

**ARCHAEOLOGICAL MONITORING OF
GEO-TECHNICAL INVESTIGATIONS
AT THE PORTAGE EAST SITE**

Prepared for

**MANITOBA ENTERTAINMENT COMPLEX INC.,
DS-LEA CONSULTANTS LTD**

**QUATERNARY
CONSULTANTS
LIMITED**

December, 1994

EXECUTIVE SUMMARY

In connection with the geo-technical investigation of the Portage East location, archaeological monitoring of the drilling operations was conducted. All but one of the thirteen holes were drilled with a small (10 cm) diameter auger. The operations consisted of visual inspection of the auger cuttings for the upper six metres of each hole. Through the examination of the auger cuttings, it was possible to determine the sub-surface stratigraphy at each location.

Evidence of the recent Industrial Period was present at each location. The soil layers, deriving from activities since A.D. 1870, ranged in thickness from 0.6 to 4.8 metres. Most of the evidence relates to land modifications that have occurred in the last fifty years.

No evidence of archaeological horizons pre-dating the Industrial Period was observed. These horizons would occur in riverine sediments deposited by various floods over the last 9500 years. The zone closest to the Red River showed no evidence of riverine sediments and the soil horizons of the industrial period rested directly on top of the clays deposited when the entire Winnipeg region was submerged under Glacial Lake Agassiz.

While the limited monitoring program did not record any pre-Industrial Period cultural horizons, it was able to determine the portion of the area in which such resources could occur. The western portion of the area, adjacent to Pioneer Avenue and the railroad line, has the highest potential for archaeological resources of the Fur Trade and Pre-Contact Periods.

TABLE OF CONTENTS

EXECUTIVE SUMMARY i
TABLE OF CONTENTSii
LIST OF APPENDICESii
LIST OF FIGURESii
1.0 INTRODUCTION1
 1.1 Study Team1
2.0 MONITORING OF SOIL TEST DRILLING1
 2.1 Observations2
3.0 DISCUSSIONS5
4.0 BIBLIOGRAPHY8

LIST OF APPENDICES

APPENDIX A: Heritage Permit9
APPENDIX B: Recovered Artifacts12

LIST OF FIGURES

Figure 1: Soil Profiles Recorded during Drilling Program3
Figure 2: Map of Investigation Area6

1.0 Introduction

In the event that the Portage East location is selected as the site for the proposed arena, a good understanding of the underlying soil stability is required. Accordingly, a geo-technical examination was undertaken by DS-Lea Consultants Limited. Due to the potential for archaeological resources, Quaternary Consultants Limited was contracted to provide archaeological monitoring of the soil test drill holes. The operation was approved by, and conducted under, Heritage Permit A57-94 (Appendix A) issued by Historic Resources Branch, Department of Culture, Heritage and Citizenship.

The geo-technical study consisted of the drilling of thirteen holes to various depths. All were located within the area north of Pioneer Avenue and east of the rail embankment. Most holes were drilled to a depth of twenty feet (six meters). Two holes (#204 and the Observation Well) were excavated to bedrock.

Archaeological monitoring of geo-technical drill holes cannot be considered as an archaeological impact assessment, *per se*. The potential for sub-surface examination is extremely limited—thirteen small diameter holes spaced across a large area. This program can best be seen as an opportunity to gain a limited understanding of the soil stratigraphy and demarcate zones in which archaeological resources may occur.

1.1 Study Team

The soil test monitoring was conducted by Sid Kroker. Documentation and analysis has been undertaken by Sid Kroker and Pam Goundry.

2.0 Monitoring of Soil Test Drilling

The soil test operations were conducted by DS-Lea Consultants Ltd., utilizing the services of Maple Leaf Drilling and Subterranean Drilling. Archaeological investigations consisted of visual inspection of the moderately disturbed soil column observed from the auger cuttings and visual inspection of the undisturbed soil column samples retrieved from split-spoon samplers. These are tubular coring devices which are pushed into the undisturbed sediments at the base of the hole. The soil column is retrieved intact and can be examined when the tube is separated into the two vertical halves. Inasmuch as the soil strata within the investigation area consist of riverine sediments, there is a considerable variation in thickness and/or presence across short distances. A similar situation can occur with regard to archaeological deposits—occupational evidence may be localized or fairly widespread.

Given the plasticity of the soil and the resultant deformation of the soil column by the 4" auger, only thick (more than 1 cm) soil layers are readily observable. Thin horizons tend to become 'smeared' and, if observable, cannot be accurately placed in vertical context. The exceptions to this general rule are those which are noted within the split-spoon samples. However, the samples are taken at five foot (1.5 m) intervals and only provide intermittent data.

2.1 Observations

The visual inspection of the soil recoveries during the drilling program enabled the determination of the sub-surface stratigraphy of the upper six metres of all but two of the holes. Two holes (#106 and #108) were terminated when buried concrete was encountered. The profiles of the test holes are depicted in Figure 1. The data in Figure 1 has been arranged so that similar profiles are adjacent, rather than in test hole number sequence. The following text is similarly arranged.

Separate layers within each of the three main components—recent fill, riverine sediments, and Lake Agassiz clays—are not distinguished. Materials in the recent fill horizon are varied: cinders, gravel, non-local silts and clays used as fill, and sawdust. The riverine sediments were deposited during the numerous floods and high water stages that have inundated the area. Most layers are silty clay with occasional occurrences of sand, sandy silt, or clay strata. The colours of these layers range from pale yellow brown to dark black brown, reflecting the parent material and post-depositional alteration through soil formation. The Lake Agassiz clays are a grey to dark grey plastic sediment which was deposited while the Winnipeg area was covered by this massive post-glacial lake. These clays became exposed when Glacial Lake Agassiz drained approximately 9500 years ago (Last and Teller 1983). Often a buried soil zone or an oxidization horizon occurs at the top of the Lake Agassiz clays.

Test Hole 203 was located in the parking lot south of Thistle Lane, in line with Mill Street. The upper 1.5 metres were recent fill, consisting of concrete fragments, cinders, coal dust, brick fragments, and windowpane sherds. A thin layer of dark brown silt was present at a depth of 1.05 metres. Riverine sediments commenced at 1.5 metres and continued to the base of the excavation at 6.0 metres. These sediments consisted of poorly defined layers of silty clay, ranging in colour from pale yellow brown to medium brown. A thin sandy silt layer occurred at 5.2 metres. At base of excavation, the colour of the silty clay began grading into a darker brown.

Test Hole 108 was sited near the northeast corner of the southern fenced compound. Gravel and cinder fill, with fragments of wood extended to 1.1 metres. A layer of dark brown silty clay extended to 1.5 metres, at which the auger bottomed out on a concrete layer.

Test Hole 106 was drilled adjacent to the northeast corner of the larger building. The auger bottomed out on a concrete layer at a depth of 2.25 metres. The materials above the concrete consisted of gravel, brick fragments, and non-local silts and clays.

Test Hole 107 was situated in the parking lot adjacent to Pioneer Avenue. Sequential layers of gravel extended from the surface to 0.6 metres, followed by a layer of non-local clay to 1.05 metres. A buried top soil layer contained wire fragments and rested upon a sawdust layer (6 cm thick), which in turn rested upon a dark brown soil horizon. A sand layer at 1.8 metres is tentatively correlated with the 1826 flood. The riverine deposits consisted of poorly defined silty clay layers, ranging in colour from yellow brown to medium reddish brown. A thin (1 cm) sand horizon occurred at 2.6 metres and a massive sand/sandy silt stratum (40 cm thick) was observed at 3.05 metres. The grey clays, indicating Lake Agassiz sediments, were encountered at 5.9 metres.

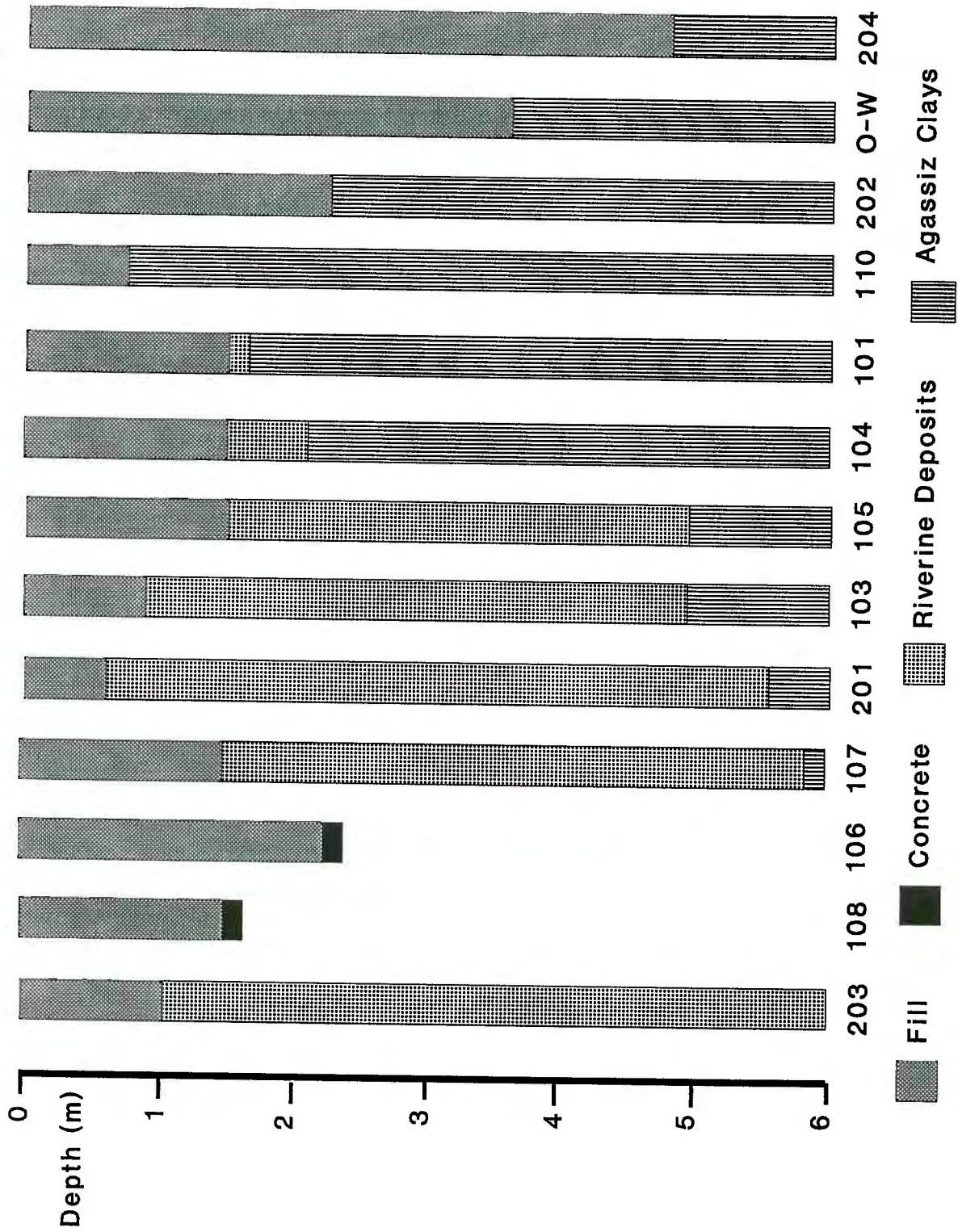


Figure 1: Soil Profiles Recorded during Drilling Program

Test Hole 201 was located between the two buildings. Cinder and gravel fill extended to a depth of 0.6 metres. Riverine sediments began at 0.6 metres and continued to 5.6 metres. The upper section was a dark brown silty clay which graded into a light brown silty clay. A minor sand layer occurred at 5.1 metres. Lake Agassiz clays were present from 5.6 metres to base of excavation.

Test Hole 103 was at the eastern end of the parking area adjacent to Pioneer Avenue, near the access road connecting with Pioneer Boulevard. Recent fill, consisting of gravel, clay, and cinders, extended to a depth of 0.9 metres. The uppermost riverine stratum, a dark reddish brown clayey silt, extended to 1.5 metres, followed by several layers of silty clay to 5.0 metres. The colours varied from light to dark brown. A thin clay layer occurred at 3.5 metres. At 5.0 metres, a dark brown clay layer occurred, resting on an oxidation horizon at the top of grey Lake Agassiz clays.

Test Hole 105 was drilled east of the larger Winnipeg Hydro building in the southern fenced compound. Recent fill of gravel and cinder comprised the upper 1.5 metres. Below this depth, natural riverine sediments, consisting of medium brown silty clays with minor sandy silt strata, extended to a depth of 5.0 metres, after which grey clays deposited under Glacial lake Agassiz were encountered. No relict soil horizons or cultural strata were present.

Test Hole 104 was at the southeast corner of the southern fenced compound. The upper 1.5 metres consisted of recent fill—gravel, cinder, and clay. A relict soil horizon with traces of manure was present at 1.5 metres, overlying medium brown silty clay riverine deposits which extended to a depth of 2.1 metres. Below this depth, grey Lake Agassiz clays occurred.

Test Hole 101 was located north of the smaller Winnipeg Hydro building. The upper 1.3 metres consisted of gravel, clay, and cinder. A discrete non-local clay horizon extended from 1.3 to 1.5 metres, resting upon a thin (2 cm) relict soil layer. Dark brown silty clay extended to 1.7 metres, at which point Lake Agassiz clays continued to base of excavation.

Test Hole 110 was situated to the north of the parking area. The upper 0.6 metres were non-local clay fill on top of a buried top soil which contained sawn wood fragments. The top soil rested directly upon grey Lake Agassiz clays which continued to the base of the excavation.

Test Hole 202 was drilled adjacent to the lane in the parking lot south of the Winnipeg Hydro building. Gravel and cinder fill extended to a depth of 1.5 metres. A thick layer (60 cm) of sawdust was below the fill. The stratum below the sawdust consisted of wood fragments mixed with a dark brown loamy soil. This continued to a depth of 2.25 meters, when Lake Agassiz clays occurred.

The Observation Well, drilled by Subterranean, had a 36" (90 cm) diameter. The upper levels consisted of cinders and dark grey clay with traces of intermixed loam. Sherds of ceramic and glass insulators were recovered from the auger cuttings. Fragments of wood and windowpane were observed at 1.2 metres. Fragments of limestone (probably used as building material) were present below 1.5 metres. A discrete manure layer was present at a depth of 3.0 metres. Mixed in with the manure were fragments of sawn lumber and sherds of windowpane. The manure horizon rested on a dark grey clay horizon, derived from Lake Agassiz clays which were immediately below.

Test Hole 204 was sited nearest the riverbank and demonstrated the most amount of recent deposition. Recent fill extended to a depth of 4.8 metres at which point a buried top soil resting on grey Lake Agassiz clays was encountered. The profile of the recent fill is detailed below:

0 - 60 cm	Coal dust
60 - 90 cm	Gravel
90 - 165 cm	Sand
165 - 190 cm	Coarse sand, ash, wood
190 - 195 cm	Dark brown buried top soil
195 - 330 cm	Disturbed Agassiz clays with clinkers and wood
330 - 350 cm	Sawdust
350 - 390 cm	Disturbed Agassiz clays with wood fragments
390 - 395 cm	Wood fragments
395 - 450 cm	Disturbed Agassiz clays
450 - 460 cm	Gravel
460 - 480 cm	Wood fragments in a buried top soil

3.0 Discussion

Cultural evidence of the recent period was present at all of the drill hole locations (Figure 1). The depth of the recent deposits varied from 60 cm at Test Hole 201 to 480 cm at Test Hole 204. In most cases, the evidence consisted of stratigraphic sequences of land modification and fill.

At Test Holes 108 and 106, buried concrete basement floors were encountered. These are indicative of former placements of buildings within the Winnipeg Hydro complex. The dotted line on Figure 2 shows a composite footprint for the larger structure which has had several different configurations over the years. Data for the composite footprint was derived from a series of maps and fire insurance atlases at the Public Archives of Manitoba. Variations of scale may have resulted in a less-than-maximum depiction. This is suggested by the presence of a concrete floor in Test Hole 108. Alternatively, another building with a concrete basement existed at this location but was erected and subsequently demolished between the compilations of two sequential atlases.

The small diameter of the drill used for the test holes largely precluded the recovery of artifacts. In several of the test holes, fragments of sawn lumber and sherds of windowpane were present. These non-diagnostic artifacts were not curated. Only in the excavated soil from the Observation Well were discrete artifacts recovered (Appendix B). The specimens consist of one fragment of a porcelain saucer (DILg-33:94A/1), the base of a green glass wine bottle (DILg-33:94A/2), the base of an aqua bottle (DILg-33:94A/5), a sherd from a ceramic insulator (DILg-33:94A/3), and a portion of a glass insulator (DILg-33:94A/4). The aqua bottle sherd is the only specimen with diagnostic marking—"B" embossed on the base, indicating manufacture by the Buck Glass Company of Baltimore (Toulouse 1971:57). The two insulators would relate to electrical conduction and the other three artifacts would be secondary deposition debris. The presence of the manure layer at the Observation Well indicates the presence of a stable facility in the nearby vicinity. The presence of the sawdust layer at Test Hole 204 (Figure 2) would relate to the various lumber-based industries located in this area in the latter part of the nineteenth century. These firms consisted of Macauley

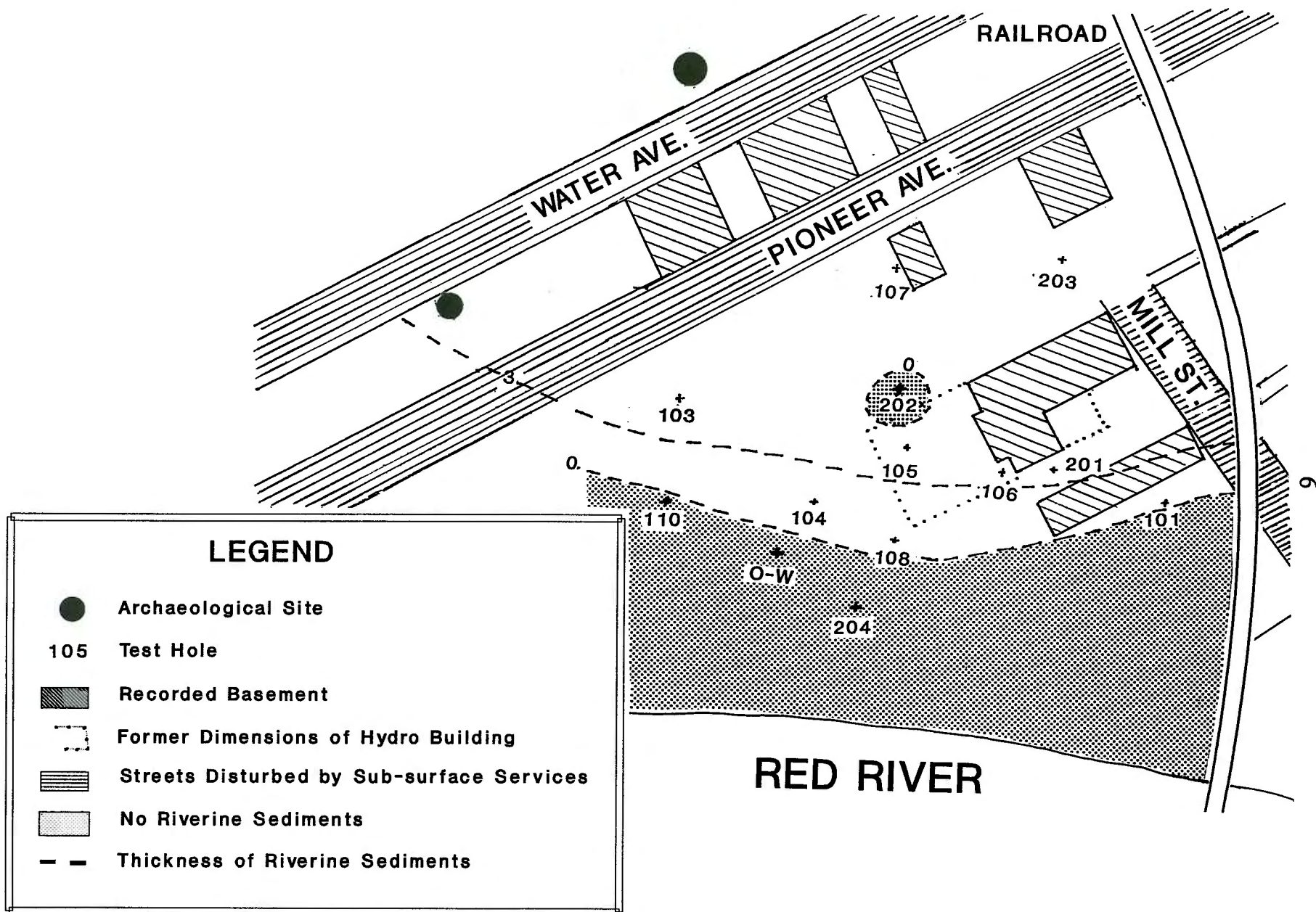


Figure 2: Map of Investigation Area

Lumber Mill (1872-1890?), Dick & Banning Saw Mill (1872-1885?), Sash & Door Factory (1876-1890?), and Jarvis Saw Mill (1876-1890?) (FRC 1988). In addition to these businesses, the McMillan Grist Mill (established 1877) and McArthurs' Warehouse (built 1885) were nearby. This riverbank location became Winnipeg's first industrial area, due to the use of river steamboats to transport materials. Debris from lumber production and demolition of the buildings would account for the presence of wood fragments throughout the area. Archaeological evidence of the early industrial period will be present throughout the area. The completeness of the resources is unknown. Many of the structures were probably totally eradicated during demolition and subsequent land-levelling activities.

No evidence of Fur Trade or Pre-Contact occupations was observed during the archaeological monitoring of the geo-technical drilling program. Presence of people using the area would be indicated by artifacts such as ash and charcoal horizons from fires, faunal remains such as fish or mammal bones deriving from food sources, or discrete artifacts such as ceramic sherds or lithic tools. These cultural strata would occur within the riverine sediments deposited since the drainage of Glacial Lake Agassiz. There was minimal evidence of buried soil horizons, as compared to the north bank of the Assiniboine (Kroker 1989, Kroker and Goundry 1990). This could be explained by more frequent floods which deposited less sediments. In this scenario, the thin silt/clay layer would be incorporated into the active soil zone and only major depositions would result in sufficient burial of the A horizon to produce a relict soil zone. In the portion of the area adjacent to the Red River, more soil deflation due to flood activity appears to have resulted in the removal of upper soil horizons by flood and ice activity so that the recent fill horizons rest directly upon clays deposited while Glacial Lake Agassiz covered the southern part of Manitoba. Based upon the soil profiles observed during the geo-technical drilling program, the area adjacent to the Red River has not experienced any soil deposition over the past nine millennia or, any soils which have been deposited during flood episodes have later been eroded by other floods. As a result, no archaeological material pre-dating the Fur Trade can be expected within the stippled area on Figure 2.

The two dashed lines indicate the presence of 0 metres and 3 metres of riverine sediments. The Pre-Contact ceramic archaeological site recorded during the North/South Access Road impact assessment is within riverine sediments at a depth of 2.8 metres (Quaternary 1988). An extensive Pre-Contact ceramic site dated approximately 450 years ago lies to south of Water Avenue, under 1.0 metres of overburden (Quaternary 1990). Several sequential cultural horizons were recorded during the Provencher Bridge impact assessment to the east of Pioneer Boulevard (Quaternary 1989). The area on Figure 2 which is not marked has a potential for buried archaeological resources, predating the early industrial and residential activities of the 1870s and onward. It can be expected that unrecorded basements occurred under many of the residences, rooming houses, and businesses that lined Pioneer and Water Avenues. These, plus water and sewer installations, would have caused considerably more disruption than is denoted on the map.

To summarize, the entire area will contain archaeological resources deriving from the industrial period (A.D. 1870 to present). The southwestern portion of the area, bounded by Pioneer Avenue and the rail line could contain Fur Trade (A.D. 1737 to 1850) and Pre-Contact (at least 6000 years ago to A.D. 1737) archaeological horizons. Within this zone, approximately one-fifth is known to have had some degree of disruption. It is probable that as much as one-third of the area has had

APPENDIX A
HERITAGE PERMIT



Heritage Permit No. A57-94

FORM 11

PURSUANT to Section/~~Subsection~~ 53 of *The Heritage Resources Act*:

Name: Quaternary Consultants Ltd.
Address: 130 Fort Street
Winnipeg MB R3C 1C7

ATTENTION Mr. Sid Kroker

(hereinafter referred to as "the Permittee"),

is hereby granted permission to:

carry out the monitoring of soil test augering at 14 locations on the projected High Line (Portage East) Arena location in Downtown Winnipeg, to determine the presence or absence of cultural strata and to recover any artifacts present;

during the period:

November 18 to December 15, 1994

This permit is issued subject to the following conditions:

- (1) That the information provided in the application for this permit dated the 16th day of November 1994, is true in substance and in fact;
- (2) That the Permittee shall comply with all the provisions of *The Heritage Resources Act* and any regulations or orders thereunder; PLEASE NOTE ATTACHMENT RE CUSTODY AND OWNERSHIP OF HERITAGE OBJECTS
- (3) That the Permittee shall provide to the Minister a written report or reports with respect to the Permittee's activities pursuant to this permit, the form and content of which shall be satisfactory to the Minister and which shall be provided on the following dates:

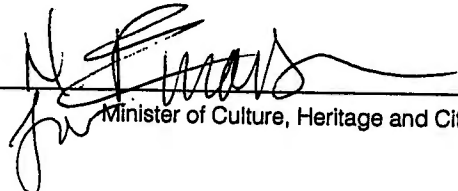
December 31, 1994
- (4) That this permit is not transferable;
- (5) This permit may be revoked by the Minister where, in the opinion of the Minister, there has been a breach of any of the terms or conditions herein or of any provision of *The Heritage Resources Act* or any regulations thereunder;

(6) Special Conditions:

- a. All surface collections, excavations, etc. are to be carried out using the provenience system established for use at The Forks and this project will be designated 94A;
- b. All heritage objects (artifacts) recovered from The Forks are to be catalogued according to the CHIN system and the relevant Borden designation will be D1Lg-33/94A;
- c. All heritage objects from The Forks are to be deposited with the Manitoba Museum of Man and Nature by March 31, 1995, for permanent curation and storage, unless appropriate loan requirements are arranged with the Curator of Archaeology prior to that date;
- d. A complete set of archaeological field records, catalogue sheets, laboratory analysis records, photographs, reports, etc. are to be deposited with the Manitoba Museum of Man and Nature upon completion of the archaeological research, or sooner if required; and any subsequent revisions or additions to these records are to be filed as soon as possible thereafter;
- e. All computer systems and programs employed in archaeological research should be compatible with the computer system established for The Forks;
- f. Appropriate arrangements and funds should be made available for the conservation of perishable heritage objects collected from The Forks;
- g. In the event that any human remains are encountered during the excavations, all activity in that particular locus will cease immediately, and the Historic Resources Branch notified immediately so that appropriate action can be determined and taken;
- h. The Permittee will be on-site supervising all aspects of the field work, including the removal of the railroad overburden during site preparation, at least 75% of the time, but when the Permittee must be absent, a qualified designate acceptable to Historic Resources Branch (copy of vita to be filed prior to commencement of field work) shall be present;
- i. The Permittee shall be responsible for the conduct of the laboratory analysis of recovered heritage objects and information to be included in the permit report;
- j. The report identified in #3 above shall conform at a minimum to "The Contents and Format of a Heritage Resource Impact Assessment" (copy attached)
- k. Neither the Government of Manitoba nor the party issuing this permit be liable for any damages resulting from any activities carried out pursuant to this permit, and the Permittee specifically agrees, in consideration for receiving this permit, to indemnify and hold harmless the Minister and the Government of Manitoba, the Minister and any employees and officials of the Government, against any and all action, liens, demands, loss, liability, cost, damage and expense including, without limitation, reasonable legal fees, which the Government, Minister or any employee or official of the Government may suffer or incur by reason of any of the activities pursuant to or related to this permit.

8280h

Dated at the City of Winnipeg, in Manitoba, this _____ 17th _____ day of _____ November _____ 1994.



Minister of Culture, Heritage and Citizenship

APPENDIX B
RECOVERED ARTIFACTS

SPECIMEN CATALOGUE RECORD

Site: DLLG-33:94A PORTAGE EAST Area: RED RIVER
 Client: MANITOBA ENTERTAINMENT COMPLEX Acc. No.: _____

Cat. #	Qty	Object Name / Object Type	Material / Cultural Phase	Location / Unit	Coll. Date
1	1	SHERD SAUCER	PORCELAIN INDUSTRIAL	OBSERVATION WELL	19941121
2	1	SHERD BOTTLE	INDUSTRIAL	OBSERVATION WELL	19941121
3	1	INSULATOR	PORCELAIN INDUSTRIAL	OBSERVATION WELL	19941121
4	1	INSULATOR	GLASS INDUSTRIAL	OBSERVATION WELL	19941121
5	1	SHERD BOTTLE	GLASS INDUSTRIAL	OBSERVATION WELL	19941121

_____ 5