STAGE 1 ARCHAEOLOGICAL ASSESSMENT

**September 30, 2015**

# ORIGINAL REPORT

# Stage 1 Archaeological Assessment
# Colacem L'Orignal Cement Plant
# Lot 217 Geographic Township of Longueuil
# Prescott County, Ontario

**PIF#: P385-0013-2013**
**Licensee: Stephen Jarrett (P385)**

**Submitted to:**
Mr. Marc Bataille
Colacem Canada Inc.
1235 chemin Kilmar
Grenville-sur-la-Rouge, QC
J0V 1B0
M.Bataille@financo.it

**Report Number: 1529718-8000**
**Distribution:**

1 e-copy - Colacem
1 e-copy - Ministry of Tourism, Culture and Sport
1 copy - Golder Associates Ltd.

Golder Associates

# Executive Summary

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

Golder Associates Ltd. (Golder) was retained by Colacem Canada Inc. (Colacem) to undertake a Stage 1 Archaeological Assessment on Lot 217, in the Geographic Township of Longueuil, Prescott County (Modern Township of Champlain). This Stage 1 Archaeological Assessment was a condition for a proposed site plan approval under the *Planning Act.*

The assessment involved a review of documents pertaining to the study area including land registry records, historic maps and aerial photographs. The Ministry of Tourism, Culture and Sport was contacted for current information on registered archaeological sites and previous archaeological assessments undertaken in the vicinity. A property inspection was completed on June 19, 2015 to identify potential areas of historic activity and areas of disturbance on the property.

There is evidence of human occupation in Eastern Ontario dating to at least 9,000 B.P. following the retreat of the Champlain Sea. First Nations groups such as the Algonquian have utilized the region for camping and hunting activities. The first permanent Euro-Canadian occupation of the region began at the end of the 18$^{th}$ century when the Treadwell family purchased the township and began its settlement. The first Euro-Canadian occupation of the study area likely occurred in the early twentieth century.

A single celt was observed within an agricultural field in the northwest corner of the project area. The celt was recovered by the archaeologist due to the potential for its loss during the subsequent ploughing for the Stage 2 Archaeological Assessment. The majority of the property has been artificially drained for the purpose of modern agriculture but was historically composed of wetlands and saturated swamp.

Based on the background research and property inspection it has been determined that some of the subject property has archaeological potential as per the MTCS Standards and Guidelines (2011). These areas of archaeological potential are recommended for additional archaeological investigation; these areas are identified in Map 8 (p.34).

All areas of archaeological potential located in long fallow agricultural fields and areas with mature trees and shrubs should undergo a Stage 2 assessment by test pit survey. This survey must follow the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011, p. 31-34). It should include the excavation of test pits by hand in a 5 m grid pattern, with test pits measuring a minimum of 30 cm in diameter and all dirt being screened through a minimum 6 mm mesh. In addition, test pits should be excavated to within 1 m of built structures (both intact and ruins) until test pits show evidence of recent ground disturbance.

All areas of archaeological potential located within active agricultural fields should undergo a Stage 2 assessment by way of pedestrian survey. This survey must follow the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011, p.30-31).

This Stage 1 Archaeological Assessment has provided the basis for the following recommendations:

1) That a Stage 2 Archaeological Assessment be conducted by a licensed archaeologist using the test pit survey and pedestrian survey method where appropriate within all areas of archaeological potential (Map 8, p.34); and

2) Undertake intensified pedestrian survey at 1 m intervals over a minimum of 20 m radius at the location of the celt recovered during the Stage 1 property inspection (Map 7, p.33, Appendix B).

# Project Personnel

| | |
|---|---|
| Client Contact | Marc Bataille, P.Eng., MBA. Colacem Canada Inc. |
| Project Manager | Rachel Gould, M.Sc. |
| Project Director | Alyson Beal, P.Eng. |
| Project Coordinator | Nancy de Rojas, B.Eng., EIT |
| Discipline Lead | Brad Drouin, M.A. (P311) |
| Licensee | Stephen Jarrett, M.A. (P385) |
| Report Preparation | Stephen Jarrett, M.A. (P385) |
| Property Inspection | Stephen Jarrett, M.A. (P385) |
| Senior Review | Hugh J. Daechsel, M.A. (P051) |
| GIS/Mapping | Mike Edwards, B.E.S. |
| Administration | Courtney Adey |

# Abbreviations

| | |
|---|---|
| Golder | Golder Associates Ltd. |
| Colacem | Colacem Canada Inc. |
| LAC | Library and Archives Canada |
| m | metre(s) |
| MTCS | Ministry of Tourism, Culture and Sport |
| NAPL | National Air Photo Library |

# Table of Contents

**IMAGES**



**MAPS**

**No table of figures entries found.APPENDICES**

# 1.0 PROJECT CONTEXT

## 1.1 Development Context

Golder Associates Ltd. (Golder) was retained by Colacem Canada Inc. (Colacem) to undertake a Stage 1 archaeological assessment (AA) for all of Lot 217, Geographic Township of Longueuil, Prescott County, (Present day Township of Champlain) (Map 1, p.27). This Stage 1 archaeological study was triggered by the *Planning Act* as a requirement for site plan approval of the proposed cement plant (Map 2, p.28). Permission to access the site was given by the client with no restrictions.

This study included the review of available archaeological and environmental literature relevant to the property, consultation with the Ministry of Tourism, Culture and Sport's (MTCS) database of registered archaeological sites, as well as a review of primary historic documentation including land abstract records, census documentation, aerial photographs and historic maps. In addition, a property inspection was conducted to determine the current environment of the project area.

## 1.2 Objectives

The objectives of this Stage 1 archaeological assessment follow the MTCS' *Standards and Guidelines for Consultant Archaeologists* (2011, p.13, 27):

- 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 document all archaeological resources on the property; and
- To recommend appropriate strategies for Stage 2 survey.

# 2.0 HISTORIC CONTEXT

## 2.1 Pre-European Contact History

The Ottawa valley was covered by the Laurentide Ice sheet up until approximately 11,000 before present (BP). Following deglaciation, the Ottawa Valley was covered by the Champlain Sea. This sea extended from the Rideau Lakes in the south, along the Ottawa Valley, St. Lawrence area ending at approximately Petawawa in the west. The exact western boundary is unknown as current elevation levels reflect the isostatic rebound of the land after the melting of the glaciers, and cannot be used to accurately determine the location of the Champlain Sea. The eastern portion of the Sea extended into the Atlantic.

The earliest possible settlement in the area would have been after the Champlain Sea disappeared and vegetation and wildlife had sufficiently occupied the area to sustain humans (Watson 1999a, p.28). The pre-European contact sequence of occupation for the Ottawa Valley is not completely understood. During the early and middle Paleo-Indian period (12,000 to 10,000 BP) the study area and environs would have remained inundated by the Champlain Sea, or may not have had the land resources required for occupation. However, during the late Paleo-Indian period (10,000–9,000 BP) as the Champlain Sea receded, it is possible that Paleo-Indians migrated along the changing waterfront eventually moving into the Ottawa Valley (Watson 1999a, p.38).

Paleo-Indians were characterized by their nomadic lifestyle. These highly mobile hunter and gatherers relied on the caribou, small game, fish and wild plants found in the sub-arctic environment of the time. Although evidence exists of Paleo-Indian occupation in Ontario as early as 11,000 BP, there is very little of it for the occupation of the Ottawa Valley by Paleo-Indians. Significant occupation of the lower Ottawa Valley did not occur until the Archaic Period (9,500–2,500 BP). By 8,000 BP the lakes and rivers were approximately in their present locations and deciduous forests would have been established. Evidence of earlier occupation by Paleo-Indians in the Ottawa Valley consists of two bi-facially fluted projectile points found near Rideau Lakes and a dovetail point found in Ottawa South (Pillon and Fox 2015). This location would have been near the shore of the Champlain Sea during the time fluted points were being used (Watson 1999b, p.35). Also Ken Swayze has found what he believes to be Paleo-Indian material near Greenbank Road (Swayze 2003) and, possibly, at Albion Road and Rideau Road (Swayze 2004).

Pre-European contact sites in the Ottawa Valley provide evidence of occupation during the Archaic Period. While hunting and gathering was still the main subsistence strategy, migration was more restricted to local areas. Lithic technologies also changed during this period. Although there were a broader range of tool types the necessary skill and workmanship decreased from the Paleo-Indian standards. Ground stone tools appeared, such as adzes and gouges, tool types which indicate increased wood working.

The Archaic Period included the development of trade networks over large areas. Two sites which demonstrate this network include Morrison’s Island and Allumette Island in the Outaouais region of the Ottawa River (Clermont 1999, pp. 45-46). Other sites with Archaic Period components in the Ottawa Valley during the Archaic Period include Jessup Falls and Pendleton, along the South Nation River and at Rideau Lakes.

The Archaic Period was followed by the Woodland Period, beginning around 2,500 BP in Ontario, and lasting until 450 BP. This period is characterized by the introduction of pottery. There is evidence of ceremonial rituals including the inclusion of elaborate grave goods with Early Woodland burials. Early Woodland subsistence strategies were still based on hunting and gathering. Although Woodland people were nomadic, their migratory routes followed seasonal patterns to proven hunting locations rather than following migrating herds

(Watson 1999b, p. 56). Trade networks continued to flourish through the Woodland Period. By 1,800 BP the trade networks had reached their peak and covered much of North America.

Initial pottery forms were crude and imitated vessels made in the Archaic Period out of steatite. One example of this type of pot was located along the Ottawa River at a site (CaGi-1) in Hull Quebec (Watson 1999b, p. 59). Over time pottery became more refined and began to include elaborate decorative patterns. These decorative styles are distinct for specific regional populations as well as specific date ranges (Laliberté 1999, p. 73). The decorative styles found in eastern and south-central Ontario during this period are part of what has been identified as the 'Point Peninsula' Tradition. The western region of Ontario was occupied by Saugeen populations and the north-western area was occupied by the Laurel populations (Laliberté 1999, p. 73).

Towards the end of the Middle Woodland Period (approximately 1,500 BP) agriculture was introduced and began to take on a larger role in subsistence. It began with the cultivation of corn, beans and tobacco and eventually led to the establishment of semi-permanent and permanent villages. Many of these villages were surrounded by large palisades, indicating increased hostilities between neighbouring groups. By the end of the Late Woodland period distinct regional populations occupied specific areas of southern Ontario separated by vast stretches of largely unoccupied land. This settlement pattern was more common in regions of arable land such as southern Ontario, while many groups in other regions retained a semi-nomadic lifestyle.

## 2.2 Post-European Contact History

At the time of initial contact, in the seventeenth century, the French documented three Algonquin groups residing in the vicinity of the study area (Heindenreich & Wright 1987). These included the Matouweskarini along the Madawaska River to the west, the Onontchataronon in the Gananoque River Basin to the southwest, and the Weskarini, the largest of the three, situated in the petite River Basin north of the study area. The Algonquin groups may not have created permanent settlements in the area as a result of hostilities with Iroquoian speaking populations to the south; however, it is known that the northern reaches of the South Nation River basin were used as hunting territories by the Algonquin at this time. Algonquin people continue to be a presence in the Ottawa Valley.

Etienne Brulé is reported to be the first European in the region. He travelled up the Ottawa River in 1610, three years before Champlain visited the area. The first significant European settlement of the region did not occur until 200 years following this visit, although the Ottawa River continued to be a major fur trade route providing access to the upper Great Lakes and Hudson Bay. Prior to 1820 the only method of transportation into the area was by river. The lack of roads hindered the settlement of the region; however, in the eighteenth century fur trading posts were erected along the shores of the Ottawa River to trade with the Algonquin, including a post at present day Buckingham.

The region was initially under the jurisdiction of France until the end of the Seven Year War, in 1763, when it was ceded to Britain. During the American revolutionary war many British subjects moved to British North America (Canada). Those who moved prior to the *Treaty of Separation*, in 1783, were United Empire Loyalists and many of them were granted tracks of land along the Ottawa, Rideau and St. Lawrence Rivers. Most of those who were granted land along the Ottawa River remained absentee land owners having already settled along the St. Lawrence. The scarcity of roads and poor state of transportation beyond the Ottawa River shore slowed settlement in other parts of the townships.

### Seigniory of Longueuil

The Seigniory of Longueuil was granted to Francois Provost in 1674. Through time it passed to the de Longueuil family but due to the distance from the Longueuil's other seigniories along the St. Lawrence River it was not settled by the early owners. The property was put on sale multiple times in the 18th century until purchased by Nathaniel Hazard Treadwell in 1796 for the sum of one thousand guineas (Thomas 1896, pg. 502).

Treadwell settled in the seigniory near the location of L'Orignal immediately and began recruiting settlers by 1800. When the War of 1812 broke out Treadwell refused to take the oath of allegiance to the British crown and was detained until he was escorted across the war lines back to the United States (Thomas 1896, pg. 505). Nathan Treadwell continued to grow his lumber business near Plattsburgh, New York until he returned to L'Orignal in 1840.

In the intervening time while Nathan Treadwell remained in the US, Nathan's eldest son Charles Treadwell returned to L'Orignal in 1823 and continued the family interests there (Thomas 1896, pg. 505). In 1834, Charles Treadwell was given the title of High Sheriff (a lifetime appointment) which carried his duties far and wide throughout Eastern Ontario. Charles was also part of a number of railway projects within Ontario.

As a result of the Treadwells' control over the early settlement of the township the majority of the initial settlers were from upper New York State and settled on the best lands within the township. By the mid to late 19th century French settlers began settling in the township and much of eastern Ontario due to the fact that land was becoming scarce in Quebec by this time. With the majority of the best agricultural land taken by the early settlement the majority of the French settlers had to improve marginal lands to begin farming.

## 2.3 Property History

The first land registry records for Lot 217 begin in 1958 when the County Court of the United Counties of Prescott and Russell formed the lot from the A section of Geographic Longueuil township. Due to the fact that the township was a seigniory when surveyed the area did not conform to British survey standards and the area in question was not given a lot and concession but was instead an irregular section as seen in the Walling map of 1862 for the county (Map 3, p.29).

The 1862 Walling map shows no occupation of any of the lots within the vicinity of the study area and indicates that there was likely no road along the route of the modern Highway 17 at this point (Map 3, p.29). The occupation of the township as shown is along the Ottawa River to the north and a considerable distance south along the modern Ritchance Road. The 1881 Belden map of the township also shows no occupation within the vicinity of the study area but does indicate the presence of a roadway along the path of the modern Highway 17 at this time (Map 4, p.30).

## 2.4 Summary

The background research on the area indicates that potential for both Aboriginal and post-contact Euro Canadian archaeological materials exist within the study area. The general natural context of the area would indicate a moderate potential for the discovery of First Nations' materials due to the presence of the Ottawa River in relatively close proximity. However, the historic maps of the area show no creeks or drainage channels within the project area (Maps 3-4, pp.29 to 30).

The historic background research on the area indicates that the potential for Euro-Canadian archaeological resources is low. The history of the township indicates that settlement of the township was limited during the late eighteenth century and early nineteenth century to the best parts of the township and a small number of settlers. The late nineteenth century saw an influx of French settlers to the remainder of the township; however no settlement is indicated within the study area.

# 3.0 ARCHAEOLOGICAL CONTEXT

## 3.1 Subject Property Environment

The property is part of Ottawa Valley Clay Plains (Chapman and Putnam 1984, p.209). The project area is located in soil conditions classified primarily as Farmington loam with muck in the northeast corner of the study area and a small area of bearbrook clay at the south end of the study area (Map 5, p.31). Farmington loam is typified by soil conditions consisting of stony loam with shallow limestone bedrock beneath in undulating terrain with good drainage. Muck typically consists of high organic poorly drained to saturated soils. Bearbrook clay typically consists of stonefree dark grey clay soils in level terrain with poor drainage.

The property currently consists primarily of active and fallow agricultural fields which vary from moderately well drained soil conditions at the south end of the project area to poorly to saturated soil conditions throughout most of the property. The majority of the property currently consists of low-lying fields cropped with soybeans and corn with the remainder at the south end of the property on a slightly elevated area cropped with winter wheat. All areas of the property contain deep artificially cut drainages to reduce the wet conditions within the fields. A small abandoned quarry pit is located in the southeast corner of the property.

An aerial image of the property from 1927 shows that the entire lot was used for agriculture with two possible structures present (Map 6, p.32). The first appears on the edge of the abandoned quarry at the southeast corner of the property indicating that possibly some small quarrying was happening on the property at that time. The second possible structure is located at the north end of the property along a field edge. The image also shows that the present complex of artificial drainages along the field edges appears in place at this time.

An aerial image of the property from 1946 shows the same two possible structures with two more located in the southwest corner of the property along the modern Highway 17 (Map 6, p.32). Both were observed as concrete foundations in the property inspection (see Section 4.3). Further activity is visible at the location of the modern abandoned quarry pit in the southeast corner of the property. The remainder of the property is still visible as agricultural fields.

An aerial image of the property from 1962 shows the same agricultural use with the removal of all structure except the two in the southwest corner of the property (Map 6, p.32). The abandoned quarry appears full of water in the image.

Of note, the soils map shows a 25 foot increase in elevation to a sizable hill immediately north and northwest of the property (Map 5, p.31). This appears to be the highest elevated area along the south side of the river along this small stretch of river. In particular, it is the highest elevated area overlooking Azatika Bay which would be an ideal natural harbour.

## 3.2 Known Archaeological Sites and Previous Archaeological Investigations

A search of the MTCS sites database indicated that there are no known archaeological sites previously identified within a 1 km radius of the study area (MTCS 2015).

## 3.3 Summary

The archaeological context of the area indicates that the project contains potential for the recovery of both Aboriginal and Euro-Canadian archaeological materials. Soil conditions within the project range from primarily poorly drained to saturated within the majority of the study area to moderately well drained at the south end of the property. Previous archaeological investigations in the area have not revealed any Aboriginal or Euro-Canadian materials.

# 4.0 PROPERTY INSPECTION

A property inspection of the project area was conducted on June 19, 2015 by Stephen Jarrett. The weather conditions were clear and warm (+11 to +20ºC). The inspection was undertaken to identify the general conditions of the property and to note any areas of historic activity or disturbance in evidence. A detailed photo catalogue was completed and is included as Appendix A. A handheld GPS device was used to record features of note and is retained on Golder's file server.

For the purpose of the inspection the property was split into three sections to allow for the better communication of the site conditions within the project footprint. Each section is irregularly shaped to account for the topographic differences. Each area was evaluated in detail for current conditions, ground cover, disturbance and drainage. A detailed map of the property inspection is included with this report as Map 7 (p.33). This map includes field demarcations, photo locations and locations of potential archaeological features. A detailed photographic catalogue is included in this report as Appendix A.

## 4.1 Section 1

Section 1 is the northernmost portion of the property and covers an area of approximately 50 acres (20 hectares). The entire section consists of North-South oriented fields of cropland currently in corn and soy with the exception of a one acre section of bush in the northwest corner of the area. The treed area consists of oak, maple and poplar trees with very shallow soils (Image 1, p.16). This is part of a larger treed area immediately north of the study area which rises in elevation by approximately 8 m from the north end of Section 1.

The general topography follows a gradually sloping southeast trend down to the lowest point of the property at the south edge of Section 1 (Image 2, p.16). The entire section is poorly drained to saturated, the drainage condition within the field has resulted in large areas of crop failure (Image 3, p.17). The majority of the area is cropped with soybeans using a no-till method with the furthest northwest field planted in corn. All of the fields are bordered by artificial ditches of varying depths. At the north end of the section, which is the highest elevated area, the ditches are approximately 30 cm to 50 cm deep (Image 4, p.17). At the south end of the section the ditches have been excavated up to 2 m in depth (Image 5, p.18).

Of note a celt was observed at the north end of the project footprint within the corn field (Image 6, p.18; Map 7, p.33). The celt was collected on the professional judgement of the licensee due to the risk of losing and/or damaging the piece upon the ploughing of the area. The location was recorded to within 1 m by a handheld GPS device. No further artifacts were in evidence, however an intensified survey of the area is recommended during the Stage 2 Archaeological Assessment of the property. GPS coordinates of the celt are included in Appendix B.

## 4.2 Section 2

Section 2 is the central portion of the property and covers an area of approximately 54 acres (22 hectares). The eastern half of the section is cropland planted via no-till as soybeans. The west half of the section is fallow field.

The general topography is low lying with a very gentle north slope which trends down to the lowest point of the property at the north edge of the section. The soy field is in very poorly to saturated soil conditions (Image 7, p.19). Peat is the predominant soil type visible within the fields. All of the crop fields are bordered by artificial ditches over 50 cm in depth (Image 8, p.19).

The fallow fields on the west half of the section have a slightly greater northeast slope with a slightly higher elevation along the property line. The entire area is covered in brush that includes open meadows with shrub brush (Image 9, p.20), cedar forest (Image 10, p.20) and poplar stands (Image 11, p.21). Areas of past disturbance are visible throughout in no consistent pattern which includes areas where topsoil has been mounded (Image 12, p.21) as well as further artificial drainage ditches (Image 13, p.22). An area of saturated soils in an open area is present in a slight dip at the southernmost area of Section 2 (Image 14, p.22). The majority of the area is habitually wet, despite the artificial drainage.

## 4.3 Section 3

Section 3 is the southernmost portion of the property and covers an area of approximately 36 acres (14.5 hectares). The majority of the area is elevated approximately 1 m to 2 m over Section 2 (Image 15, p.23). Most of the area is currently cropped with winter wheat (Image 16, p.23).

All of Section 3 appears to moderately well drained with the exception of a small area in the southern corner of the property (Image 17, p.24). A large irregular abandoned quarry pit (approximately 170 m by 100 m) was noted along the east edge of the property approximately 100 m from County Road 17 (Image 18, p.24). Three concrete foundations were found, one either side of the roadway onto the property (Image 19 and 20, p.25-25) and one ramp structure south of the quarry (Image 21, p.26). One 100 m by 120 m fallow field is present in this section immediately north of the abandoned quarry (Image 22, p.26).

# 5.0 ARCHAEOLOGICAL POTENTIAL

Archaeological potential is determined based on the consideration of several variables. For Aboriginal sites these variables include topographic features, soil type, raw material access and proximity to known Aboriginal sites. The topographical features considered include the distance from a water source, height above the nearest water source and the nature of the source (river, creek or lake). Other topographic elements include: ridges, knolls, drumlins, eskers and wetlands. Soil type assists in the identification of the nature and variety of vegetation of a given area. This information will also aid in understanding fauna in the area.

Historical research is used to determine the archaeological potential of an area for historic sites. Sources for this research include land registry records, census and assessment rolls, historic maps and aerial photos. Property inspections of the study area for above ground remains or other evidence of demolished structures can also be conducted and test pit excavations can reveal further hidden evidence of previous structures.

Historic archaeological potential is also based on the proximity to historical transportation corridors and the presence of heritage designated properties and known archaeological sites. These would include any historic roads and historic railway tracks.

This study concludes that the property in question has confirmed potential for the recovery of pre-historic materials. A celt was observed in situ in the northwest corner of the property. In addition, a swamp is located immediately northeast of the project area. Deep artificial drainage channels have entirely altered the natural conditions within the property which appear predominately wet even today, however the visibly lowest area on the property trends in a northeast direction (along the boundary between Sections 1 and 2) towards what appears to be a natural channel to the northeast of the property. It is believed that the channel likely once extended through the property along this lowest point and likely drained a large swamp within all of Section 2 and the majority of Section 1. This conclusion was supported by Fergus Nicoll, Senior Wildlife Technician at Golder, who is conducting modern vegetation and wildlife assessments on the property.

Hence, it is recommended that the area of archaeological potential be delineated from a conservative edge of the historic swamp as per Section 1.3.1 of the MTCS Standards and Guidelines (2011, p.17). The results of this conservative edge were developed in consultation with an experienced biologist, knowledgeable with the property and can be seen in Map 8 (p.34).

The property history and property inspection concludes that the project area has low potential for the recovery of early historic materials and features associated with the earliest Euro-Canadian occupation of the township. From the available documentation it appears that the project area was likely first occupied in the early twentieth century. The only area recommended to have historic potential as per the MTCS Standards and Guidelines Section 1.3.1 (2011, p.17) is the 100 m buffer area from the historic transportation route along Highway 17 which was in use by 1881 (Map 8, p.34).

# 6.0 SUMMARY AND RECOMMENDATIONS

Golder was retained by Colacem to undertake a Stage 1 Archaeological Assessment on Lot 217, in the Geographic Township of Longueuil, Prescott County (Present day Township of Champlain). This Stage 1 archaeological study was triggered by the *Planning Act* for a proposed site plan approval.

The assessment involved a review of documents pertaining to the study area including land registry records, historic maps and aerial photographs. The MTCS was contacted for current information on registered archaeological sites and previous archaeological assessments undertaken in the vicinity. A property inspection was completed on June 19, 2015, to identify potential areas of historic activity and areas of disturbance on the property.

There is evidence of human occupation in Eastern Ontario dating to at least 9,000 B.P. following the retreat of the Champlain Sea. First Nations groups such as the Algonquian have utilized the region for camping and hunting activities. The first permanent Euro-Canadian occupation of the region began at the end of the 18$^{th}$ century when the Treadwell family purchased the township and began its settlement. The first Euro-Canadian occupation of the study area likely occurred in the early twentieth century.

A single celt was observed within an agricultural field in the northwest corner of the project area. The celt was recovered by the archaeologist due to the potential for its loss during the subsequent ploughing for the Stage 2 archaeological assessment. The majority of the property has been artificially drained for the purpose of modern agriculture but was historically composed of wetlands and saturated swamp.

Based on the background research and property inspection it has been determined that some of the subject property has archaeological potential as per the MTCS Standards and Guidelines (2011). These areas of archaeological potential are recommended for additional archaeological investigation; these areas can be seen in Map 8 (p.34).

All areas of archaeological potential located in long fallow agricultural fields and areas with mature trees and shrubs should undergo a Stage 2 assessment by way of test pit survey. This survey should follow the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011, p. 31-34). It should include the excavation of test pits by hand in a 5 m grid pattern, with test pits measuring a minimum of 30 cm in diameter and all dirt being screened through a minimum 6 mm mesh. In addition, test pits should be excavated to within 1 m of built structures (both intact and ruins) until test pits show evidence of recent ground disturbance.

All areas of archaeological potential located within active agricultural fields should undergo a Stage 2 assessment by way of pedestrian survey. This survey should follow the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011, p.30-31).

This Stage 1 Archaeological Assessment has provided the basis for the following recommendations:

1) That a Stage 2 Archaeological Assessment be conducted by a licensed archaeologist using the test pit survey and pedestrian survey method where appropriate within all areas of archaeological potential (Map 8, p.34); and

2) Undertake intensified pedestrian survey at 1 m intervals over a minimum of 20 m radius at the location of the celt recovered during the Stage 1 property inspection (Map 7, p.33, Appendix B).

# 7.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the 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 it complies with the standards and guidelines that are issued by the Ministry, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the MTCS, a letter will be issued by the Ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Ministry 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*.

The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

# 8.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

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 Colacem Canada Inc. (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' S*tandards and Guidelines for Consultant Archaeologists* (2011).

# 9.0 BIBLIOGRAPHY AND SOURCES

Belden, H. & Co.
1879 **Illustrated Historical Atlas of the County of Carleton**. Reprinted, 1981, Port Elgin: Ross Cumming.

Bond, C.C.
1984 **Where the Rivers Meet: An Illustrated History of Ottawa**. Ottawa: Windsor Publications (Canada) Ltd.

Clermont, N.
1999 **The Archaic Occupation of the Ottawa Valley**. In J.-L. Pilon (Ed.), Ottawa Valley Prehistory (pp. 45-53). Imprimerie Gauvin, Hull Quebec.

Harrison, J.E.
1976 **Generalized Bedrock Geology Ottawa-Hull Ontario and Quebec**. Based on the 1967 geological compilation by G. MacDonald, Geological Survey of Canada.

Ministry of Tourism, Culture and Sport
2011 **Standards and Guidelines for Consultant Archaeologists**, Ministry of Tourism, Culture and Sport, Toronto.

2015 Personal communication, Robert Von Bitter - Sites within a One Kilometre Radius of the Project Area Provided from the Ontario Archaeological Sites Database, June 30, 2015.

Pilon, Jean-Luc and William Fox
2015 **St. Charles or Dovetail Points in Eastern Ontario**. In *Arch Notes Volume 20 Issue 1:5-9.*

Ross, Alexander
1927 **Ottawa: Past and Present.** Thorburn and Abbott, Ottawa.

Swayze, K.
2003 **A Stage 1 & 2 Archaeological Assessment of Woodroffe Estates Part North Half Lot 16, Concession 2 Nepean (Geo.) Twp., City of Ottawa**. Summary report on file, Ministry of Tourism and Culture, Toronto.

2004 **Stage 1 & 2 Archaeological Assessment of Proposed Central Canada Exhibition, Albion Road Site, Part Lots 24 and 25, Concession 3, Gloucester Township (Geo.), City of Ottawa**. . Summary report on file, Ministry of Tourism and Culture, Toronto.

Thomas, Cyrus
1896 **History of the Counties of Argenteuil Quebec and Prescott Ontario from the Earliest Settlement to the Present.** Reprinted Edition by Mika Publishing Company, Belleville 1981. Original Publication by John Lovell and Son, Montreal.

Walker, Harry and Olive Walker
1968 **Carleton Saga.** Runge Press Limited, Ottawa.

Walling, H.F.

1862 **Map of the Counties of Stormont, Dundas, Glengarry, Prescott and Russell, Canada West**. National Library and Archives Canada NMC 21998

Watson, G.D.

1999a **The Paleo-Indian Period in the Ottawa Valley**. In J.-L. Pilon (Ed.), Ottawa Valley Prehistory (pp. 28-41). Imprimerie Gauvin.

1999b **The Early Woodland of the Ottawa Valley**. In J.-L. Pilon (Ed.), Ottawa Valley Prehistory (pp. 56-76). Impremerie Gauvin, Hull Quebec.

## 10.0 IMAGES

**Image 1: View west of shallow soil conditions in treed area at the northwest corner of the study area, D08.**

**Image 2: View northeast along the lowest point in the study area, D19.**

**Image 3: View east showing drainage in cornfield and failed corn growth, D09.**

**Image 4: View south of ditch line at north end of the study area aligned north-south, D05.**

**Image 5: View northeast of intersection of deeply cut artificial drainage, D18.**

**Image 6: View down of celt found in Section 1, D12.**

**Image 7: View south of saturated soil conditions within section 2, D25.**

**Image 8: View north of central ditch line within Section 2, D29.**

**Image 9: View north of open area and shrub brush in section 2, D32.**

**Image 10: View north of cedar forest in section 2, D36.**

**Image 11: View south of poplar stand in section 2, D33.**

**Image 12: View northeast of area of pushed soil in section 2, D35.**

**Image 13: View north of artificial ditch within fallow field in section 2, D30.**

**Image 14: View southeast of open wet area at south most portion of section 2, D37.**

**Image 15: View southeast of change in elevation between section 2 and section 3, D237.**

**Image 16: View northeast of winter wheat crop in section 3, D38.**

**Image 17: View southeast of wet area in southern corner of the property, D54.**

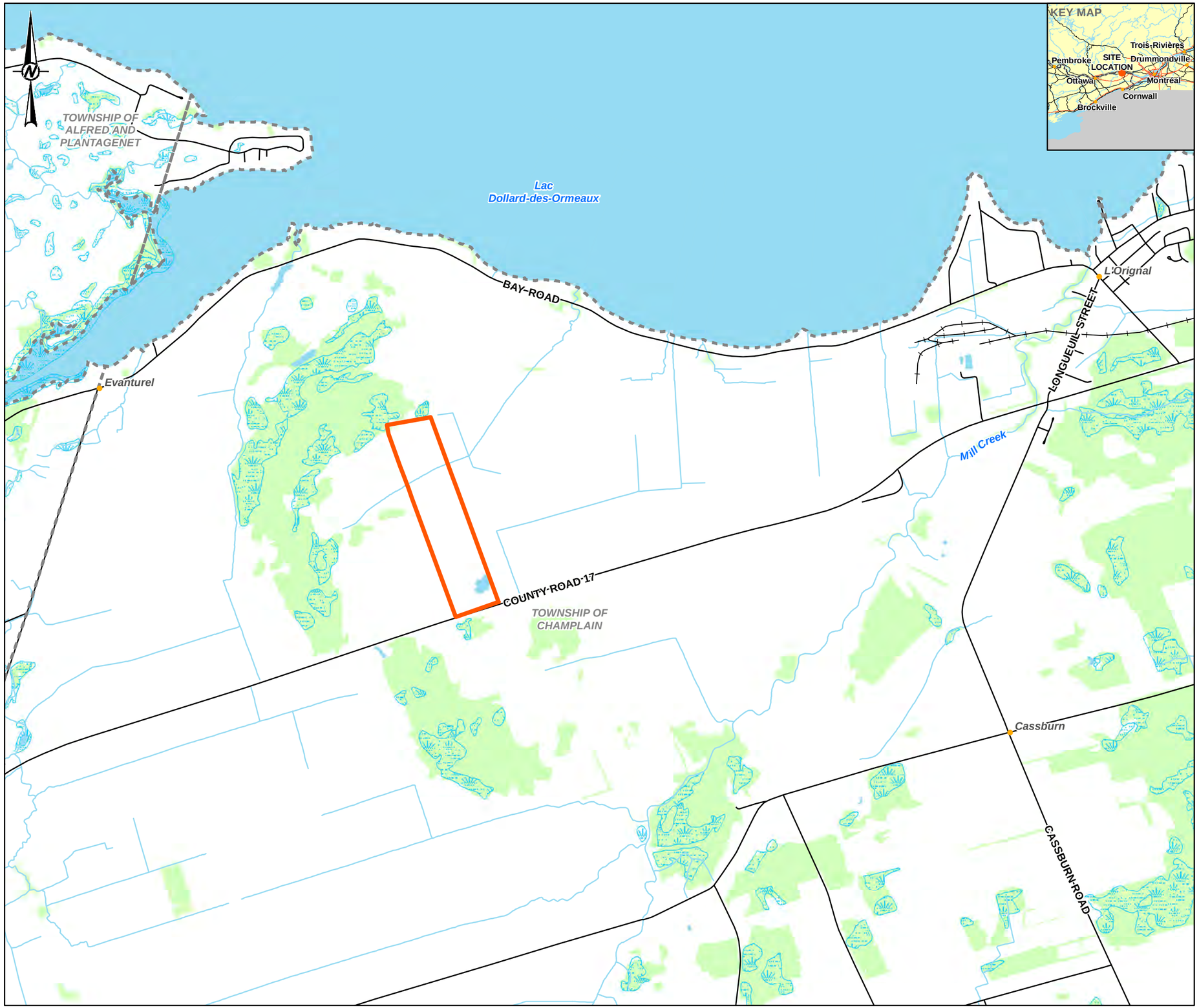
**Image 18: View northeast of abandoned quarry, D46.**

**Image 19: View west of north wall of concrete structure east of driveway, D41.**

**Image 20: View north of concrete foundation west of driveway, D59.**

**Image 21: View south of concrete ramp structure south of abandoned quarry, D49.**

**Image 22: View east of fallow field north of quarry in section 3, D60.**




LEGEND

- ROAD
- WATERCOURSE
- WATERBODY
- WETLAND
- WOODED AREA
- MUNICIPAL BOUNDARY
- SITE BOUNDARY

0 1,000 2,000

1:30,000 METRES

**REFERENCE(S)**

CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18

CLIENT
COLACEM CANADA

PROJECT
L'ORIGINAL CEMENT PLANT SITE

TITLE
**KEY PLAN**

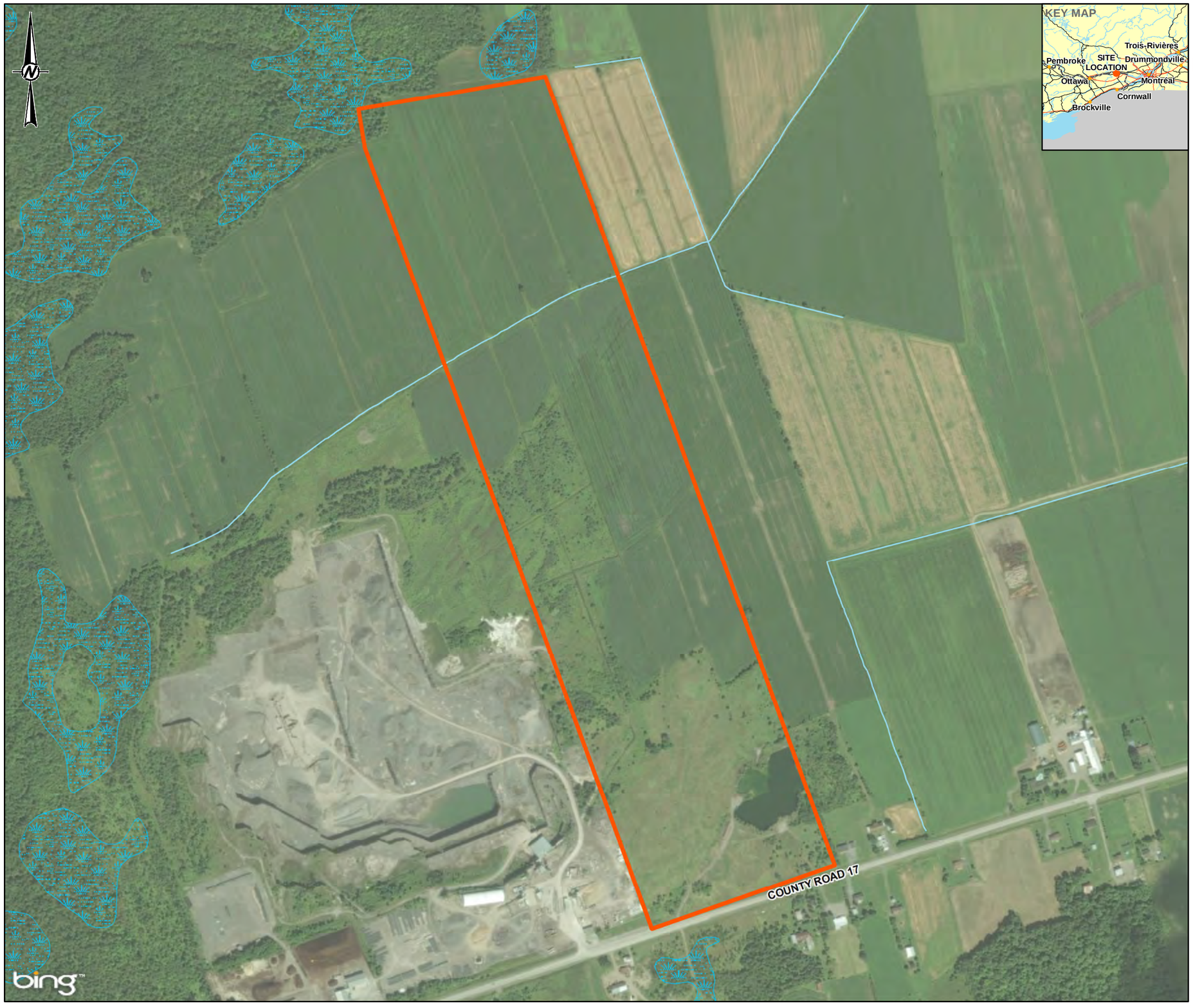
CONSULTANT
Golder Associates

| | |
|---|---|
| YYYY-MM-DD | 2015-06-16 |
| DESIGNED | ME |
| PREPARED | ME |
| REVIEWED | |
| APPROVED | |

| PROJECT NO. | CONTROL | REV. | MAP |
|---|---|---|---|
| 1529718 | - | - | 1 |

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

S:\Clients\Colacem_Canada\L_Orignal_Cement_Plant\99_PROJ\1529718\40_PROD\0001_Archae\dogs\1529718-0001-HA-0001.mxd




LEGEND

- WATERCOURSE
- WETLAND
- SITE BOUNDARY

0 120 240

1:7,000 METRES

**REFERENCE(S)**

CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY: BING MAPS © 2015 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18

CLIENT
COLACEM CANADA

PROJECT
L'ORIGINAL CEMENT PLANT SITE

TITLE
**DEVELOPMENT PLAN**

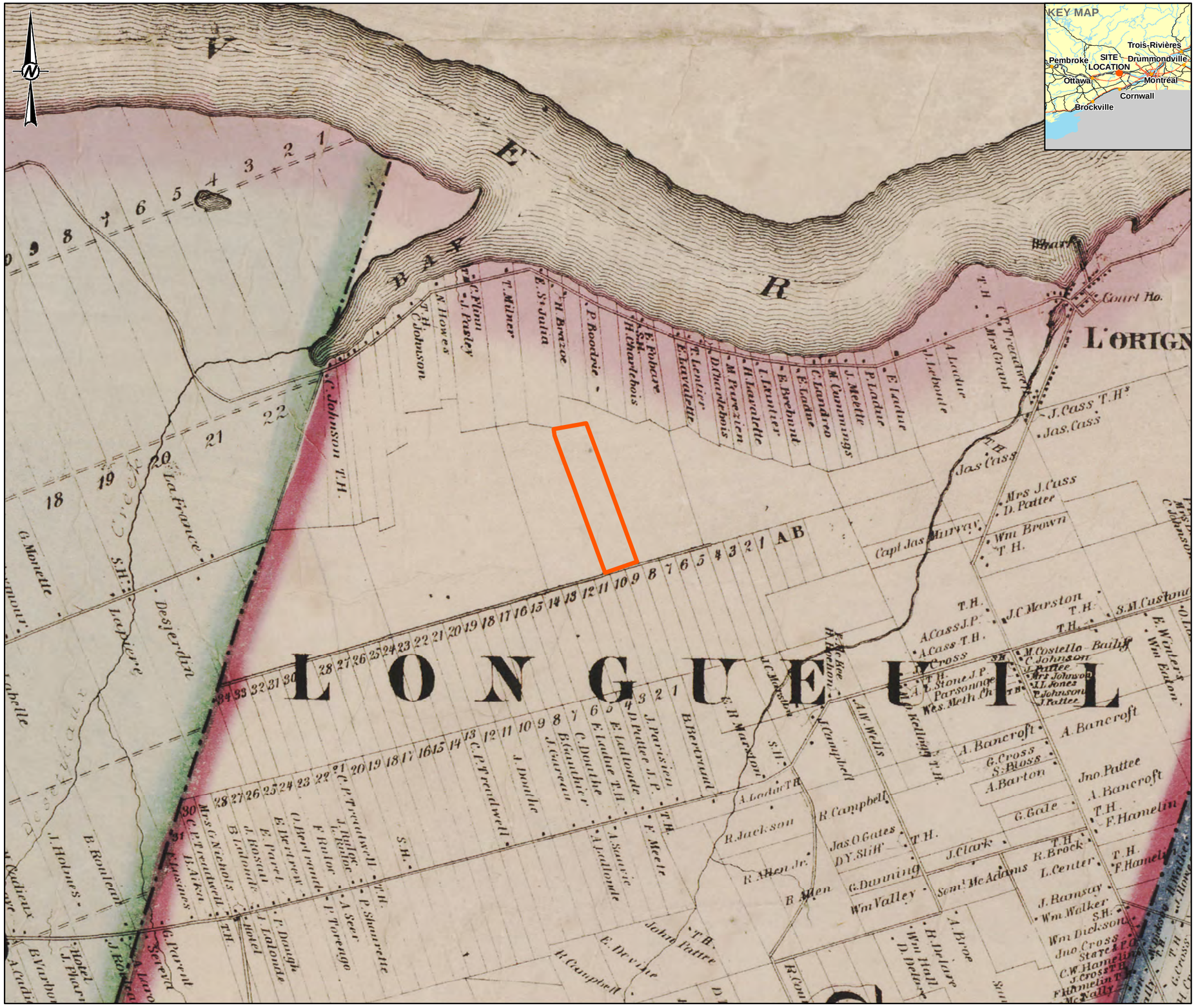
CONSULTANT
Golder Associates

| | |
|---|---|
| YYYY-MM-DD | 2015-06-16 |
| DESIGNED | ME |
| PREPARED | ME |
| REVIEWED | |
| APPROVED | |

| PROJECT NO. | CONTROL | REV. | MAP |
|---|---|---|---|
| 1529718 | - | - | 2 |

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

S:\Clients\Colacem_Canada\L_Original_Cement_Plant\69_PROJ\1529718\40_PROD\0001_Archaeology\1529718-0001-HA-0002.mxd




LEGEND

SITE BOUNDARY

0 800 1,600

1:40,000 METRES

**REFERENCE(S)**

CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18

CLIENT
COLACEM CANADA

PROJECT
L'ORIGINAL CEMENT PLANT SITE

TITLE
**1862 WALLING MAP**

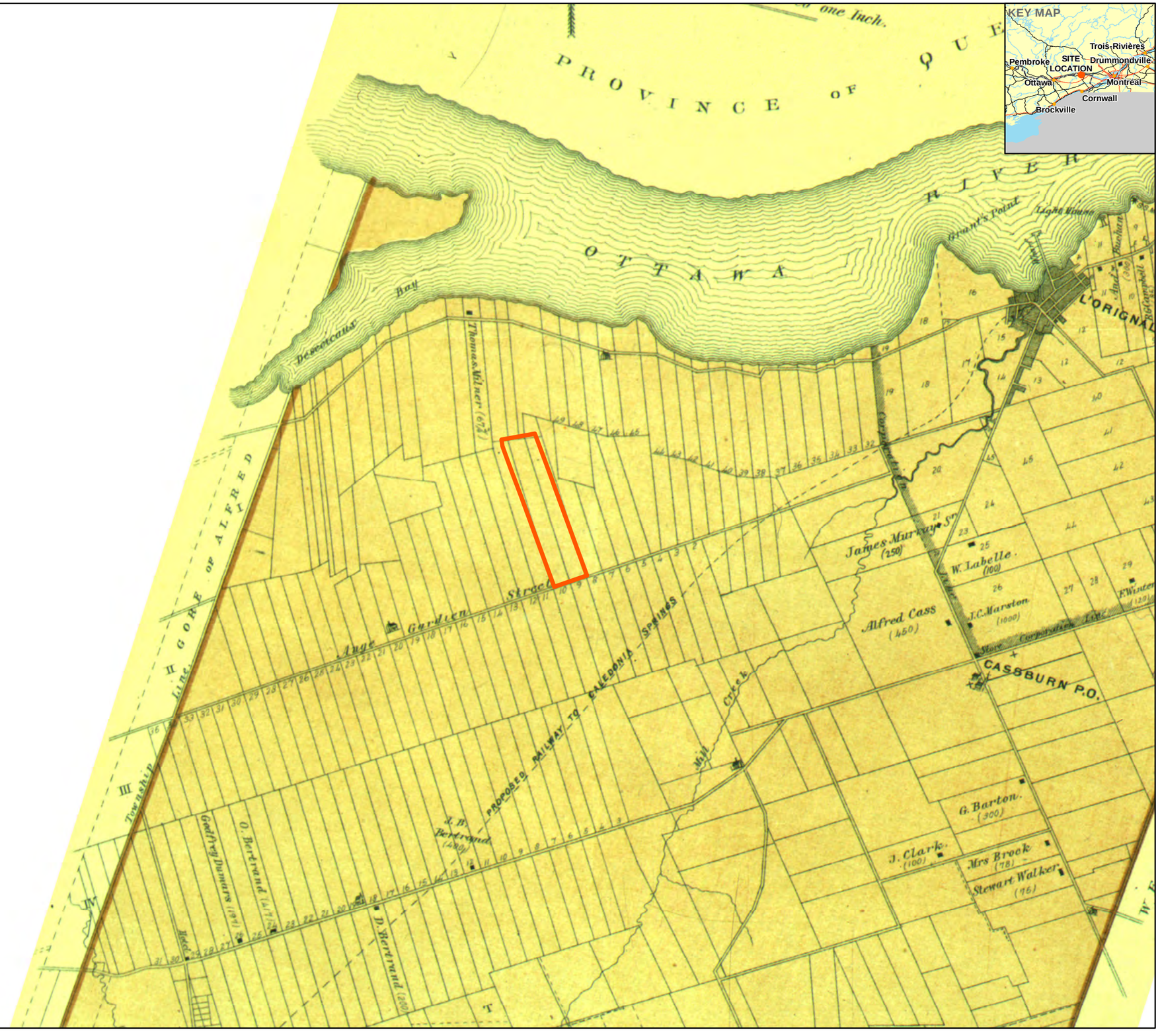
CONSULTANT
Golder Associates

| | |
|---|---|
| YYYY-MM-DD | 2015-07-07 |
| DESIGNED | ME |
| PREPARED | ME |
| REVIEWED | |
| APPROVED | |

| PROJECT NO. | CONTROL | REV. | MAP |
|---|---|---|---|
| 1529718 | - | 1 | 3 |

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

S:\Clients\Colacem_Canada_Original_Cement_Plant\99_PRO\1529718\40_PROD\0001_Archaeology\1529718-0001-HA-0003.mxd




LEGEND

SITE BOUNDARY

0 800 1,600

1:40,000 METRES

**REFERENCE(S)**

CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18

CLIENT
COLACEM CANADA

PROJECT
L'ORIGINAL CEMENT PLANT SITE

TITLE
**1881 BELDEN MAP**

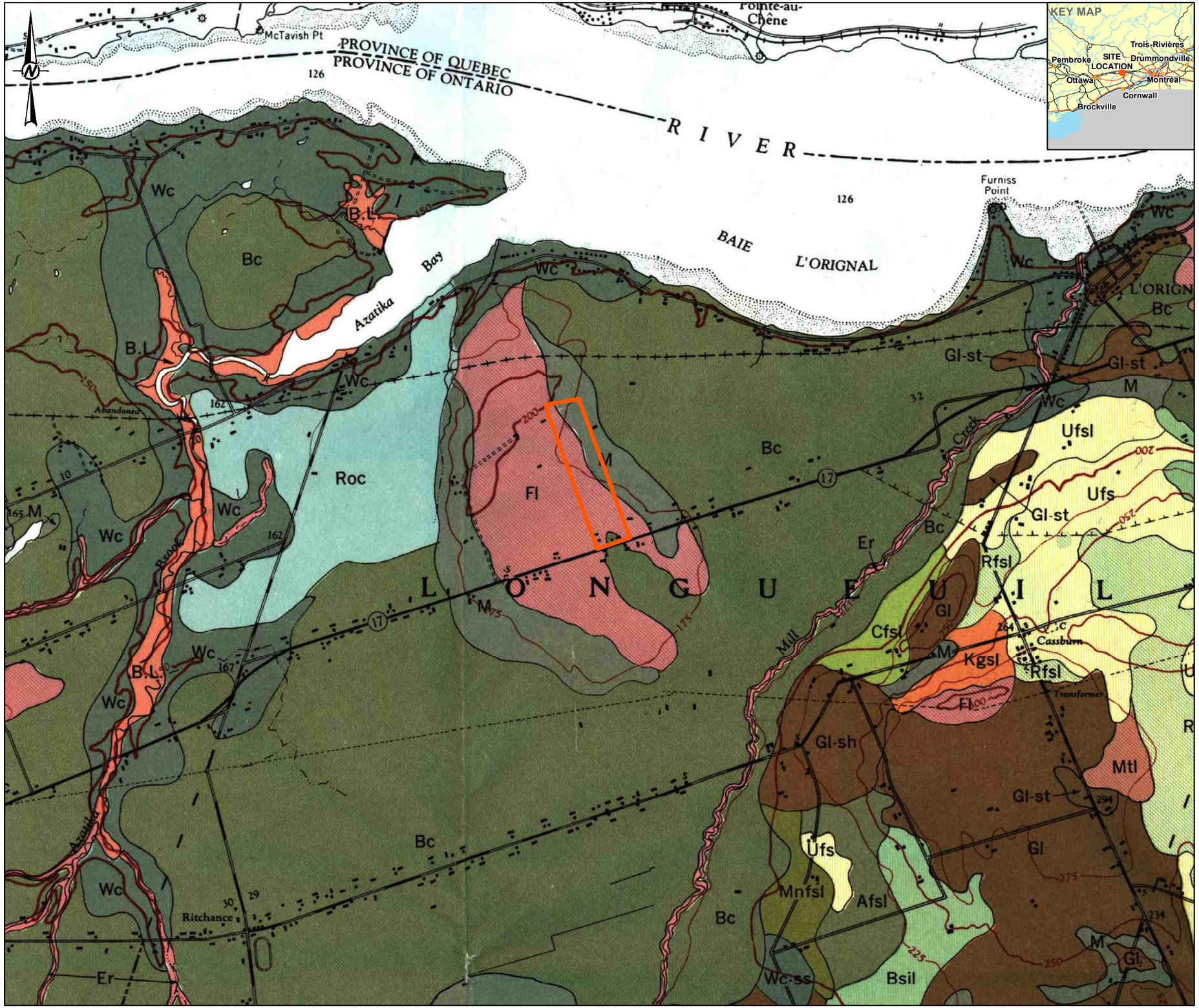
CONSULTANT
Golder Associates

| | |
|---|---|
| YYYY-MM-DD | 2015-07-07 |
| DESIGNED | ME |
| PREPARED | ME |
| REVIEWED | |
| APPROVED | |

| PROJECT NO. | CONTROL | REV. | MAP |
|---|---|---|---|
| 1529718 | - | 1 | 4 |

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

S:\Clients\Colacem_Canada\GL_Original_Cement_Plan\99_PROJ\1529718\40_PRO\0001_Archaeology\1529718-0001-HA-0004.mxd




LEGEND

- SITE BOUNDARY

SOIL TYPE

- FL – FARMINGTON LOAM – STONY, LOAM SOILS WITH LIMESTONE BEDROCK AT 6" TO 18"
- M - MUCK – ORGANIC SOILS
- BC - BEARBROOK CLAY – STONEFREE DARK GREY CLAY SOILS WITH LAYERED RED AND GREY CLAY PARENT MATERIALS

0 800 1,600

1:40,000 METRES

**REFERENCE(S)**

CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
SOIL MAP - SOIL MAP OF PRESCOTT COUNTY ONTARIO, SOIL SURVEY REPORT NO. 33, SOIL SURVEY BY THE DEPARTMENT OF SOILS, ONTARIO AGRICULTURAL COLLEGE, GUELPH AND THE RESEARCH BRANCH, CANADA DEPARTMENT OF AGRICULTURE, OTTAWA.
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18

CLIENT
COLACEM CANADA

PROJECT
L'ORIGINAL CEMENT PLANT SITE

TITLE
**SOIL MAP OF PRESCOTT COUNTY**

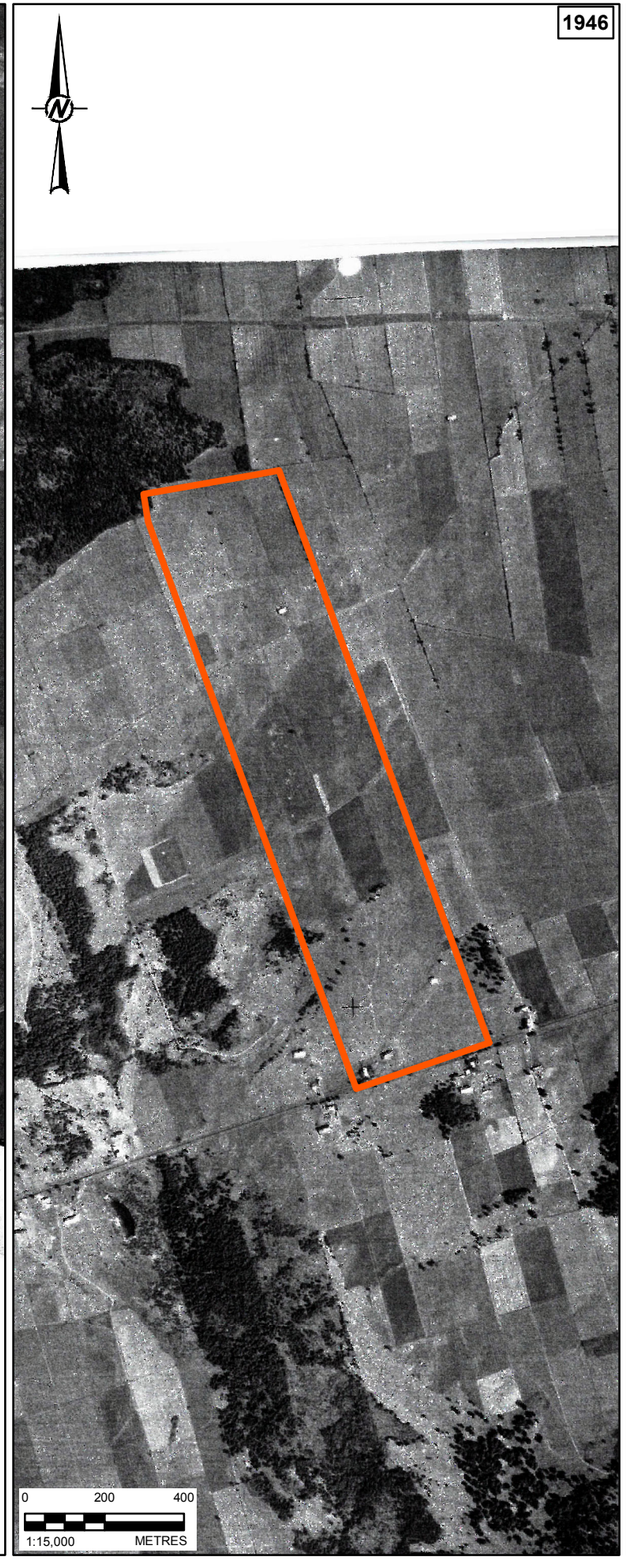
CONSULTANT
Golder Associates

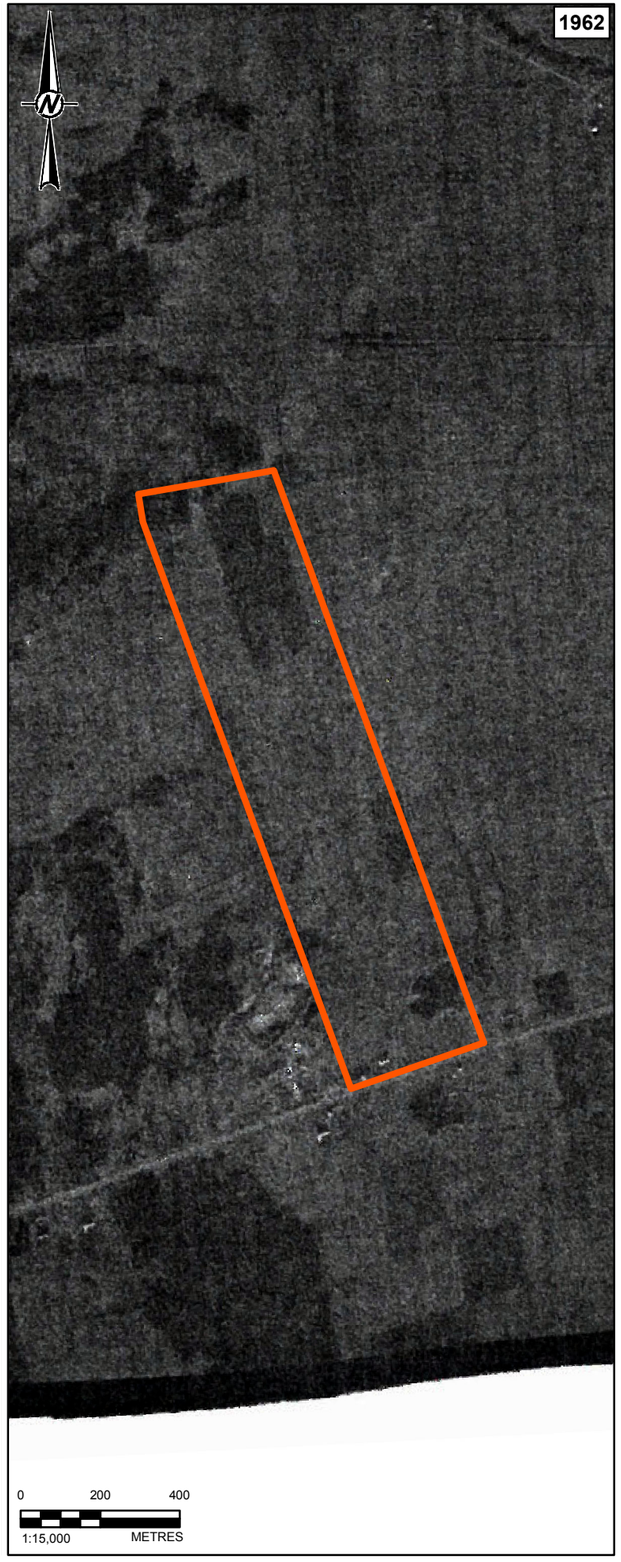
| | |
|---|---|
| YYYY-MM-DD | 2015-08-13 |
| DESIGNED | ME |
| PREPARED | ME |
| REVIEWED | |
| APPROVED | |

| PROJECT NO. | CONTROL | REV. | MAP |
|---|---|---|---|
| 1529718 | - | 2 | **5** |

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

S:\Clients\Colacem_Canada\L_Original_Cement_Plant\99_PROJ\1529718_EIS\40_PROD\0001_Archaeology\1529718-0001-HA-0005.mxd


LEGEND

PROPERTY BOUNDARY

**REFERENCE(S)**

CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18

CLIENT
COLACEM CANADA

PROJECT
L'ORIGINAL CEMENT PLANT SITE

TITLE
**HISTORIC AERIAL PHOTOGRAPHS**

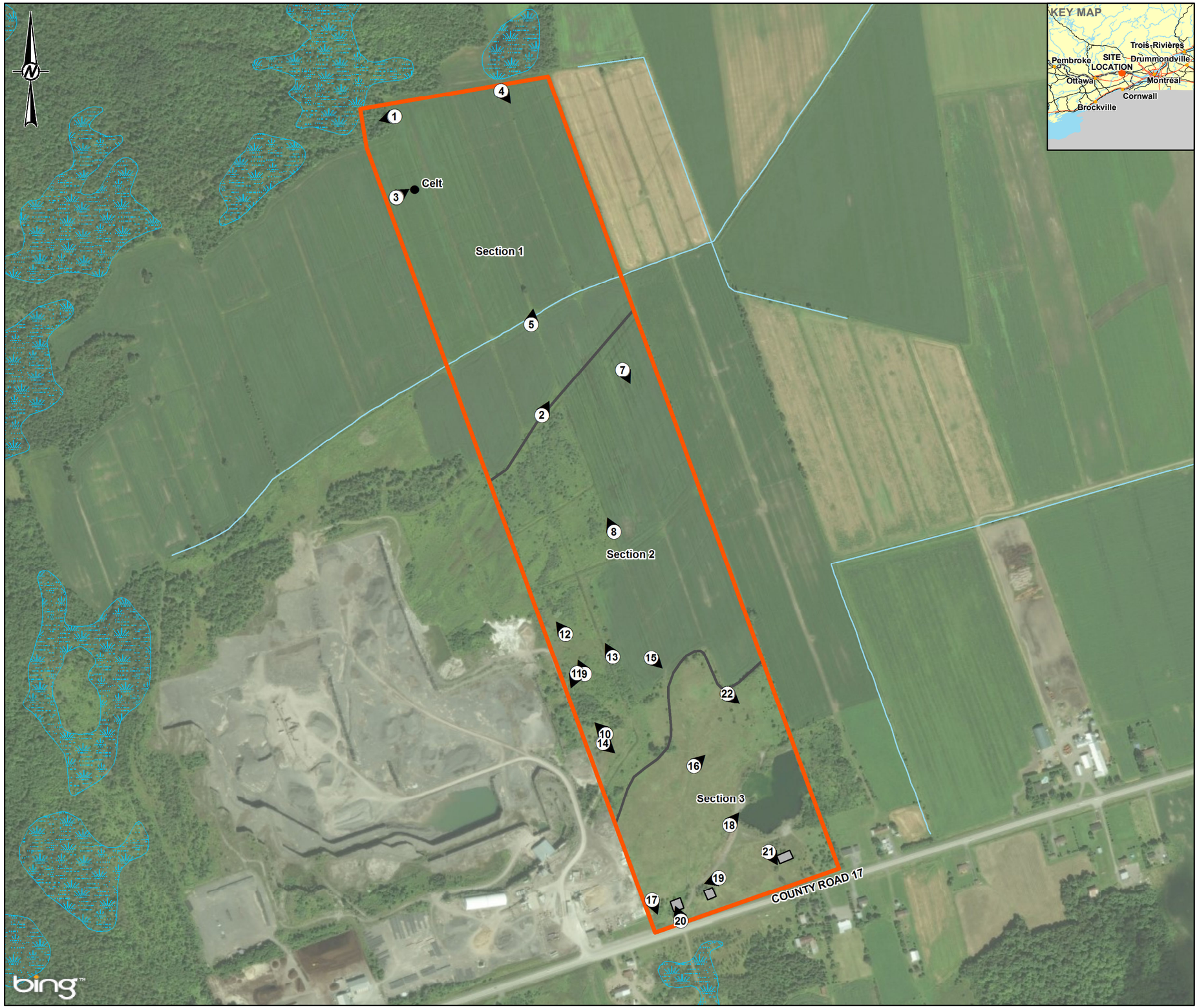
CONSULTANT
Golder Associates

| | |
|---|---|
| YYYY-MM-DD | 2015-07-14 |
| DESIGNED | ME |
| PREPARED | ME |
| REVIEWED | |
| APPROVED | |

| PROJECT NO. | CONTROL | REV. | MAP |
|---|---|---|---|
| 1529718 | - | 2 | 6 |

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

S:\Clients\Colacem_Canada\L_Original_Cement_Plant\99_PROJ\1529718\40_PROD\0001_Archaeology\1529718-0001-HA-0006.mxd




LEGEND

- PHOTO LOCATION
- WATERCOURSE
- WETLAND
- CONCRETE FOUNDATION
- SITE BOUNDARY

0 120 240

1:7,000 METRES

**REFERENCE(S)**

CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY: BING MAPS © 2015 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18

CLIENT
COLACEM CANADA

PROJECT
L'ORIGINAL CEMENT PLANT SITE

TITLE
**PROPERTY INSPECTION RESULTS**

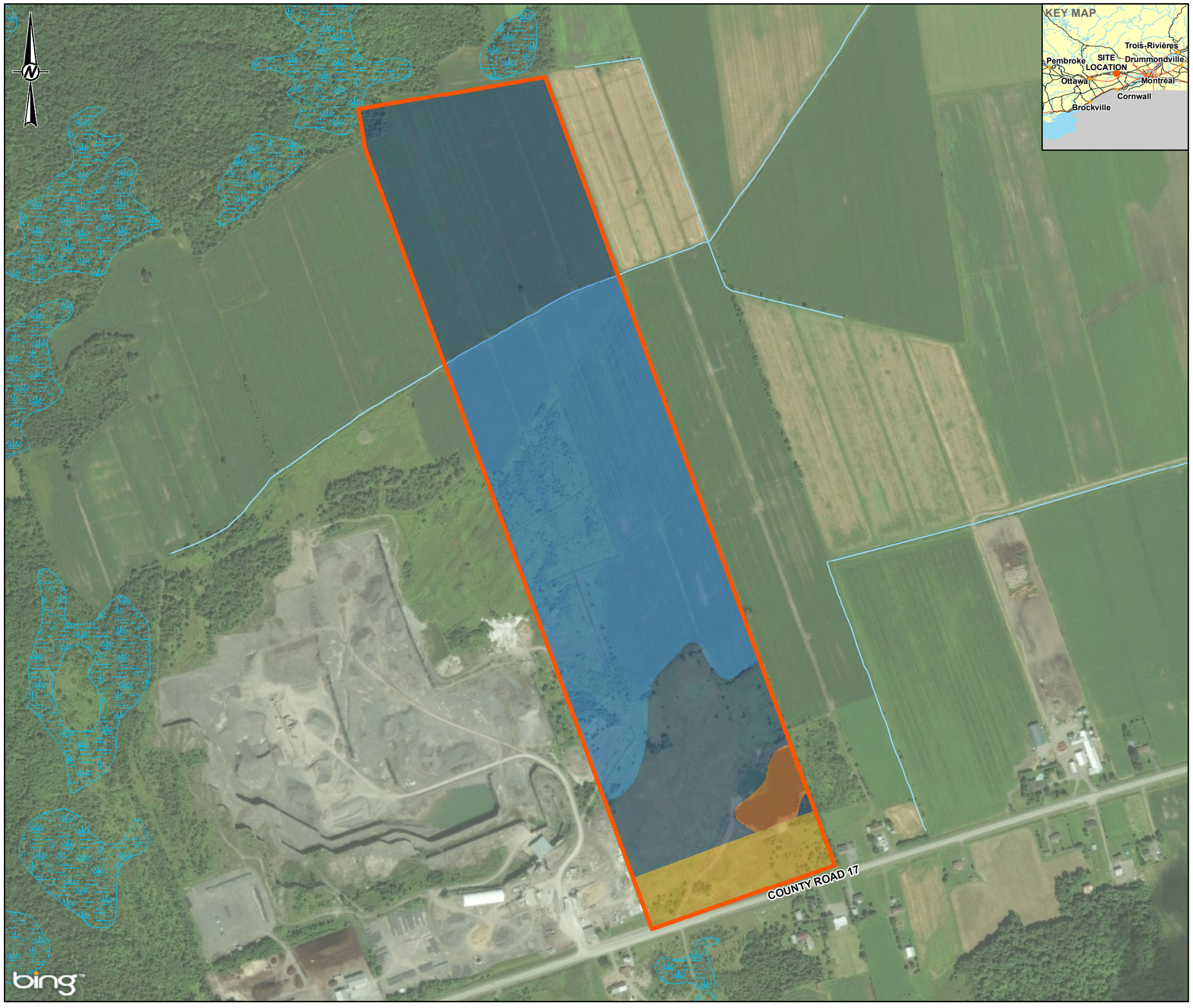
CONSULTANT
Golder Associates

| | |
|---|---|
| YYYY-MM-DD | 2015-06-16 |
| DESIGNED | ME |
| PREPARED | ME |
| REVIEWED | |
| APPROVED | |

| PROJECT NO. | CONTROL | REV. | MAP |
|---|---|---|---|
| 1529718 | - | - | 7 |

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

S:\Clients\Colacem_Canada\GIS_Original_Cement_Plant\99_PROJ\1529718\40_PROD\0001_Archaeology\1529718-0001-HA-0007.mxd




LEGEND

- WATERCOURSE
- WETLAND
- SITE BOUNDARY
- HISTORIC ARCHAEOLOGICAL POTENTIAL
- PRE-CONTACT ARCHAEOLOGICAL POTENTIAL
- NO POTENTIAL POORLY DRAINED TO SATURATED FORMER SWAMP/WETLAND
- ABANDONED QUARRY

0 120 240

1:7,000 METRES

**REFERENCE(S)**

CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED.
MNR LIO, OBTAINED 2015
PRODUCED BY GOLDER ASSOCIATES LTD UNDER LICENCE FROM
ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2015
IMAGERY: BING MAPS © 2015 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS
PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 18

CLIENT
COLACEM CANADA

PROJECT
L'ORIGINAL CEMENT PLANT SITE

TITLE
**AREAS OF ARCHAEOLOGICAL POTENTIAL**

CONSULTANT
Golder Associates

| | |
|---|---|
| YYYY-MM-DD | 2015-08-13 |
| DESIGNED | ME |
| PREPARED | ME |
| REVIEWED | |
| APPROVED | |

| PROJECT NO. | CONTROL | REV. | MAP |
|---|---|---|---|
| 1529718 | - | 3 | 8 |

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

S:\Clients\Colacem_Canada\L_Original_Cement_Plant\99_PROJ\1529718_EIS\40_PROD\0001_Archaeology\1529718-0001-HA-0008.mxd

## 12.0 CLOSURE

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.**

Stephen R. Jarrett, M.A.
Staff Archaeologist

Hugh J. Daechsel, M.A.
Principal, Senior Archaeologist

SRJ/HJD/ca/wlm

https://capws.golder.com/sites/1525516colacemlorignal/discipline folders/8000 archaeology/stage 1 report/gal-locpp-0016 draft stage 1 archaeological assessment.docx

Golder, Golder Associates and the GA globe design are trademarks of Golder Associates Corporation.

# APPENDIX A

## Photographic Catalogue

# APPENDIX A

| Photo Number | Description | Direction | Date | Photographer |
|---|---|---|---|---|
| 1529718 - 01 | View N into swamp immediately northeast of the project footprint | N | 6/19/2015 | SJ |
| 1529718 - 02 | View S from the northeast corner of the study area (SA) | S | 6/19/2015 | SJ |
| 1529718 - 03 | View down of soil/crop conditions in northeast corner of the study area | N/A | 6/19/2015 | SJ |
| 1529718 - 04 | View W along north edge of study from northeast corner | W | 6/19/2015 | SJ |
| 1529718 - 05 | View S of ditchline between fields at north end of study area | S | 6/19/2015 | SJ |
| 1529718 - 06 | View S of cornfield at northeast corner of study area | S | 6/19/2015 | SJ |
| 1529718 - 07 | View N of bush area at northwest corner of study area | N | 6/19/2015 | SJ |
| 1529718 - 08 | View W of bush area showing exposed bedrock at northwest corner of SA | W | 6/19/2015 | SJ |
| 1529718 - 09 | View E showing drainage within cornfield | E | 6/19/2015 | SJ |
| 1529718 - 10 | View S of cornfield showing failed corn growth | S | 6/19/2015 | SJ |
| 1529718 - 11 | View down of celt on surface | N/A | 6/19/2015 | SJ |
| 1529718 - 12 | View down of celt on surface | N/A | 6/19/2015 | SJ |
| 1529718 - 13 | View NE of area east of celt | NE | 6/19/2015 | SJ |
| 1529718 - 14 | View of drainage in soy field at north end of the study area | NE | 6/19/2015 | SJ |
| 1529718 - 15 | View E of intersection of artificially cut drainages in north portion of SA | E | 6/19/2015 | SJ |
| 1529718 - 16 | View W along deeply cut artificial drainage | W | 6/19/2015 | SJ |
| 1529718 - 17 | View NW of culvert within artificial drainage | NW | 6/19/2015 | SJ |
| 1529718 - 18 | View NE of intersection of artificially cut drainages | NE | 6/19/2015 | SJ |
| 1529718 - 19 | View NE along lowest area within the project footprint | NE | 6/19/2015 | SJ |
| 1529718 - 20 | View N of section 1 from south edge | N | 6/19/2015 | SJ |
| 1529718 - 21 | View down of crop/soil conditions at intersection of Section 1 and 2 | N/A | 6/19/2015 | SJ |
| 1529718 - 22 | View E along drainage at lowest point in study area | E | 6/19/2015 | SJ |
| 1529718 - 23 | View W along drainage at lowest point in study area | W | 6/19/2015 | SJ |
| 1529718 - 24 | View down of soil conditions in lowest point in study area | N/A | 6/19/2015 | SJ |
| 1529718 - 25 | View S of soy field in the east end of Section 2 | S | 6/19/2015 | SJ |
| 1529718 - 26 | View SW of soy fields adjacent to brush area in Section 2 | SW | 6/19/2015 | SJ |
| 1529718 - 27 | View S of soy field in the east end of Section 2 | S | 6/19/2015 | SJ |
| 1529718 - 28 | View S of soy field in the east end of Section 2 | S | 6/19/2015 | SJ |
| 1529718 - 29 | View N of centreline ditch in Section 2 | N | 6/19/2015 | SJ |

| Photo Number | Description | Direction | Date | Photographer |
|---|---|---|---|---|
| 1529718 - 30 | View N of artificially cut ditch within brush area of Section 2 | N | 6/19/2015 | SJ |
| 1529718 - 31 | View SE of rise in elevation from Section 2 to Section 3 | SE | 6/19/2015 | SJ |
| 1529718 - 32 | View N of open area in brush area of Section 2 | N | 6/19/2015 | SJ |
| 1529718 - 33 | View SW of new growth poplar tree area in Section 2 | SW | 6/19/2015 | SJ |
| 1529718 - 34 | View NE of open area in brush area of Section 2 | NE | 6/19/2015 | SJ |
| 1529718 - 35 | View N of area of pushed soil in Section 2 | N | 6/19/2015 | SJ |
| 1529718 - 36 | View N of undisturbed cedar treed area in southwest corner of Section 2 | N | 6/19/2015 | SJ |
| 1529718 - 37 | View SE of wet area in southwest corner of Section 2 | SE | 6/19/2015 | SJ |
| 1529718 - 38 | View E of winter wheat crop in Section 3 | E | 6/19/2015 | SJ |
| 1529718 - 39 | View W of winter wheat crop and Quarry | W | 6/19/2015 | SJ |
| 1529718 - 40 | View down of winter wheat | N/A | 6/19/2015 | SJ |
| 1529718 - 41 | View W of north wall of concrete foundation 50m from road central in SA | W | 6/19/2015 | SJ |
| 1529718 - 42 | View S of interior of concrete foundation | S | 6/19/2015 | SJ |
| 1529718 - 43 | View NE of disturbed roadway leading to quarry pit | NE | 6/19/2015 | SJ |
| 1529718 - 44 | View E of winter wheat crop adjacent to roadway | E | 6/19/2015 | SJ |
| 1529718 - 45 | View SE of quarry pit from west edge | SE | 6/19/2015 | SJ |
| 1529718 - 46 | View NE of quarry pit from west edge | NE | 6/19/2015 | SJ |
| 1529718 - 47 | View N of quarry pit from south edge | N | 6/19/2015 | SJ |
| 1529718 - 48 | View S of area south of quarry pit | S | 6/19/2015 | SJ |
| 1529718 - 49 | View S of concrete footings for ramp south of quarry pit | S | 6/19/2015 | SJ |
| 1529718 - 50 | View NE of concrete footings for ramp south of quarry pit | NE | 6/19/2015 | SJ |
| 1529718 - 51 | View NW of ramps and quarry pit | NW | 6/19/2015 | SJ |
| 1529718 - 52 | View W along roadway from southeast corner of study area | W | 6/19/2015 | SJ |
| 1529718 - 53 | View NE of winter wheat from southwest corner of study area | NE | 6/19/2015 | SJ |
| 1529718 - 54 | View S of wet area in southwest corner of study area | S | 6/19/2015 | SJ |
| 1529718 - 55 | View E of open area along roadway in southwest corner | E | 6/19/2015 | SJ |
| 1529718 - 56 | View E of interior of concrete foundation in southwest corner of study area | E | 6/19/2015 | SJ |
| 1529718 - 57 | View SE of interior of concrete foundation in southwest corner of SA | SE | 6/19/2015 | SJ |
| 1529718 - 58 | View E of interior of concrete foundation in southwest corner of SA | E | 6/19/2015 | SJ |

| Photo Number | Description | Direction | Date | Photographer |
|---|---|---|---|---|
| 1529718 - 59 | View N of interior of concrete foundation in southwest corner of SA | N | 6/19/2015 | SJ |
| 1529718 - 60 | View SE of fallow field north of quarry pit | SE | 6/19/2015 | SJ |
| 1529718 - 61 | View NE of south end of soy field in southeast corner of Section 1 | NE | 6/19/2015 | SJ |

SJ – Stephen Jarrett

https://capws.golder.com/sites/1525516colacemlorignal/discipline folders/8000 archaeology/stage 1 report/appendix a.docx

# APPENDIX B

## Artifact Catalogue

| ID | Northing | Easting | Material 1 | Material 2 | Function | Object | Fragment | # of Artifacts | Note |
|---|---|---|---|---|---|---|---|---|---|
| 001 | 518529 | 5050460 | stone | schist | tools/equipment | celt | complete | 1 | 129.6x55.61x20.04 mm |

As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth's development while preserving earth's integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

For more information, visit golder.com


| | |
|---|---|
| Africa | + 27 11 254 4800 |
| Asia | + 86 21 6258 5522 |
| Australasia | + 61 3 8862 3500 |
| Europe | + 356 21 42 30 20 |
| North America | + 1 800 275 3281 |
| South America | + 56 2 2616 2000 |

solutions@golder.com
www.golder.com

**Golder Associates Ltd.**
**32 Steacie Drive**
**Kanata, Ontario, K2K 2A9**
**Canada**
**T: +1 (613) 592 9600**


Golder Associates