PIF P039-176-2012

STAGE 1 ARCHAEOLOGICAL ASSESSMENT OF LAKELAND MEADOWS (PHASE II) E½ LOT 8 CONCESSION 4 OSGOODE TWP. (GEO), CITY OF OTTAWA

prepared for: Holzman Land Development Consultants
1076 Castlehill Crescent
Ottawa ON K2C 2A8
Tel. (613) 226-1386 holzman@rogers.com

prepared by: Ken Swayze
Archaeological Consultant, Lic. # P039
Kinickinick Heritage Consulting
R. R. # 5 Cobden, Ontario K0J 1K0
Tel. (613) 791-4391Fax.: (613) 646-2700

April 2012

PIF P039-176-2012 Kinickinick Heritage Consulting K. Swayze April 2012

STAGE 1 ARCHAEOLOGICAL ASSESSMENT LAKELAND MEADOWS (PHASE II), E ½ LOT 8 CONCESSION 4 OSGOODE TWP. (GEO), CITY OF O TTAWA

In March 2012 Holzman Land Development Consultants contracted Ken Swayze, of Kinickinick Heritage Consulting, to prepare a Stage 1 archaeological assessment of a parcel of land in Ottawa on the west side of Old Prescott Road where a residential subdivision is planned.

The objective of a Stage 1 archaeological assessment is to provide background information about the development property's geography, history, land use, previous archaeological fieldwork, and current condition. These data are used to evaluate archaeological potential to determine if Stage 2 assessment is warranted for all, or part, of the development zone. If Stage 2 assessment is warranted, the report recommends an appropriate Stage 2 survey strategy.

The study area is 101 acres, or 40 ha located at the source of the North Castor River. It has 2 m low irregular relief ranging from 99 m asl to 103 m asl. The house, sheds, and barns of the southern homestead were laid out in a line behind the house. The fields on the south half have been cultivated while the lands on the north side were pastures amid a number of small swamps filled with organic terrain. The well-drained land consists of *Kars* gravelly sandy loam with sandy patches that is more like *Uplands* sandy loam. The western fields are poorly drained *Manotick* fine sandy loam, which was brought into production in the late 19th century through tiles drainage and a municipal system of drains. About mid-20th century a dairy barn and silo were built along the southern boundary about 100 m southeast of the house. The property has not been used for agricultural purposes for many years and the fields in the western part are now overgrown with shrubs and saplings.

Belden's *Historical Atlas of Carleton County* indicates that in 1878 all of Lakeland Meadows was in the tenure of one William Stanley and it shows two buildings, in the northeast and southeast corners, set back over 100 m from Old Prescott Road. Only the southern farmstead is extant today. The northern building is not shown on a 1930s base map or in historical aerial imagery from 1945, although a lane that connected the two homesteads is still visible.

Lakeland Meadows was submerged during the Champlain Sea maximum; however, during the recessional phase when sea level was at about 100 m asl, it would have been a beach accessible to people in small water craft. Although it would have been low and exposed—and for that reason probably not attractive for habitation—there could have been many attractive natural resources available: ranging from lithic raw materials; to the availability of waterfowl or marine mammals; and availability of fresh water from a pond. From about 10,500 to 10,000 BP, the Ancestral Rideau River formed an elongated estuary that stretched from Big Rideau Lake to Merivale, and bounded on the east and west by beaches formed on ice-contact stratified drift. The beach formation, which consists of well-sorted sand and gravel, covers the eastern half of Lakeland Meadows Phase 2 and includes relatively large areas of organic terrain that were fresh water ponds when the sea level was between 91 to 99 m asl. After 9,500 BP the water level fell below 90 m asl and was quite removed from the study area. From the Late Archaic through Woodland periods Lakeland Meadows would have had low attraction and therefore low potential for the formation of archaeological deposits.

According to the City of Ottawa predictive model, the eastern half of Lakeland Meadows Phase 2 has potential for Pre-Contact Period archaeological remains. The western half has low archaeological potential because of its poorly drained soil condition. There is also potential for historical period archaeological material in the vicinity of the extant homestead and in the northeast corner where there was a 19th century dwelling. The consultant recommends Stage 2 archaeological assessment of the area of high archaeological potential. The fields will require pedestrian survey of bare, weathered, soil at 5 m transect intervals. The areas of potential that cannot be ploughed will require test pit survey at 5 m intervals. Previously disturbed or developed areas and organic terrain do not require assessment. The poorly drained land with low archaeological potential does not require Stage 2 assessment. A licenced archaeological consultant should carry out the Stage 2 assessment in accordance with the Provincial standards and guidelines.

TABLE OF CONTENTS

LIST OF MAPS AND IMAGES

STAGE 1 ARCHAEOLOGICAL ASSESSMENT LAKELAND MEADOWS (PHASE II), E ½ LOT 8 CONCESSION 4 OSGOODE TWP. (GEO), CITY OF OTTAWA

1.0 Development Context

In March 2012 Holzman Land Development Consultants, of Ottawa, contracted Ken Swayze, of Kinickinick Heritage Consulting, to prepare a Stage 1 archaeological assessment, according to the *Standards and Guidelines for Consultant Archaeologists* (OMTC 2011), of a parcel of land in Ottawa (Figures 1 and 3) where a residential subdivision is planned (Figure 2). The development property is located on the west side of Old Prescott Road and about 2 km south of Mitch Owens Road.

The objective of a Stage 1 archaeological assessment is to provide background information about the development property's geography, history, land use, previous archaeological fieldwork, and current condition. These data are used to evaluate archaeological potential to determine if Stage 2 assessment is warranted for all, or part, of the development zone. If Stage 2 assessment is warranted, the report recommends an appropriate Stage 2 survey strategy.

2.0 Historical Context

The study area is 101 acres, or 40 ha located at the source of the North Castor River (Figure 2) and it has low irregular relief of two metres ranging from 99 m asl, in the south west corner, to 103 m asl, on top of a low knoll between two wetlands in the middle of the property (Figure 4, 12c).

Belden's *Historical Atlas of Carleton County* indicates that in 1878 all of lot 8 Concession 4 Osgoode Twp. was in the tenure of one William Stanley and it shows two buildings, in the northeast and southeast corners, set back over 100 m from Old Prescott Road. Only the southern farmstead is extant today. The northern building is not shown on the on the 1930s base map that accompanies Report No. 7 of the Ontario Soil Series (Hills *et al.* 1944), or in historical aerial imagery dating to 1945, although a lane that connected the two homesteads is still visible (Figure 6a).

The historical image indicates that the house, sheds, and barns of the southern homestead were laid out in a line behind the house. The fields on the south half of the study area appear to have been cultivated while the lands in the centre and along the north side were pastures amid a number of small swamps filled with organic terrain. The well-drained land consists of *Kars* gravelly sandy loam with sandy patches that is more like *Uplands* sandy loam (Marshal *et al.* 1979). The western fields are poorly drained *Manotick* fine sandy loam, which was brought into production in the late 19th century through tiles drainage and a municipal system of drains.

Comparison between modern and historical aerial photographs (Figure 6) also shows that, about mid-20th century, a dairy barn and silo were built along the southern

boundary about 100 m southeast of the house. The barn was still used in 1987, when Figure 6b was taken, but except for the front fields, the property has not been used for agricultural purposes for many years and the fields in the western part of the study area are now overgrown with shrubs and saplings.

3.0 Archaeological Context

This section considers the known and recorded archaeological sites in the immediate vicinity of the study area as well as previous research and a discussion of the early postglacial period in the Ottawa Valley.

3.1 Known and Recorded Sites in the Vicinity

Charles Borden (1952) designed a site registration system that is used throughout Canada. A "Borden Block" is a co-ordinate system that uses upper and lower case letters and is ten degrees latitude (long) by ten degrees longitude (wide). Canadian archaeologists refer to "Borden Blocks" and "Borden Numbers" and "Bordenize" sites when they register them. Sites within a Borden Block are numbered sequentially.

The study area is in the BhFv Borden Block and, according to the OMTCS site database, there are no archaeological sites recorded within 1 km radius.

3.2 Surficial Geology and Soils

The following account references the dates of geological episodes to cultural time periods in order to underline the effect these processes had upon the relative attractiveness of the property for human use, either for habitation or specific resource exploitation activities. The cultural periods referred to, and their approximate dates before present (BP) are: Palaeo-Indian 11,500-10,000 BP; Early Archaic 10,000-6,000 BP; Middle Archaic 6,000-4,500 BP; Late Archaic 4,500-2,500 BP; Woodland 2,500 BP-1,600 AD and Historic 1600-1900 AD. The consultant refers to a chronological framework established by Gadd (1987); Fulton and Richard (1987); Gilbert (1994); Wright (1995; *etc*.) Dates are expressed here as either 'years ago', or 'BP', which means Before Present (the 'present' being 1950 AD.)

The most significant and dramatic effect of deglaciation, in eastern Ontario, was the creation of the Champlain Sea, which existed for almost two millennia and its recession, through a series of fluvial lakes, for another millennium. Beginning about 12,700 BP the entire St. Lawrence Lowlands was submerged under the Champlain Sea (Gilbert 1994:6). The maximum extent of the Champlain Sea has been radiocarbon dated (from shells) to 11,400 BP, at 170 m a.s.l. near Shawville, and to 11,000, at 160 m near Martindale in the Gatineau Valley—dates are approximate—and at Almonte and Rigaud, the high water level has been dated, to 11,200 BP, at 154 m, and 160 m a.s.l., respectively (Fulton and Richard (1987: Table 7). Thus, the period of maximum extent of the Champlain Sea corresponded with the Palaeo-Indian period. Over the next millennium the delta of an enormous river prograded down the

Ottawa Valley from Petawawa to Hawksbury. But then, as the sea level rose, the land rebounded from the weight of the ice-sheet until, by 10,000 BP—Late Palaeo-Indian/Early Archaic—the Ancestral Ottawa River flowed into a riverine/lacustrine body of water called Lake Lampsilis. This post-glacial lake was still much higher than the Ottawa River today. According to Fulton and Richard (1987:25) the level of this body of water was still as high as 94 m a.s.l. at Deschênes in 10,100 BP. It has been dated from three locations in the Ottawa vicinity to between 7,870 BP and 8,830 BP at 60 to 70 m a.s.l. (Fulton and Richard 1987:26, Table 7).

During the Palaeo-Indian and Early Archaic periods, the entire Upper Great Lakes, and northern Ontario and northern Québec, drained through the Ottawa Valley, first debouching solely through the Barron and Petawawa Rivers, and later also via the North Bay/Mattawa route. The volume of water through the Ottawa system was enormous—almost inconceivable—relative to today. This gargantuan flow was compounded at intervals, between 10,800-10,000 BP and again between 9,500-8,000 BP, by 'slugs' of floodwater from post-glacial Lake Agassiz, which then occupied much of the prairie provinces (Teller 1988). These 'slugs', with additional volumes of 500 km^3 to 4,000 km^3, would obviously have been of catastrophic in nature, and would have affected the habitability of the shorelines of the recessional stages of the Champlain Sea and the Ancestral Ottawa River. Lewis and Anderson (1989) have estimated that the flow of the Ancestral Ottawa River during one of these slugs was 200,000 m^3/s, or 200 times the average flow today. The floodwaters almost certainly had an effect upon the archaeological record of low lying areas, scouring some away, and deeply burying others.

After about 8,000 BP (in Middle Archaic times) post-glacial Lakes Agassiz and Barlow-Ojibway ceased to support recessional Lake Lampsilis in the Ottawa drainage basin but the upper Great Lakes still contributed to the flow of the Ancestral Ottawa, until about 5,500, when two other outlets also began to drain them to the south. The modern continental drainage—and environment—was established about 4,700 BP when the flow over the Nipissing-Mattawa threshold ceased (Fulton and Richard 1987:28).

The study area lies between 99 and 103 m asl and was submerged during the period of the Champlain Sea maximum; however, during the recessional phase, when sea level was at about 100 m asl, the east half of lot 8 would have been a beach accessible to people in small water craft. Although it would have been low and exposed—and for that reason probably not attractive for habitation—there could have been many attractive natural resources available: ranging from lithic raw materials; to the availability of waterfowl or marine mammals; and availability of fresh water from a pond.

During the recessional period, from about 10,500 to 10,000 BP, the Ancestral Rideau River formed an elongated estuary that stretched from Big Rideau Lake to Merivale (Figure 7), and was bounded on the east and west by beaches formed on ice-contact stratified drift (Figure 8). The beach formation, which consists of well-sorted sand

and gravel (and occasional sea shells), covers the eastern half of Lakeland Meadows Phase 2 and it includes relatively large areas that are now organic terrain but were fresh water ponds when the sea level was between 91 to 99 m asl. After 9,500 BP the water level fell below 90 m asl and, although there was still an Ancestral Rideau River estuary, the shore was quite removed from the study area. In later periods (i.e. the Late Archaic through Woodland periods) the study area would have had low attraction and, therefore, low potential for the formation of archaeological deposits.

4.0 Analysis and Conclusion

The City of Ottawa master plan model of Pre-Contact Period archaeological potential (ASI and Geomatics 1999) is based on proximity to water; it establishes a 300 m buffer, which indicates archaeological potential, along major shorelines, modern and relic, and a 100 m buffer along minor shorelines of streams and wetlands, where there are well drained or imperfectly drained soils. To predict the potential for Historical Period archaeological sites, the City model establishes a 100 m radius buffer around registered archaeological sites and a 50 m buffer on each side of historical roads, such as the Old Prescott Road. While the proximity to water buffers omit poorly drained terrain, they are "painted with a broad brush" and do not take local all local drainage conditions into account.

According to the *Archaeological Resources Potential Mapping Study* (ASI and Geomatics 1999), the eastern half of Lakeland Meadows has potential for Pre-Contact Period archaeological remains that coincide with the distribution of Kars gravelly loam, the ice-contact drift, and the Champlain beaches (Figure 11a). The terrain of the western half of the study area has low archaeological potential for Pre-Contact archaeological sites because of its poorly drained soil condition. Although it was not captured by the 50 m buffer along Old Prescott Road, there is also potential for Historical Period archaeological material in the vicinity of the extant homestead buildings—but not the remains of the modern dairy barn—and in the northeast corner where there was formerly a 19th century dwelling. The consultant concurs with the City of Ottawa model; however he points out that 1) pre-contact potential exists only for early postglacial archaeological remains; and 2) previously disturbed areas and organic terrain have low or nil potential.

5.0 Recommendations

The consultant recommends Stage 2 archaeological assessment of the areas of high archaeological potential that is shaded green in Figure 11. Figure 11b presents a more detailled map of archaeological potential that takes into account areas that do not require Stage 2 assessment. In Figure 11b, the fields indicated by "A" will require pedestrian survey of bare, weathered, soil at 5 m transect intervals. In order to facilitate pedestrian survey in formerly cultivated areas, the Provincial standards and guidelines (OMCTS 2011) require that these fields be ploughed *and* cultivated. The area indicated "B" in Figure 11b requires test pit survey at 5 m intervals. Test pits should also be excavated up to the foundations of the existing and former homesteads.

Test pits should be at least 30x30 cm and should be excavated by hand with a shovel and trowel to the parent material. The back dirt should be passed through a 6mm mesh and the screen and soil profile inspected for archaeological material and human remains. Previously disturbed or developed areas (such as buildings or rock piles) and organic terrain do not require assessment, or are not testable by normal means. These are the black areas in Figure 11b. The poorly drained land at the west end of the study area has low archaeological potential and does not require Stage 2 assessment. This area is gray in Figure 11b.

A licenced archaeological consultant should carry out the Stage 2 assessment in accordance with the Provincial standards and guidelines (OMTCS 2011).

6.0 Advice on Compliance with Legislation

Advice on compliance with legislation is not part of the archaeological record. However, for the benefit of the proponent and approval authority in the land use planning and development process, the OMTC standards and guidelines require the following three caveats:

1. This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c0.18. The report is reviewed to ensure that the licensed consultant archaeologist has met the terms and conditions of their archaeological licence, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the culture heritage of Ontario.

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

3. The *Cemeteries Act* requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries, Ministry of Small Business and Consumer Services.

7.0 References

ASI and Geomatics International Inc.
1999 "The Archaeological Resource Potential Mapping Study of the Regional Municipality of Ottawa-Carleton" Planning Report submitted to the Regional Municipality of Ottawa-Carleton.

Barnett, P.J.

1988 "History of the northwestern arm of the Champlain Sea", In; Gadd, N.R. (ed.) The Late Quaternary Development of the Champlain Sea Basin, *Geological Association of Canada*, Special Paper 35, pp. 25-36.

Borden, C. E.
1952 "A Uniform Site Designation Scheme for Canada" *Anthropology in British Columbia* vol. 3:44-48, Victoria.

Fulton, R.J. and S.H. Richard
1987 "Chronology of Late Quaternary Events in the Ottawa Region" In: *Geological Survey of Canada* Paper 86-23.

Gauvin, F. and N. Clermont
1999 "Les Polissoirs Archaiques de L'ile Morrison" Canadian Journal of Archaeology vol. 22(2):127-138

Gilbert, R. (compiler)
1994 "A Field Guide to the Glacial and Postglacial Landscape of Southeastern Ontario and Part of Québec" *Geological Survey of Canada*, Bulletin 453, Ottawa Canada.

Hills, G.A., Richards, N.R., and F.F. Morwick
1944 *The Soils of Carleton County, Province of Ontario* Report No. 7 of the Ontario Soils Survey, Experimental Farms Service and Ontario Agricultural College, Ottawa

Kenney, T. C.
1964 " Sea-Level Movements and the Geologic Histories of the Post-Glacial Marine Soils at Boston, Nicolet, Ottawa and Oslo" Géotechnique vol. 14:203-230.

Lewis C.F.M. and T.W. Anderson
1989 "Oscillations of levels and cool phases of the Laurentian Great Lakes caused by inflows from glacial Lake Agassiz and Barlow-Ojibway" *Journal of Palaeolimnology* v.2:99-146.

Marshall, I.B., J. Dumanski, E.C. Huffman, and P.G. Lajoie
1979 "Soils, capability and land use in the Ottawa Urban Fringe" Report No. 47 Ontario Soil Survey, produced by Agriculture Canada and Ministry of Agriculture and Food, Ottawa.

Ontario Ministry of Tourism Culture and Sport (OMTCS)
2009 "Standards and Guidelines for Consultant Archaeologists. Fieldwork and Reporting. Ministry of Culture, Toronto.

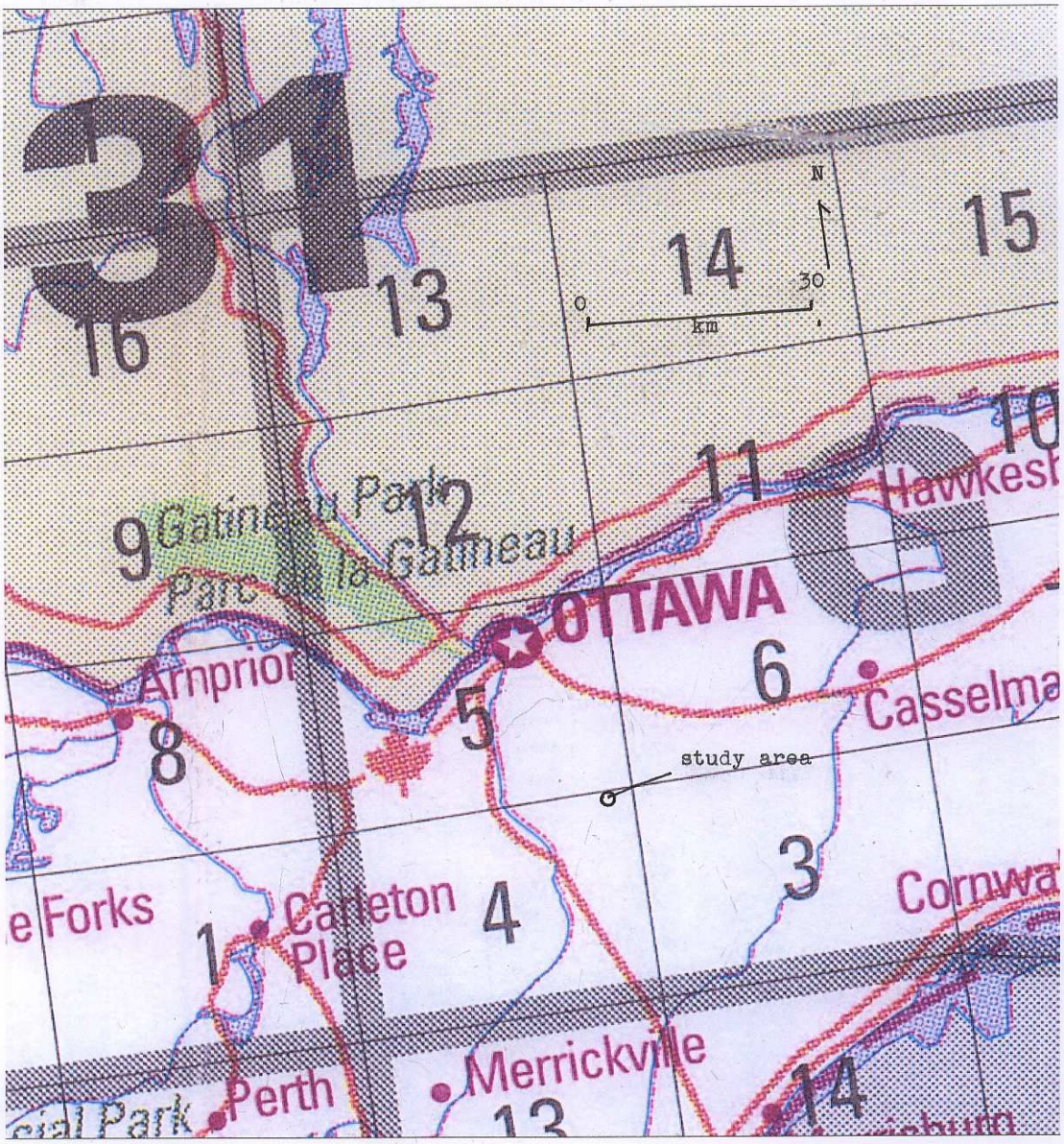


Figure 1: Regional location of study area

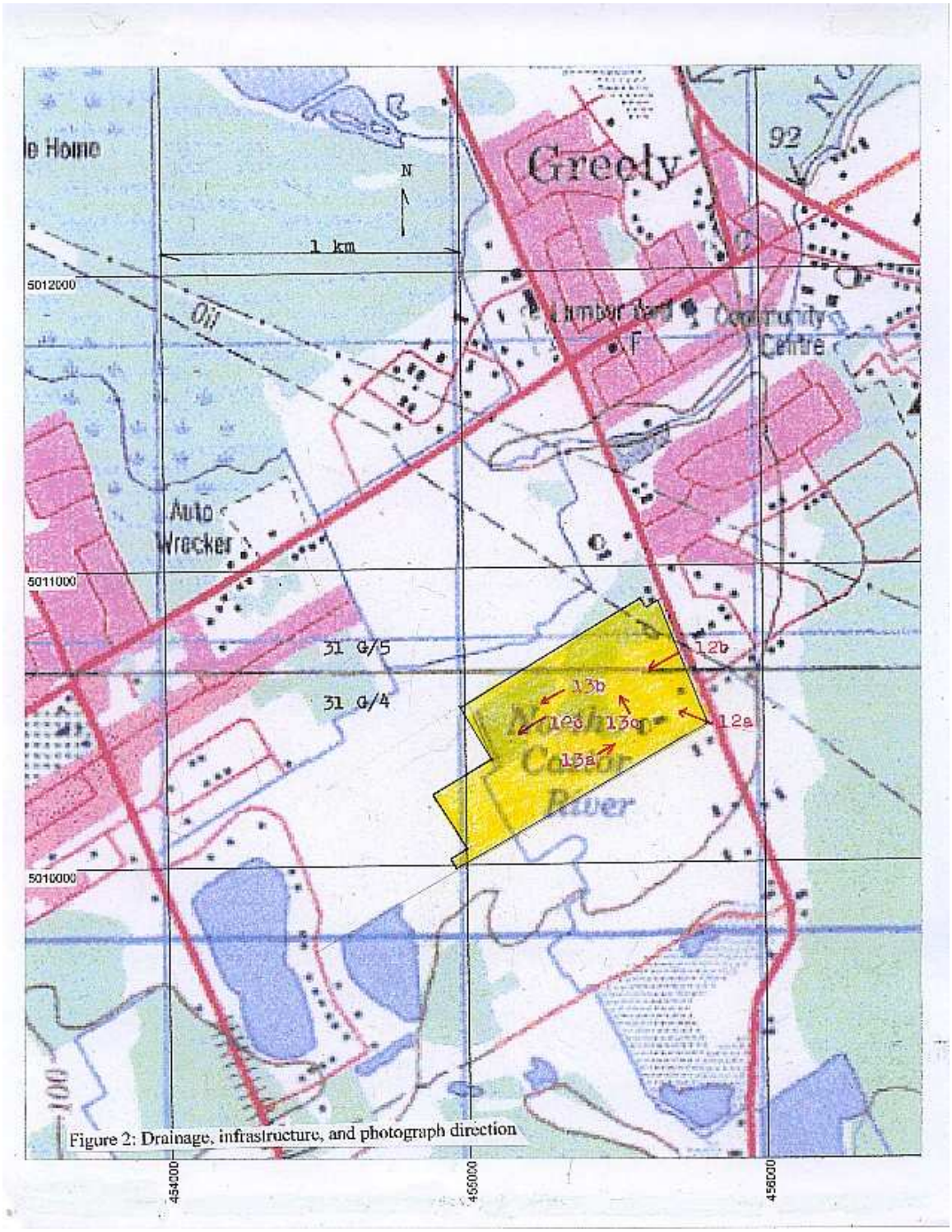


Figure 2: Drainage, infrastructure, and photograph direction

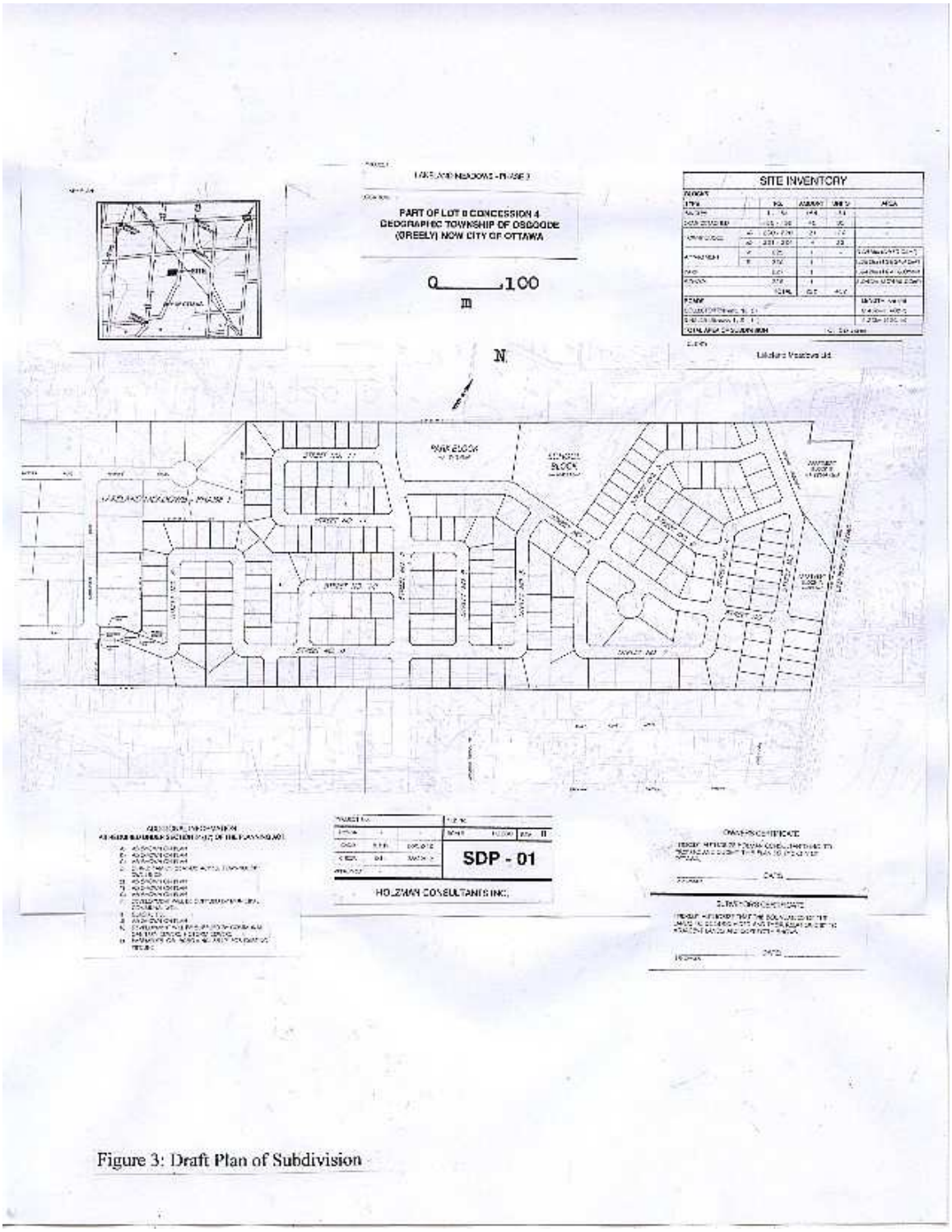


Figure 3: Draft Plan of Subdivision

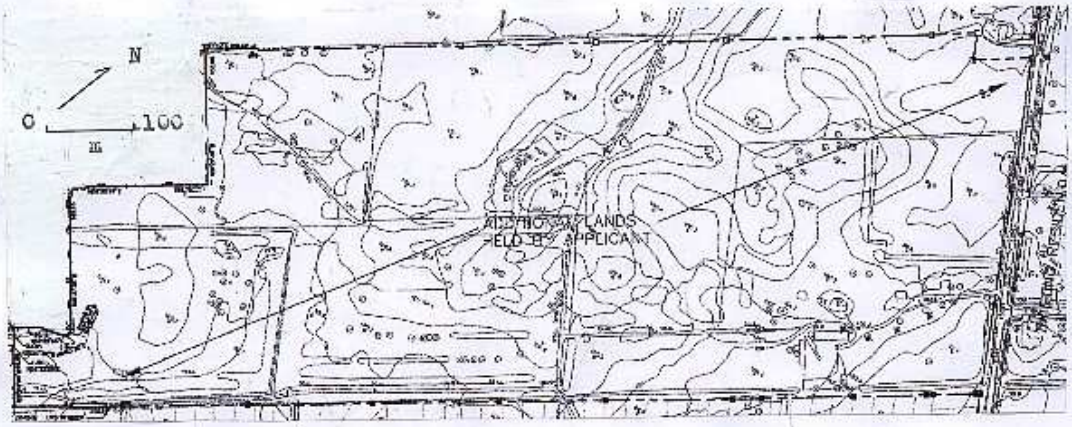


Figure 4: Topographical plan of existing features

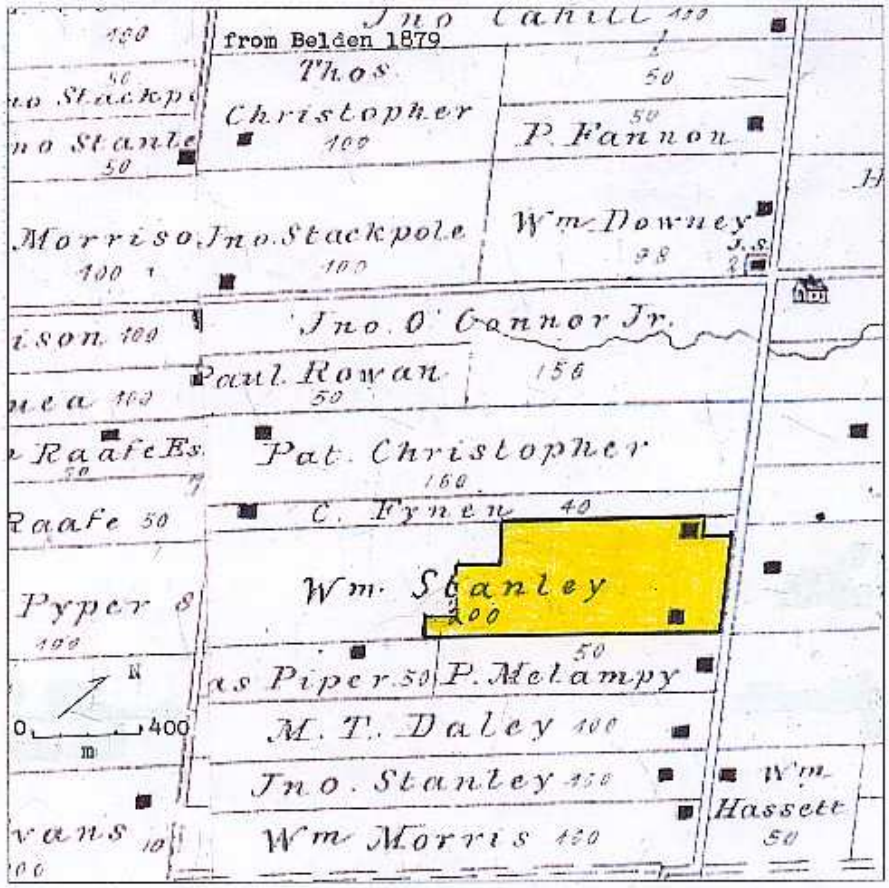


Figure 5: Land tenure about 1879

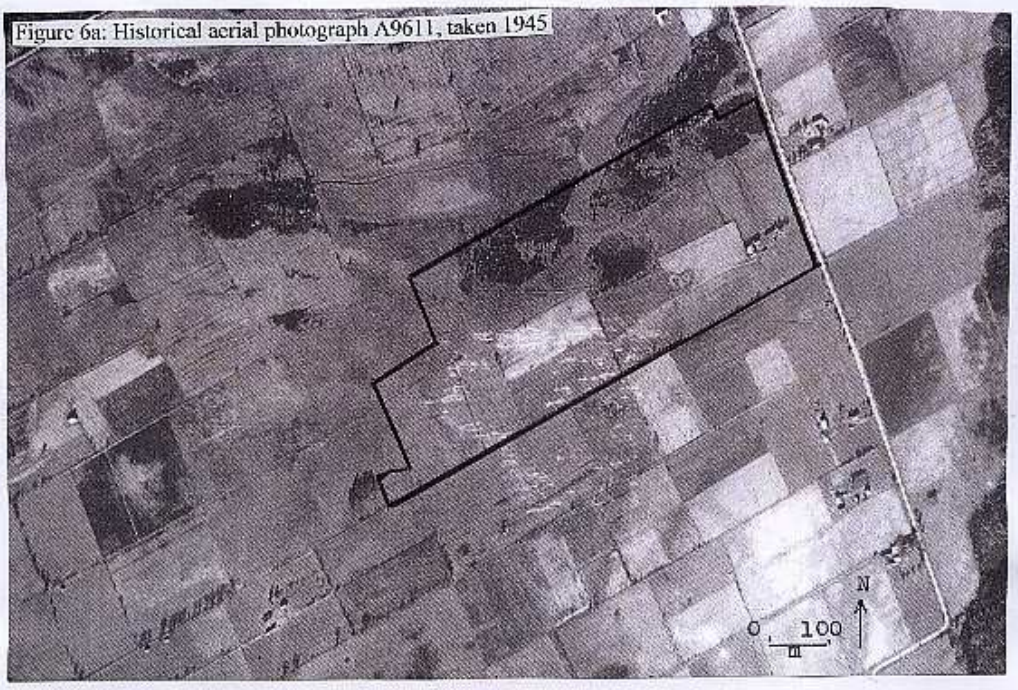


Figure 6a: Historical aerial photograph A9611, taken 1945

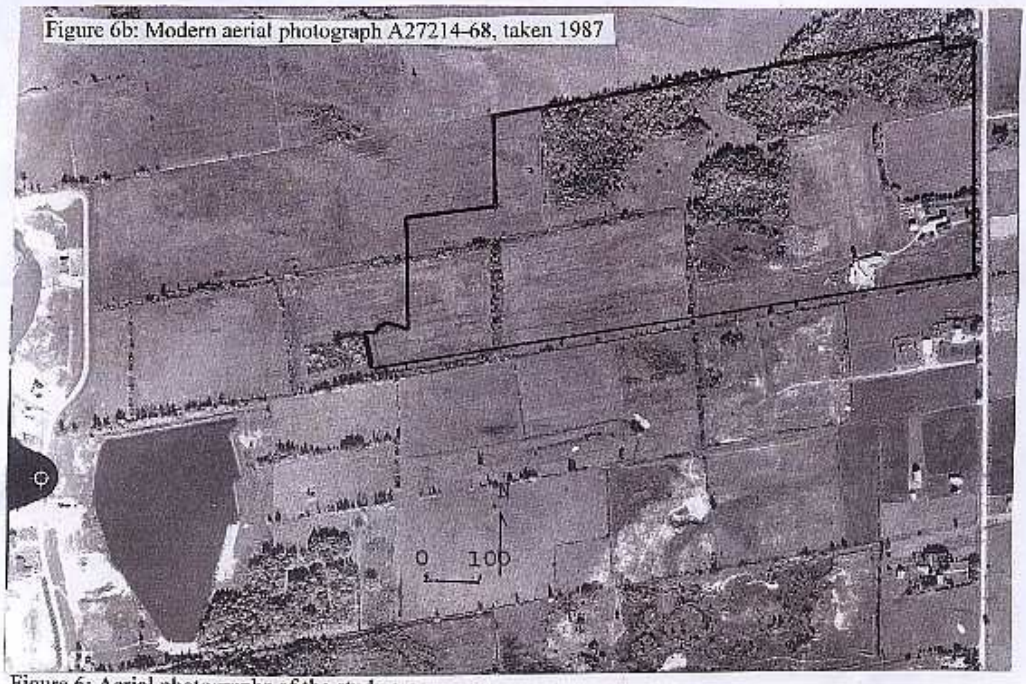


Figure 6b: Modern aerial photograph A27214-68, taken 1987

Figure 6: Aerial photographs of the study area

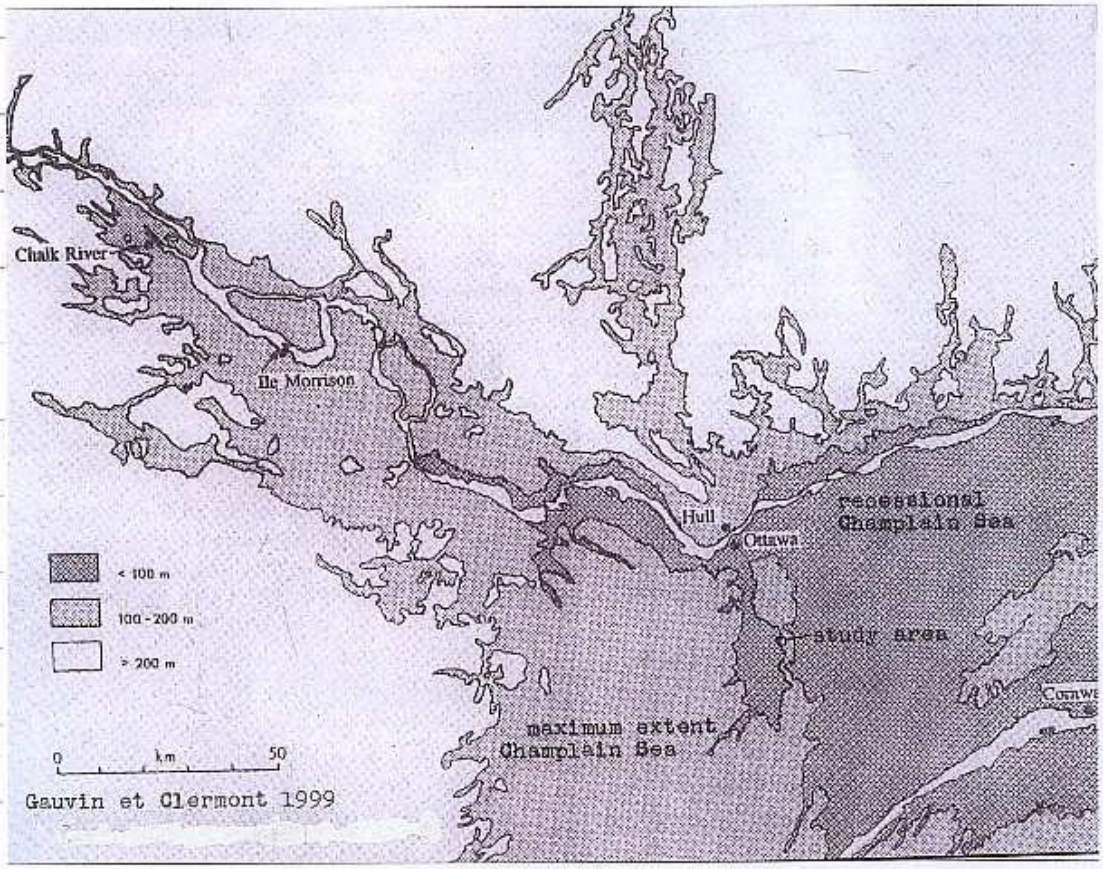


Figure 7: Relation of the study area to the recessional Champlain Sea

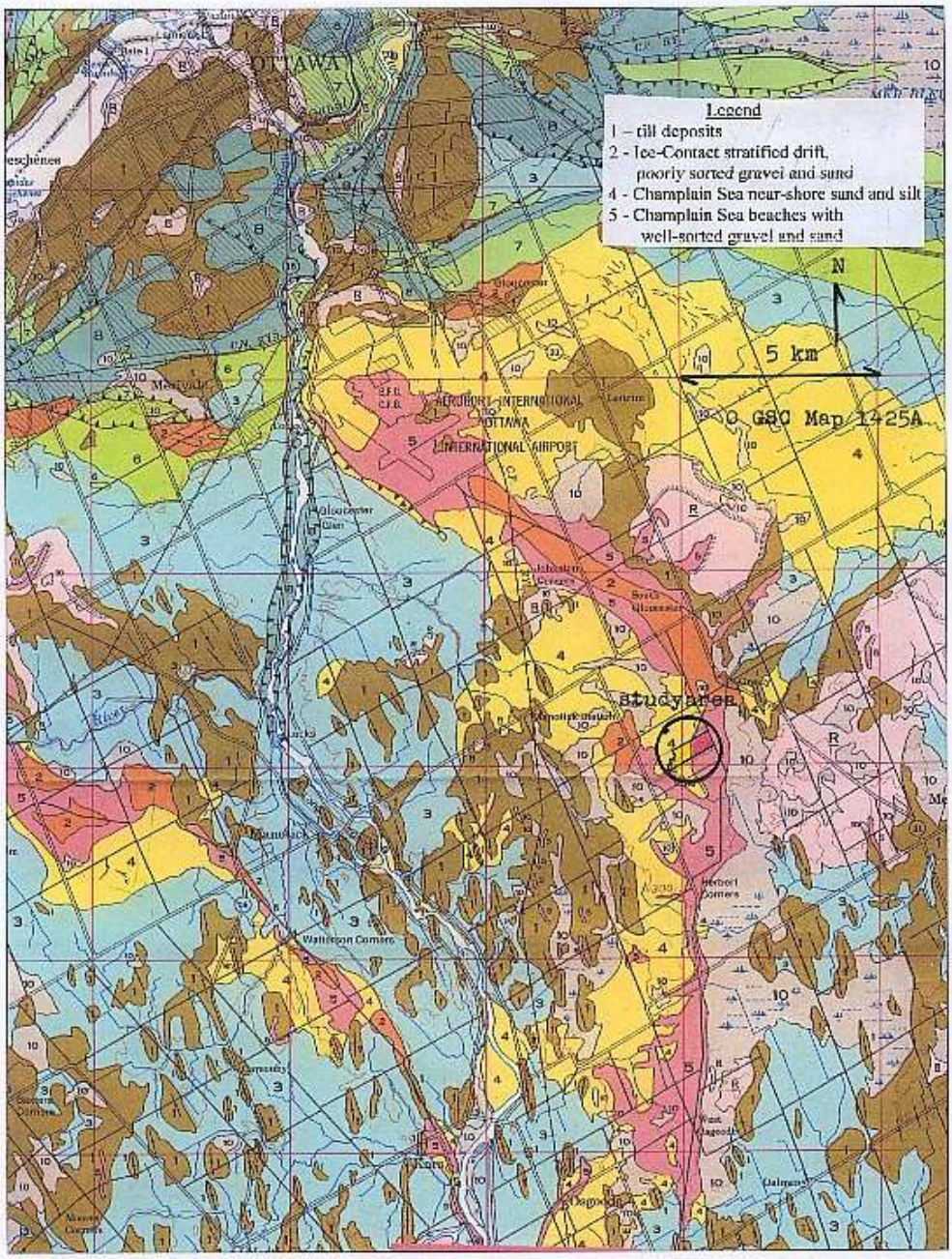


Figure 8: Surficial geology of the lower Rideau vicinity

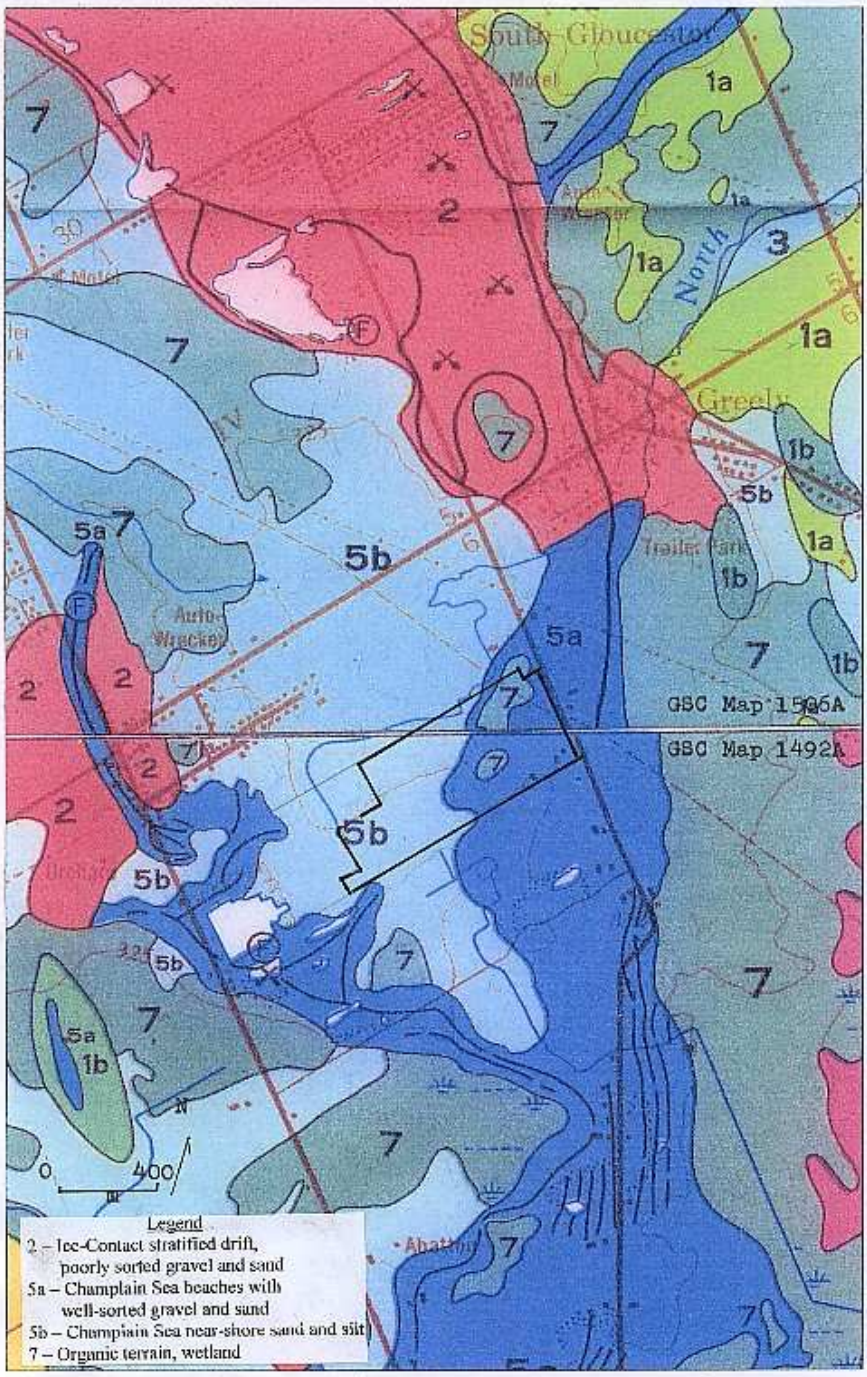


Figure 9: Surficial geology of the study area

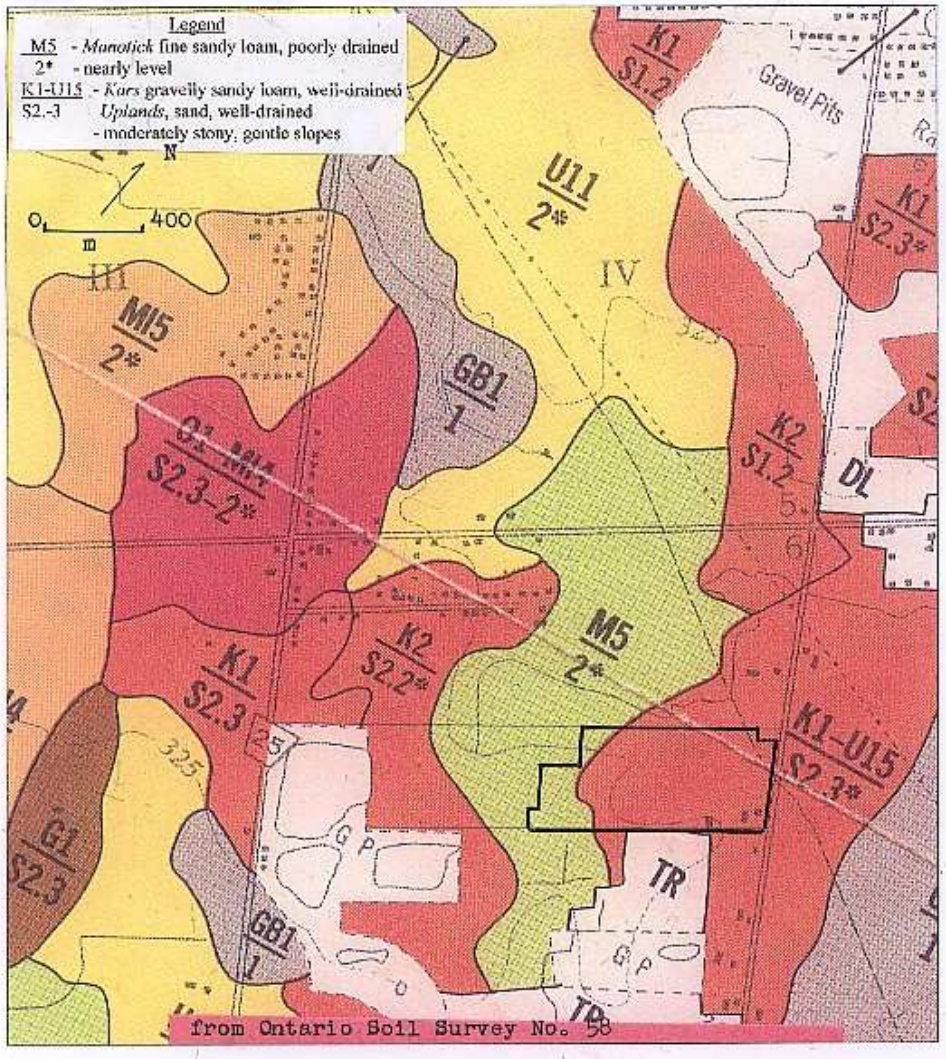


Figure 10: Soils of the study area

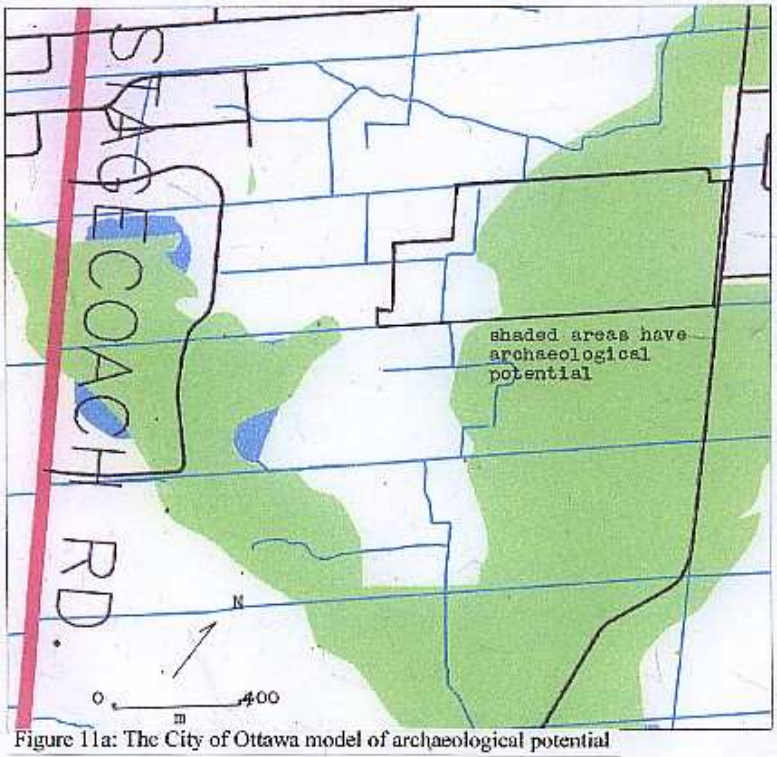
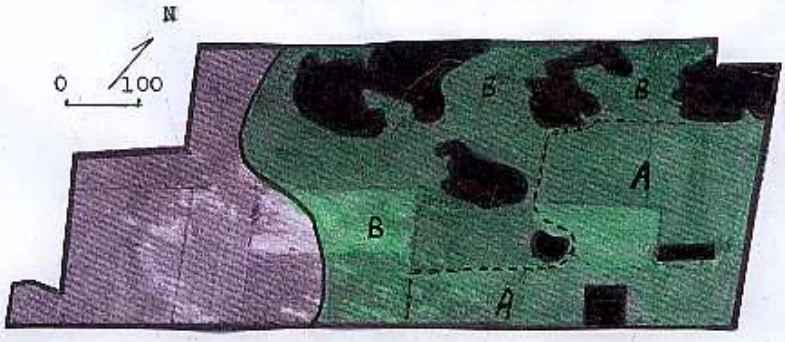


Figure 11a: The City of Ottawa model of archaeological potential



Low potential, due to poorly drained soil. No Stage 2 required.

High potential for Early Archaic and Historical archaeological material. Stage 2 assessment required. Pedestrian survey in Area A. Test pit survey in Area B

Organic terrain and previously disturbed or developed areas. Omit from Stage 2.

Figure 11b: Areas of archaeological potential

Figure 11: Archaeological Potential of Lakeland Meadows Phase 2

Figure 12a: Looking NW from SE corner

Figure 12b: Looking W at centre front field from road

Figure 12c: Looking W at a low knoll beside wetland

Figure 12: Photographs of the study area, March 2012

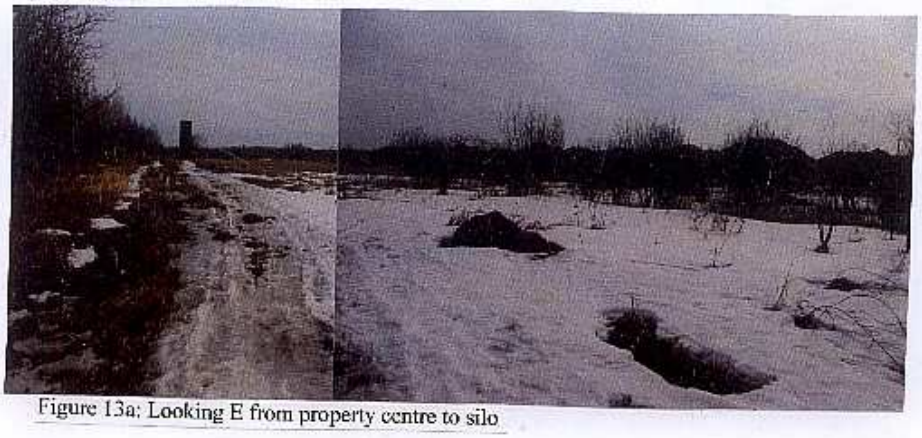


Figure 13a: Looking E from property centre to silo

Figure 13b: Looking W from trail at low knoll beside wetland

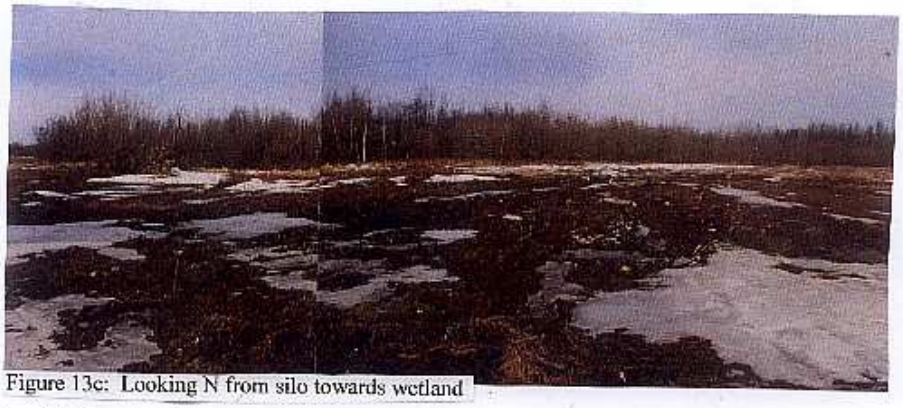


Figure 13c: Looking N from silo towards wetland

Figure 13: Photographs of the study area, March 2012