estate that suited his needs as well as those of the community. He financed construction of the first church, St. Mary's, built on his land between 1824 and 1826, as well as a saw mill and grist mill (Walker and Walker 1975; Belden 1879). Pinhey's estate, known as Horaceville after his son, became the focus of the community, and Pinhey himself took on the natural role as a community leader, later serving as Reeve between 1850 and 1855 (Bond 1984; Walker and Walker 1975).

While English officers settled on the picturesque lands of the river bank, the first four concessions at the west end of the township were settled by Irish farmers, tradesmen and lower ranking veterans. As it turned out, some of these settlers ended up with the best arable land in the township, whereas the soil closer to the river was deceptively shallow (Burns *et al* 1972). Belden (1879) observed that March was the poorest township in Carleton County in terms of soil.

More settlers arrived in the early 1820s, capitalizing on the prospect of free land grants. The first census of March Township, taken in 1823, recorded 49 families with a population of over 200 inhabitants (Walker and Walker 1975). Even after the land grants were discontinued in 1824, settlers continued to arrive. By the mid-19th century, the population blossomed to 1,125 inhabitants and included a number of commercial and industrial enterprises comprising blacksmiths, cobblers, carpenters, tailors, innkeepers and merchants (Bond 1968; Burns *et al* 1972).

The summer of 1870 was a particularly dry one and a fire which started in neighbouring Huntley Township swept through much of March Township. Crops, homes and livestock were burned, and although most settlers were able to take refuge at the river or in wells, a few human casualties occurred. This was one of many country fires to engulf Carleton County that summer. The fire brought changes to the agricultural landscape such as clearing the land of trees and losing soil from erosion, significantly impacting the drainage system by turning swamps into fallow fields as they had dried out (Burns *et al* 1972).

March Township recovered from the 1870 fire and by the end of the decade the study area region witnessed increased settlement, with a number of properties having been subdivided and settled within the previous fifteen years (Map 5).

In 1978, March Township was integrated into the City of Kanata and in 2001 was amalgamated into the new City of Ottawa (Gordon 2015). Since the integration into the City of Kanata, and later the City of Ottawa, a significant portion of March Township has undergone substantial development, primarily for residential and commercial infrastructure.

2.4 General Study Area History

The Crown Patent for the entire 200 acres comprising Lot 2, Concession 1, March Township, was granted to Thomas James on 4 April 1856.

The 1861 census documents Thomas James as a 40 year old farmer originally born in Ireland residing in a one storey log home with his wife Eliza (age 20), and three children Anna (age 12), John (age 10) and Thomas (age 5).

Walling's 1863 plan shows T. James owning the entire 200 acres, with a structure east of Huntmar Road situated over 600 metres west of the study area (Map 4). This structure correlates with the James Farm archaeological site registered as BhFx-49. The 1871 census documents Thomas James as a farmer living with his wife Eliza(beth) (age 30) and six children including, Anna (age 21), John (age 19), Thomas (age 14), Martha (age 9), Elizabeth (age 7) and William (age 4).

Belden's 1879 map shows Thos. James owning the entire 200 acres, with the only structure on the property situated near Huntmar Road (Map 5) within the same general location as the structure shown the 1863 Walling plan (Map 4).

The 1881 census records Thomas and Elizabeth James living with seven children, with Thomas Jr, Elizabeth and William still at home and four new children born within the previous ten years including Sarah Jane (age 9), Mary (age 7), Samuel (age 6) and Rachel (age 4).

The 1906 topographic plan does not show any structures within the immediate vicinity of the study area, with the structure situated near Huntmar Road likely representing the James family farmhouse (Map 6).

On 3 June 1916, the 200 acre property was passed to a number of the James' children through the will of Thomas James Sr. (Inst. No. 2547), with the property eventually subdivided between the family members over the succeeding years.

An aerial photograph dating to 1945 (Map 7) shows that much of the study area is lightly wooded with the eastern half consisting agricultural fields. The James family farm is still present along Huntmar Road to the west and no structures are present within 100 metres of the study area. The 1976 aerial photograph (Map 8) shows the James farmstead had been demolished by this time. The wooded area located in the western portion of the study area has been further thinned out. The property within the study area in the eastern portion of the Lot remains undeveloped and primarily dedicated to farming.

3.0 ARCHAEOLOGICAL CONTEXT

3.1 Study Area Environment and Landscape

The environmental landscape within the region began to emerge following the retreat of the glacial ice during the Holocene Period. Immediately adjacent to the retreating ice sheets, melt water lakes formed within the low lying Ottawa Valley which had depressed from the weight of the ice cap. Around 11,000 BP, the ice had sufficiently melted to allow sea water from the Atlantic Ocean access to the glacially lowered lands of eastern Ontario via the St. Lawrence (Cronin *et al* 2008). The marine inundation formed the Champlain Sea, which is represented within the sedimentary record by a change from laminated glaciolacustrine clays to marine deposited clays.

Isostatic adjustment gradually raised the topography within the Ottawa Valley, resulting in the reduction of the Champlain Sea eastwards. Large amounts of meltwater from the retreating ice sheets to the northwest flowed down through the Ottawa Valley, resulting in the freshwater fusion with the saline Champlain Sea producing a brackish environment, eventually producing the smaller freshwater Lake Lampsilis around 9,800 BP. Following the draining of Lake Lampsilis, the Ottawa River remained as a drainage channel to the Atlantic Ocean for larger glacial lakes and water bodies to the west, with occasional large release episodes. Based on the historic topographic contours within the study area region (Map 6), this area would have been inundated by Lake Champlain during the Early Paleo-Indian Period as it is situated below the 550 foot (167.6 metre) contour elevation (Kennedy 1976). Based on this interpretation, the study area vicinity would have drained and become habitable during the Late Paleo-Indian/Early Archaic Period.

The surficial geology and physiography within the study area represents the glacial and post-glacial depositional processes which have influenced the study area environment. The surficial geology of the subject property consists of offshore marine sediments of clay, silty clay and silt deposited by the receding glacial lake, with a deposit of organic material within the Carp River drainage channel (Map 9).

The Ottawa Valley Clay Plains encompass the entire study area (Map 10). Within the Ottawa Valley below Chalk River, the clay beds are irregularly stratified and not varved. Shells of prehistoric marine creatures typical of salt water environments have been identified within the region confirming this low-lying area was submerged under the Champlain Sea during and immediately after the recession of the glacier (Chapman 1975).

The primary soil composition within the eastern section of the corridor consists of Bainsville classified soils which are considered to be imperfectly drained soils within the gently sloping topography. They are typically dark brown in colour with granular inclusions ranging in thickness between 15 and 25 centimeters (Map 11).

The study area lies within the Upper St. Lawrence sub-region of the Great Lakes/St. Lawrence Forest Region. The trees characteristic of this sub-region include sugar maple, beech, red maple, yellow birch, basswood, white ash, largetooth aspen, red oak and burr oak. Coniferous species include eastern hemlock, eastern white pine, white spruce and balsam fir. Poorly drained areas typically contain swamp adapted hardwoods, black spruce or white cedar (Rowe 1977). Extensive settlement and agricultural development within the study area since the nineteenth century have left little, if any, of the original forest cover intact.

The most significant water course within the project vicinity is the Carp River which may have provided an important navigable access corridor between the Ottawa River and the environmentally diverse uplands of the Carp Ridge (ASI and GII 1999). The documentation of Archaic Period components at the Akandoo (BhFx-62) and Corelview (BhFx-27) sites along the eastern bank of the Carp River less than 600 metres north of the study area may provide additional evidence documenting the importance of this waterway as both a navigable access route and preferred settlement landscape.

3.2 Previous Archaeological Assessments within Fifty Metres of Study Area

A search of the Ministry of Tourism, Culture and Sport's Past Portal database indicated one previous project completed within fifty metres of the current study area, situated within Lot 2, Concession 1, Historic March Township, Carleton County (MTCS 2018b).

Golder Associates completed a Stage 1 and 2 archaeological assessment associated with the Carp River, Poole Creek and Feedmill Creek Restoration Project (Golder 2017). This assessment included property directly adjacent the current study area, within the flood plain of the Carp River within Lot 2, Concession 1, Historic March Township (Map 12).

No artifacts, structures or features of archaeological significance were identified in the study area during the Stage 2 investigation and the report provided the following recommendations:

1) That no further archaeological investigations are required for the Carp River, Poole and Feedmill Creek Restoration Project study area as defined on Map 9 of this report (reproduced as Map 12 in this report); and,

2) Should development extend beyond the boundary of the specified study area, further archaeological investigations may be required.

3.3 Known Archaeological Sites within Vicinity of Study Area

The primary source of information regarding known archaeological sites within the province is the Ontario Ministry of Tourism, Culture and Sport's archaeological site database (ASDB), which designates archaeological sites registered according to the Borden system. Under the Borden system, Canada is divided into grid blocks based on latitude and longitude. A Borden Block is approximately 13 kilometres east to west and approximately 18.5 kilometres north to south. Each Borden Block is referenced by a four-letter designator and sites within a block are numbered sequentially as they are found. The study area under review is located within Borden Block BhFx.

A search of the MTCS Past Portal ASDB for all sites within one kilometre of the study area was completed on 23 January 2018 (MTCS 2018a). Table 1 provides information retrieved from the MTCS Past Portal ASDB and project specific reports for each registered archaeological site within one kilometre of the study area.

Table 1: Registered Archaeological Sites within One Kilometre of Study Area.

Borden Number	Site Name	PIF(s) Associated with Site	Spatial Relationship of Study Area	Temporal Context	Inferred Site Type	Development Status Review
BhFx-62	Akandoo	P025-0482-2014, P025-0494-2015, P025-0498-2015	585 metres	Archaic Period	Unknown	Further CHVI
BhFx-26	Allen	P003-031, P003-037 & P003-041	560 metres	Post-Contact	Farmstead	No Further CHVI
BhFx-27	Corelview	P003-031, P003-037 & P003-041	610 metres	Middle Archaic	Camp/campsite	No Further CHVI
BhFx-49	James Farm	P031-035-2011	610 metres	Post-Contact	n/a	Further CHVI

3.4 Study Area Archaeological Potential

A number of factors are employed when determining archaeological potential within a particular area. In addition to the proximity to known archaeological sites, factors for determining archaeological potential for Indigenous and Euro-Canadian historical resources include watershed area (primary and secondary watercourses), distance from water, drainage patterns, identification of historic water sources (e.g. beach ridges, river beds, relic creeks, ancient shorelines, etc.), elevated topography, identification of significant physiological and geological features (e.g. knolls, drumlins, eskers, plateaus, etc.), soil geomorphology, distinctive land formations (e.g. mounds, caverns, waterfalls, peninsulas, etc.), known burials sites and cemeteries, biological features (distribution of food and animal resources before colonization), features identifying early Euro-Canadian settlements (e.g. monuments, structures, etc.), historic transportation routes (e.g. historic roads, trails, portages, rail corridors, etc.) and properties designated and/or listed under the *Ontario Heritage Act.* Local knowledge from Indigenous communities and heritage organizations, as well as consultation of available historical and archaeological literature and cartographic resources, aids in the identification of features triggering archaeological potential.

These criteria are based on the Ontario Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultant Archaeologists* (2011) and were used to identify archaeological potential for the study area under investigation.

The primary attribute triggering archaeological potential for the subject property is the proximity to the Carp River, which may have provided an important navigable access corridor between the Ottawa River and the environmentally diverse uplands of the Carp Ridge (ASI and GII 1999). The documentation of Archaic Period components at the Akandoo (BhFx-62) and Corelview (BhFx-27) sites along the eastern bank of the Carp River less than 600 metres north of the study area may provide additional evidence documenting the importance of this waterway as both a navigable access route and preferred settlement landscape.

This assessment conforms to the City of Ottawa Archaeological Master Plan which identifies the potential for archaeological resources within the entire study area (ASI and GII 1999).

4.0 STAGE 2 ARCHAEOLOGICAL INVESTIGATION

Due to the identified archaeological potential for the entire study area, a Stage 2 archaeological assessment was completed on 24 May 2018 under archaeological consulting licence P1077, issued to Aaron Mior of Golder, PIF# P1077-0043-2018.

4.1 Stage 2 Field Methodology

Based on the landscape of the Stage 2 study area it was divided into two segments identified as operations, with Operations 1 representing the area surveyed with hand excavated test pits and Operation 2 assessed during the pedestrian survey (Map 14).

Brad Drouin (P311) and Randy Hahn (P1107) of Golder acted as the licensed field supervisors and had the duly delegated responsibility for the day-to-day supervision of the archaeological fieldwork at the site, as per Section 12 of the MTCS' 2013 *Terms and Conditions for Archaeological Licences*, issued in accordance with clause 48(4)(d) of the *Ontario Heritage Act*. All Stage 2 archaeological work was conducted in accordance with the 2011 *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011).

The subsurface archaeological investigation within Operation 1 consisted of hand excavated test pits, placed at 5 metre intervals and dug at least 30 centimetres in diameter and at least 5 centimetres into sterile subsoil (Images 1 to 8, p. 25-28). The backdirt from each test pit was screened through 6 millimetre mesh and backfilled upon completion. Each individual test pit examined for stratigraphy, cultural features and evidence of fill or previous disturbances. There were no standing structures, or evidence of former structures, within the Stage 2 study area documented in this report.

The pedestrian survey within Operation 2 consisted of field walking the former agricultural field that had been ploughed, disked and sufficiently weathered prior to completion of the surface survey. Ploughing was deep enough to provide representative soil exposure, but was not deeper than previous ploughing. At least 80% of the ploughed surface was visible during the pedestrian survey (Images 9 to 13, p. 29-31), with field transects completed at a maximum of 5 metre intervals.

A field log was maintained for the duration of the Stage 2 field investigation detailing pertinent information and digital photographs were taken of the tested areas, general field conditions, specific representative test pits and general landscape and topography. The location and direction of each photograph documented in this report is represented on Map 14.

In order to ensure the entire Stage 2 test pit area was archaeologically investigated, the study area was uploaded to a Garmin GPSMAP62 handheld GPS unit to accurately locate the boundaries of the Stage 2 study area in the field. All photo locations and features of topographic or archaeological significance were also surveyed with the Garmin GPS MAP62 unit. The Garmin MAP62 GPS unit is a 12 channel SiRFstar III high-sensitivity GPS receiver (WAAS-enabled), which continuously tracks and uses up to 12 satellites to compute and update plotted positons. The accuracy of the unit is <10 meters 95% typical. The positions recorded for this Stage 2 field investigation were typically accurate to 5 meters or less. The projection used was the Universal Transverse Mercator (UTM), Grid Zone 18, and referenced to the North American Datum (NAD) 1983.

The Stage 2 fieldwork was completed on 24 May 2018 under favourable weather conditions. The weather was sunny with a high of 26 degrees Celsius. At no time did the weather or field conditions hinder the archaeological fieldwork or recording of archaeological deposits.

Permission to access the site was provided by Shawn Hickey, SiteCast Construction Corp., with no restrictions or limitations.

5.0 RECORD OF FINDS

The Stage 2 archaeological fieldwork was conducted employing methods described in Section 4.1 of this report. An inventory of the documentary record generated from the fieldwork is provided in Table 2, and the results of the Stage 2 archaeological fieldwork are described below.

Table 2: Inventory of Documentary Record.

Document Type	Current Location of Document	Additional Comments
Field Notes	Golder Associates Ltd. Ottawa Office	Original field note book with digital copies in project file. 7 pages.
Maps provided by Client	Golder Associates Ltd. Ottawa Office	Stored in the project file.
Digital Photographs	Golder Associates Ltd. Ottawa Office	Stored electronically in the project file. 57 photos
GPS Data	Golder Associates Ltd. Ottawa Office	Stored electronically in the project file.

Based on the existing landscape, the Stage 2 study area was divided into two operations defined by environment and method of archaeological testing (Map 14). There is a water, storm and sanitary line extending through the property located under a gravel path (Images 14 and 15, pp. 31-32).

5.1 Operation 1

Survey Method: Shovel test pits at 5 metre intervals

Size of Area Surveyed: 2.8 ha. (Map 14)

Number of Artifacts: 0

The study area of Operation 1 consisted of unploughable woodlot. Soils typically consisted of approximately 25 centimetres of moderately compact dark grey loam over moderately compact brown clay or silty clay (Image 2, p. 25).

Four areas were identified as untestable due to existing conditions. Disturbed soils were documented within an area measuring 0.07 hectares around the western section of the gravel path overlaying the water, storm and sanitary line (Image 3, p. 26). An old push pile was identified along the northern border of the study area (0.06 ha in size) (Image 4 and Image 5, pp. 26-27), although intact natural soils were documented immediately north of the push pile (Image 6, p. 27).

An area measuring 0.44 hectares in the northwest portion of Operation 1 was permanently wet (Image 7, p. 28) and was not surveyed as per Section 2.1, Standard 2ai of the MTCS's (2011) *Standards and Guidelines*. Another permanently wet area measuring 0.06 hectares was also documented as the drainage ditch which extends onto the property eastward from the Carp River (Map 14)

No artifacts or archaeologically significant features were identified during the Stage 2 investigation in Operation 1.

5.2 Operation 2

Survey Method: Pedestrian survey at 5 metre intervals

Size of Area Surveyed: 4 ha. (Map 14)

Number of Artifacts: 0

Operation 2 consisted of ploughed agricultural fields which were elevated above than the area of Operation 1 (Image 8, p. 28). Soils were clay loam with some road gravel mixed in (Images 9 to 12, p. 29-30). There was a slight rise in topography in the northeast corner of the study area (Image 13) and north of the gravel road (Image 14 and Image 15, pp. 31-32). These likely reflect changes in the natural topography.

No artifacts or archaeologically significant features were identified during the Stage 2 investigation in Operation 2.

6.0 ANALYSIS AND CONCLUSIONS

On behalf of SiteCast Construction Corp., Golder Associates Ltd. completed a Stage 1 and 2 archaeological assessment for the property located at 20 Frank Nighbor Place, situated within part of Lot 2, Concession 1, March Township, Carleton County, City of Ottawa, Ontario.

The principal objectives of this assessment were to identify known archaeological resources on and within the vicinity of the study area, to assess the archaeological potential of the subject property under investigation, to test the study area for archaeologically significant resources, to determine whether any identified archaeological resources required further assessment (e.g. Stage 3) and to recommend appropriate Stage 3 archaeological assessment strategies if significant archaeological resources were identified.

The Stage 1 archaeological assessment determined that the study area had archaeological potential due to its proximity to the Carp River which may have provided an important navigable access corridor between the Ottawa River and the environmentally diverse uplands of the Carp Ridge (ASI and GII 1999).

The Stage 2 archaeological field investigation was completed on 24 May 2018. The study area was divided into two separate Operations, with Operation 1 subjected to hand excavated test pits excavated at 5 metre intervals and Operation 2 archaeologically investigated by pedestrian surface survey at 5 metre intervals.

No artifacts or archaeologically significant features were identified during the Stage 2 investigation.

7.0 RECOMMENDATIONS

The Stage 1 and 2 archaeological assessment did not identify any archaeologically significant resources and based on the results, it was concluded that no further archaeological investigations are recommended in the study area, as identified on Map 14.

This report is submitted to the Ministry of Tourism, Culture and Sport (MTCS) 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 the licensed consultant archaeologist has met the terms and conditions of their archaeological license, and that the archaeological field work and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

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

8.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act*. Archaeological sites recommended for further archaeological fieldwork or protection remains 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.

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

9.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

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

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

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

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

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

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11.0 IMAGES

Image 1: Field crew conducting shovel test survey in Operation 1, view south.

Image 2: Shovel test containing typical soils, view north. Approximately 25 cm of moderately compact dark grey brown loam over brown clay subsoil.

Image 3: Shovel test showing disturbed soils in the vicinity of the sanitary sewer line, view north. Soil consists of 40 cm of moderately compact brown loam mixed with gravels.

Image 4: Shovel test on push pile located north of Operation 2, view south. Test pit consists of loose dark grey brown loam to a depth of over 50 cm.

Image 5: Field crew conducting shovel test survey north of an old push pile located along the northern boundary of the study area, view southwest.

Image 6: Shovel test located north of the push pile, view north. Soils consists of 25 cm of moderately compact dark grey brown loam over brown silty clay subsoil.

Image 7: Permanently wet area located in the northwest portion of the study area, view west.

Image 8: Slope along the boundary of Operations 1 and 2 showing the higher elevation of the study area covered by Operation 1, view southeast.

Image 9: Field crew conducting pedestrian survey in Operation 2, view northeast.

Image 10: Condition of ploughed field during the pedestrian survey of Operation 2, view southeast.

Image 11: Field crew conducting pedestrian survey at the south end of Operation 2, view northeast.

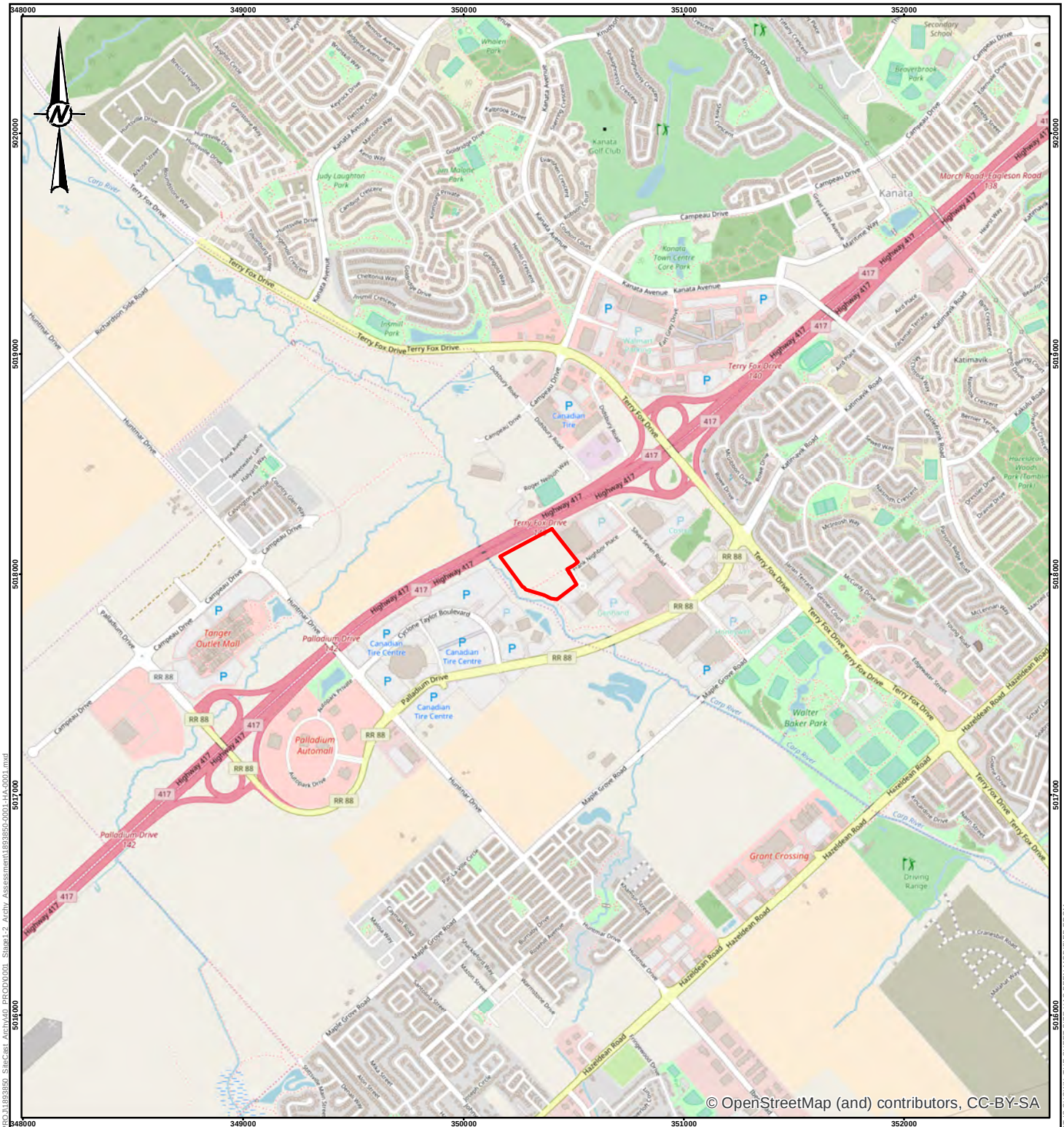
Image 12: Field conditions in the northern portion of Operation 2, view northwest.

Image 13: Rise in topography located in the northeast corner of Operation 2, view northeast.

Image 14: Gravel path located in the middle of the study area, view southwest.

Image 15: City of Ottawa sign showing the location of the sanitary sewer located under the gravel path, view north.

12.0 MAPS



LEGEND

STAGE 1 STUDY AREA

0 250 500 1,000

1:25,000 METRES

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83
COORDINATE SYSTEM: MTM ZONE 9 VERTICAL DATUM: CGVD28

CLIENT

SITECAST CONSTRUCTION CORPORATION

PROJECT

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE

KEY PLAN

CONSULTANT

Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1668654	0001	A	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

Path: \\golder.gds\ga\Ottawa\Active\Spatial IMS\SiteCast Construction\20 Frank Nighbor\09 PRO\1893850 SiteCast Archv\40 PRO\0001 Stage1-2 Archv Assessment\1893850-0001-HA-0001.mxd

LEGEND

- WATERCOURSE
- ROADWAY
- STAGE 1 STUDY AREA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 20 40 80

1:2,000 METRES

CLIENT
SITECAST CONSTRUCTION CORPORATION

PROJECT
STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE
SITE PLAN

CONSULTANT
Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:
25mm
0

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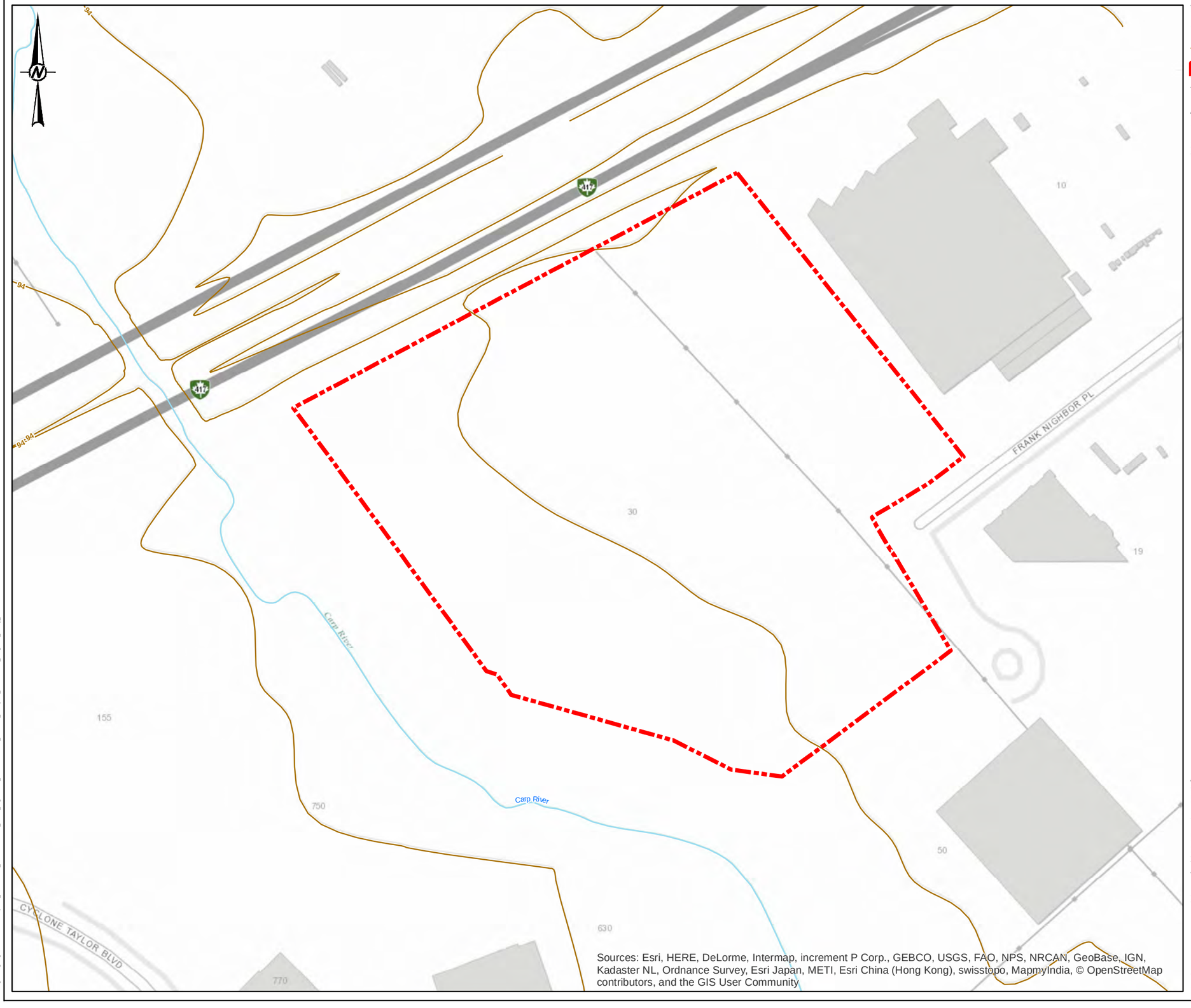

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

LEGEND

- WATERCOURSE
- TOPOGRAPHIC CONTOUR, metres
- STAGE 1 STUDY AREA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 20 40 80

1:2,000 METRES

CLIENT
SITECAST CONSTRUCTION CORPORATION

PROJECT
STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE
TOPOGRAPHIC MAP

CONSULTANT
Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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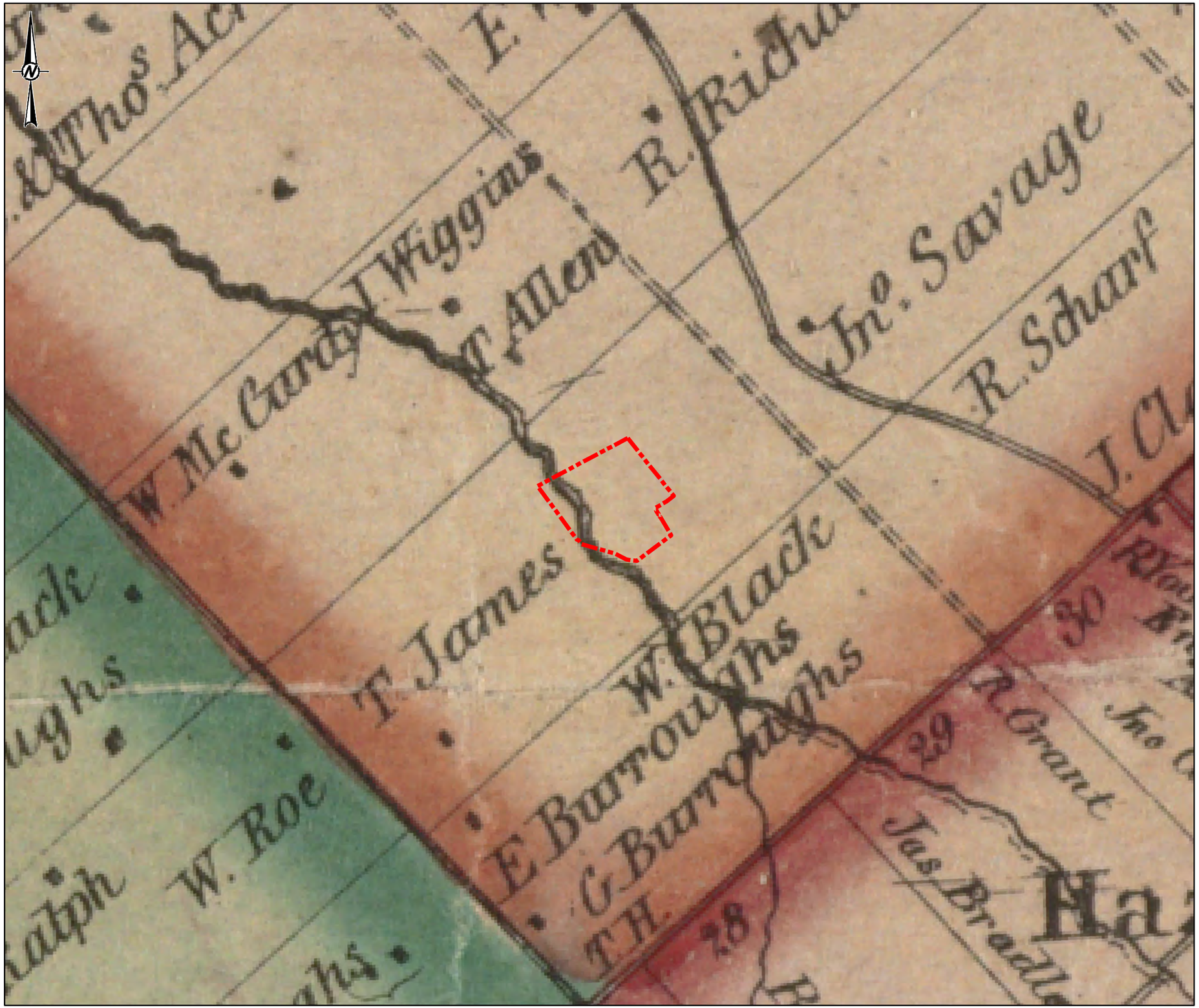

LEGEND

STAGE 1 STUDY AREA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 100 200 400

1:10,000 METRES

CLIENT

SITECAST CONSTRUCTION CORPORATION

PROJECT

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE

1863 WALLING MAP

CONSULTANT

Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	4

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

25mm

0

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LEGEND

STAGE 1 STUDY AREA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 100 200 400

1:10,000 METRES

CLIENT

SITECAST CONSTRUCTION CORPORATION

PROJECT

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE

1879 BELDEN MAP

CONSULTANT

Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	5

25mm

LEGEND

STAGE 1 STUDY AREA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83,
COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 100 200 400
1:10,000 METRES

CLIENT
SITECAST CONSTRUCTION CORPORATION

PROJECT
STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE
1906 TOPOGRAPHIC MAP

CONSULTANT
Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	**6**

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM:
0 25mm

LEGEND

STAGE 1 STUDY AREA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83,
COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 75 150 300

1:7,500 METRES

CLIENT

SITECAST CONSTRUCTION CORPORATION

PROJECT

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE

1945 AERIAL IMAGERY

CONSULTANT

Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	**7**

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LEGEND

STAGE 1 STUDY AREA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83,
COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 75 150 300

1:7,500 METRES

CLIENT

SITECAST CONSTRUCTION CORPORATION

PROJECT

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE

1976 AERIAL IMAGERY

CONSULTANT

Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	**8**

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

25mm

0

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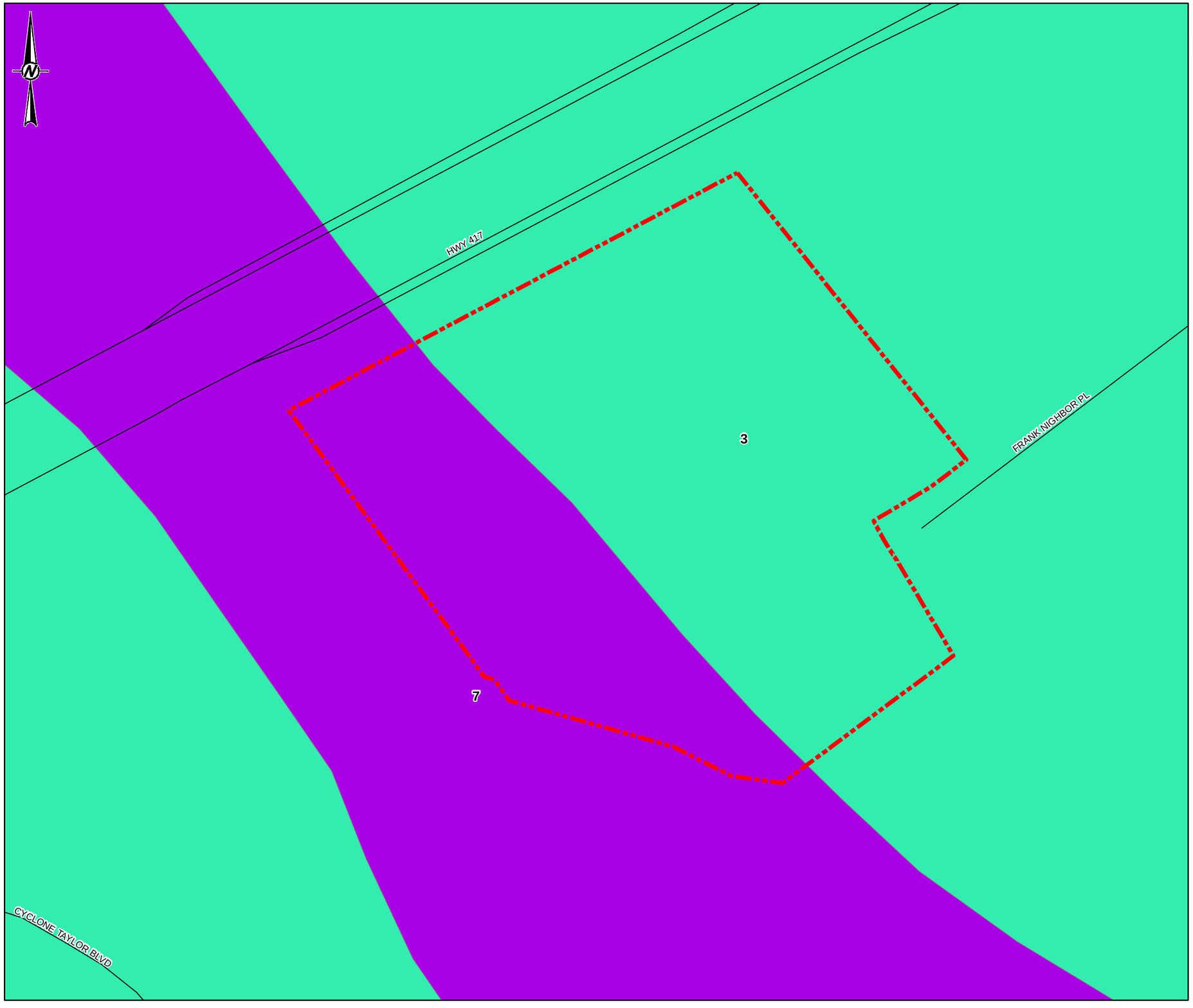


LEGEND

- ROADWAY
- STAGE 1 STUDY AREA
- 7. ORGANIC DEPOSITS: MUCK & PEAT
- 3. OFFSHORE MARINE DEPOSITS: CLAY, SILTY CLAY & SILT

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. BÉLANGER, J. R. 2008 URBAN GEOLOGY OF THE NATIONAL CAPITAL AREA, GEOLOGICAL SURVEY OF CANADA, OPEN FILE 5311, 1 DVD.
2. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83,
COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 20 40 80
1:2,000 METRES

CLIENT
SITECAST CONSTRUCTION CORPORATION

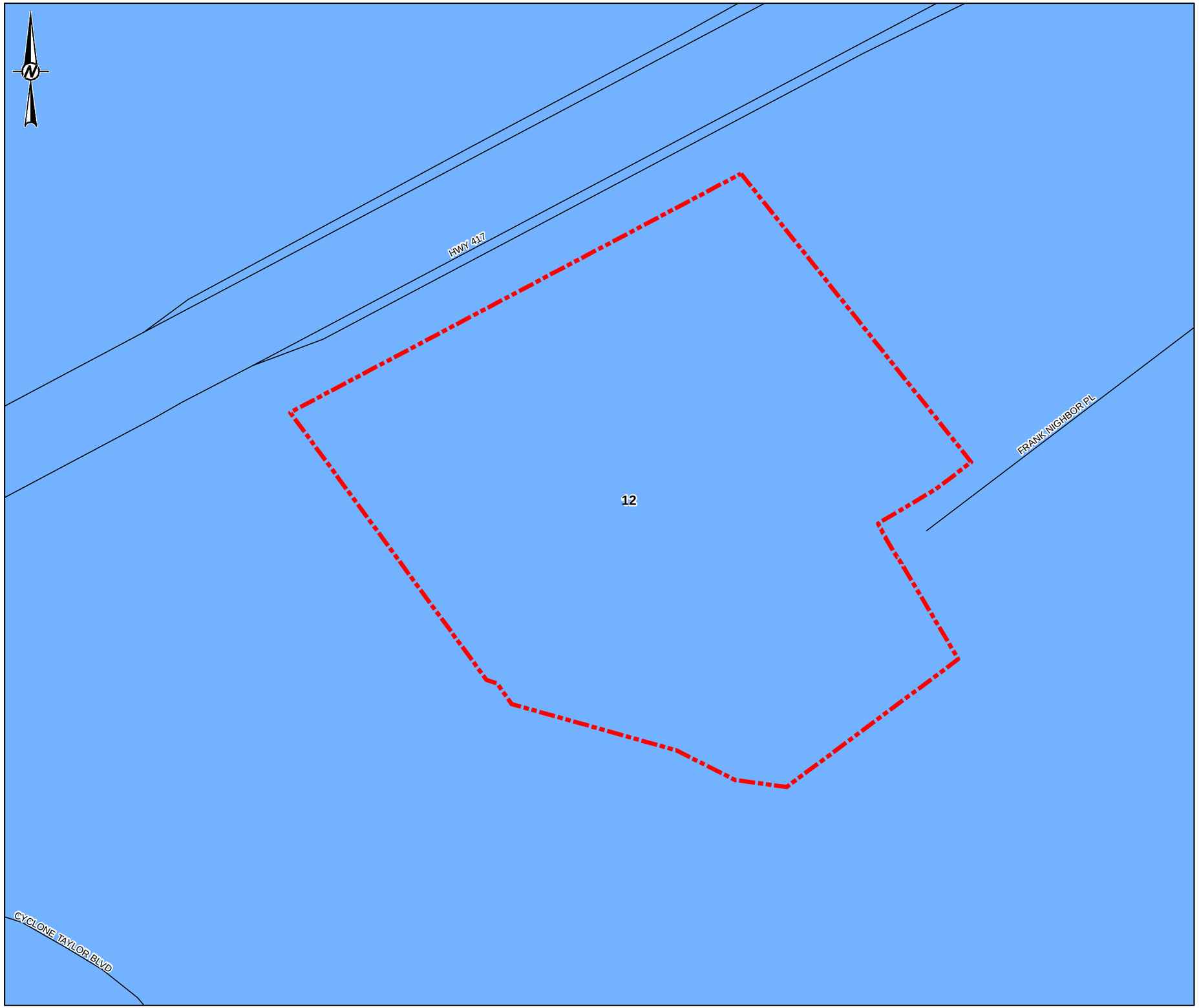
PROJECT
STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE
SURFICIAL GEOLOGY

CONSULTANT
Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	9



LEGEND

ROADWAY

STAGE 1 STUDY AREA

12: CLAY PLAINS

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CHAPMAN, L.J. AND PUTNAM, D.F. 2007. PHYSIOGRAPHY OF SOUTHERN ONTARIO; ONTARIO GEOLOGICAL SURVEY, MISCELLANEOUS RELEASE-DATA 228
2. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
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COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 20 40 80

1:2,000 METRES

CLIENT

SITECAST CONSTRUCTION CORPORATION

PROJECT

STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE

PHYSIOGRAPHY MAP

CONSULTANT

Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	**10**

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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

LEGEND

- ROADWAY
- STAGE 1 STUDY AREA
- BAINSVILLE
- ERODED CHANNEL
- NORTH GOWER
- NOT MAPPED

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 20 40 80

1:2,000 METRES

CLIENT
SITECAST CONSTRUCTION CORPORATION

PROJECT
STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE
SOIL SURVEY COMPLEX (ONTARIO SOILS)

CONSULTANT
Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	**11**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm

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LEGEND

- WATERCOURSE
- ROADWAY
- P311-0309-2016
- STAGE 1 STUDY AREA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 20 40 80
1:2,000 METRES

CLIENT
SITECAST CONSTRUCTION CORPORATION

PROJECT
STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE
PREVIOUS ARCHAEOLOGICAL ASSESSMENTS WITHIN 50 m OF STUDY AREA

CONSULTANT
Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	**12**

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LEGEND

- WATERCOURSE
- ROADWAY
- ARCHAEOLOGICAL POTENTIAL
- STAGE 1 STUDY AREA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 20 40 80

1:2,000 METRES

CLIENT
SITECAST CONSTRUCTION CORPORATION

PROJECT
STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE
ARCHAEOLOGICAL POTENTIAL

CONSULTANT
Golder Associates

YYYY-MM-DD	2018-01-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	13

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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LEGEND

- PHOTOGRAPH LOCATION AND DIRECTION
- WATERCOURSE
- ROADWAY
- WATER, STORM, AND SANITARY LINE
- PERMANENTLY WET AREA
- DISTURBED AREA
- PUSH PILE
- OPERATION 1: TEST PIT SURVEYED AT 5 m INTERVALS
- OPERATION 2: PEDESTRIAN SURVEYED AT 5 m INTERVALS
- STAGE 1 STUDY AREA

NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: MTM ZONE 9, VERTICAL DATUM: CGVD28

0 20 40 80
1:2,000 METRES

CLIENT
SITECAST CONSTRUCTION CORPORATION

PROJECT
STAGE 1 & 2 ARCHAEOLOGICAL ASSESSMENT
20 FRANK NIGHBOR PLACE, OTTAWA, ONTARIO

TITLE
FIELD METHODS AND PHOTOGRAPH LOCATIONS

CONSULTANT
Golder Associates

YYYY-MM-DD	2018-05-29
DESIGNED	AM
PREPARED	JEM
REVIEWED	AM
APPROVED	HJD

PROJECT NO.	CONTROL	REV.	MAP
1893850	0003	0	**14**

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm 0

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Signature Page

We trust that this report meets your current needs. If you have any questions, or if we may be of further assistance, please contact the undersigned.

Golder Associates Ltd.

Aaron Mior, M.MA.
Staff Archaeologist

Bradley Drouin, M.A.
Associate, Senior Archaeologist

AM/BD/ca

https://golderassociates.sharepoint.com/sites/22710g/deliverables/02 original report/p1077_0043_2018_30may2018_re.docx

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