

NORTH/SOUTH ACCESS ROAD

ARCHAEOLOGICAL IMPACT ASSESSMENT

QUATERNARY CONSULTANTS LTD.

DECEMBER, 1988

TABLE OF CONTENTS

Table of Contents.....1

List of Figures.....11

List of Plates.....11

1.0 INTRODUCTION.....1

2.0 INVESTIGATION METHODOLOGY.....2

 2.1 Phase I: Monitoring of Geo-Technical Drilling...2

 2.2 Phase II: Exploratory Excavations in CN
 Jurisdiction.....4

 2.3 Phase III: Exploratory Excavations in FRC
 Jurisdiction.....5

 2.4 Laboratory Procedures.....6

3.0 ARCHAEOLOGICAL RECOVERIES.....7

 3.1 Phase I: Geo-Technical Program.....7

 3.2 Phase II: Exploratory Excavations in CN
 Jurisdiction.....9

 3.2.1 Stratigraphy.....9

 3.2.2 Artifacts from Level 1.....9

 3.2.3 Artifacts from Level 3.....11

 3.2.4 Summary.....13

 3.3 Phase III: Exploratory Excavations in FRC
 Jurisdiction.....14

 3.3.1 Test Hole A.....14

 3.3.2 Test Hole B.....15

 3.3.3 Test Hole C.....17

 3.3.4 Test Hole D.....18

 3.3.5 Test Hole E.....19

 3.3.6 Test Hole F.....20

4.0 INTERPRETATIONS AND CONCLUSIONS.....21

5.0 RECOMMENDATIONS.....23

APPENDIX A: Data from Geo-Technical Program.....26

TABLE OF CONTENTS (cont.)

APPENDIX B: Correspondence Relating to Assessment.....30
 Jun 24: QCL to FRC (Geo-Technical Program).....31
 Jul 4: QCL to CNR (Phase II Program).....32
 Jul 12: City of Winnipeg Inspection Permit.....33
 Jul 18: QCL to CNR (Phase II Results).....34

APPENDIX C: Artifact Catalog Record.....37

APPENDIX D: Provenience of Investigation Units.....44

LIST OF FIGURES

Figure 1: Location of sub-surface investigations.....3

LIST OF PLATES

Plate 1: Stratigraphy of Test Hole 2.....12

Plate 2: Pre-Contact Ceramic Recoveries - Test Hole 2...12

1.0 INTRODUCTION

The North/South Access Road, a future arterial roadway into the centre of the East Yard, extends from Pioneer Avenue to the Public Market (Stable Buildings) complex, near the north bank of the Assiniboine River (Figure 1). The placement of the road roughly parallels the configuration of the CNR Main Line.

Preparatory to the construction of any of the components of the road, Quaternary Consultants Ltd. (QCL) was engaged to conduct an archaeological impact assessment of the lands which would be impacted by the development. Due to the placement of the road, two different jurisdictions are involved; Canadian National Railway (CNR) and The Forks Renewal Corporation (FRC). At the time of the various phases of the impact assessment, the land was under Federal jurisdiction. Accordingly, a formal Manitoba Heritage Permit was not required. However, an informal reporting system was put into place, whereby Historic Resources Branch of Manitoba Department of Culture, Heritage and Recreation was kept apprised of the situation.

The sector under CNR jurisdiction extends from the north end, where the N/S Access Road intersects with Pioneer Avenue, to the intersection with the projected extension of York Avenue. The remainder of the road, from the York Extension intersection to the Public Market Complex is under FRC jurisdiction.

A proposal for the archaeological impact assessment was submitted to FRC in April, 1988. This proposal is included in The Forks Impact Assessment and Archaeological Management Plan as Appendix E. A letter of engagement was signed by Quaternary Consultants Ltd. and The Forks Renewal Corporation on June 13, 1988. Field operations were begun on June 15.

Field operations were conducted in three phases, between June 15 and August 26. The initial aspect, Phase I, consisted of monitoring geo-technical bore drilling across the entire site. Phase II was an exploratory excavation, requested by CN, of the vicinity of Bore Hole #2, where pre-Contact native ceramics had been recovered during the drilling. Phase III consisted of a series of six exploratory excavations between the York Extension intersection and the Powerhouse. This phase was undertaken during the North Assiniboine Node Assessment project.

2.0 INVESTIGATION METHODOLOGY

The provenience of all investigation locations has been surveyed into The Forks Archaeological Survey Grid. This metric grid is based upon the City of Winnipeg survey marker (87R548) at the north end of the Low Line Bridge across the Assiniboine River as the Site Datum. The marker has been assigned the arbitrary provenience of 1000N/1000W. The 1000E/W Baseline extends from the marker to the second concrete pier (to the south of the embankment) of the CNR Main Line. The placements of the geo-technical bore holes and the backhoe exploratory excavation test holes have been located in relation to the Site Datum and the E/W Baseline. The proveniences are recorded in Appendix D.

2.1 Phase I: Monitoring of Geo-Technical Drilling

In order to ascertain the quality of the sub-strate for road construction, Dyregrov & Burgess conducted a geo-technical drilling program. A series of twenty-one holes, 16" diameter, were drilled at various locations along the impact zone (Figure 1). As part of the archaeological impact assessment, Quaternary Consultants Ltd. arranged to monitor the program, with the goal of observing and recording any archaeological data encountered during the sub-surface examinations.

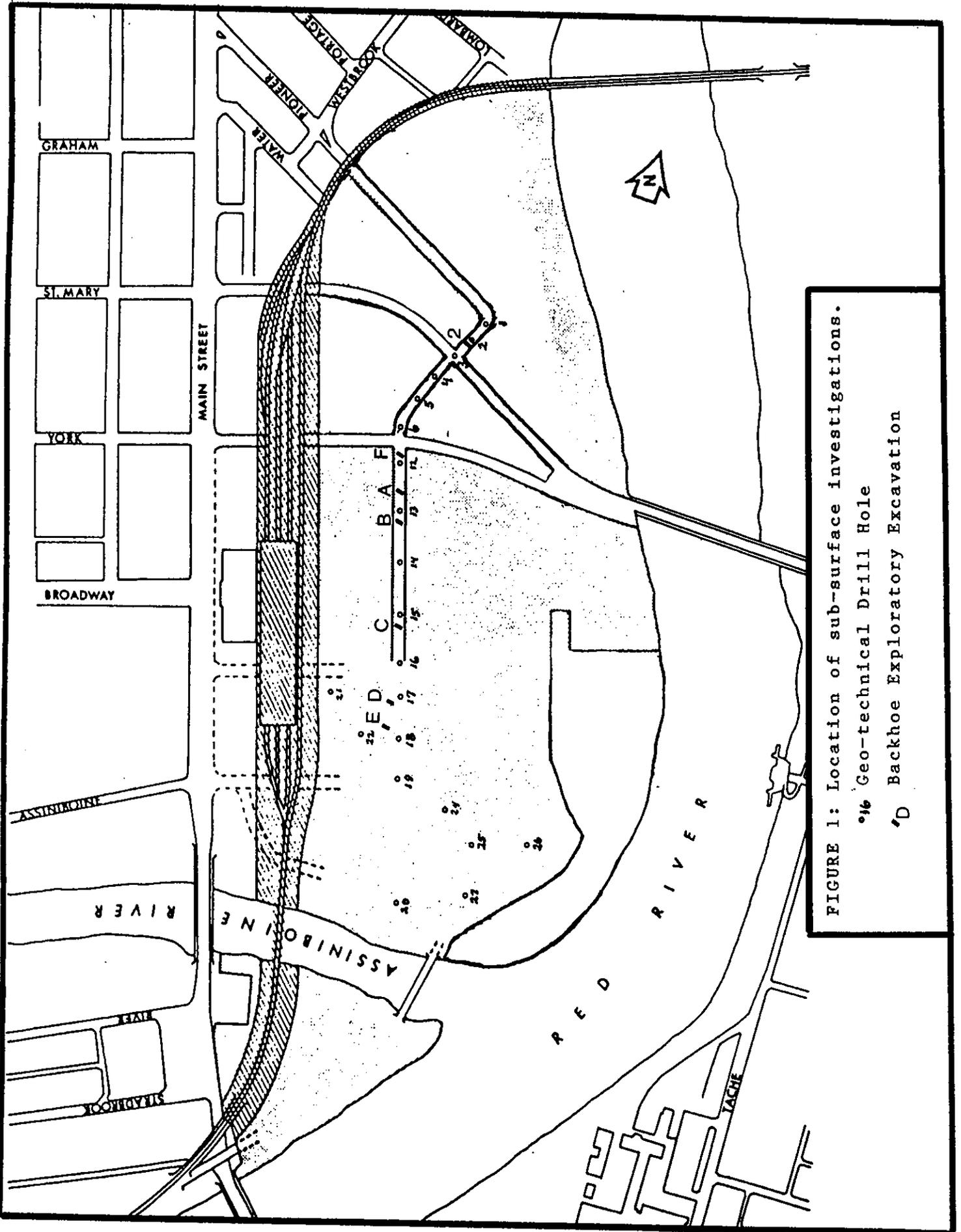


FIGURE 1: Location of sub-surface investigations.
16 Geo-technical Drill Hole
D Backhoe Exploratory Excavation

During the drilling, the depth of the railroad fill level, usually cinder or gravel, was noted. All relict soil horizons were noted and examined for cultural material. Depths of these former soil levels were measured where possible.

Recoveries of artifacts from a drilling program are usually minimal. The size of the investigatory drill results in the examination of approximately one square foot. As well, due to the mechanical stresses acting upon the extractant material, most organic material (wood, bone, charcoal) is usually crushed or deformed. Thin soil zones become mixed with river silt deposition layers due to the rotary action of the drill and, often, are not observed within the drilling extractant. Finally, the operation proceeds at a rapid pace, as the primary goal is the determination of soil texture. The drilling crews accord as much time, within their schedule, for archaeological examination of the extractant soil, as feasible. Contents of individual drill drives would, on request, be deposited to the side of the operation for archaeological examination, when deemed necessary.

2.2 Phase II: Exploratory Excavation in CN Jurisdiction

As pre-Contact ceramic material had been recovered during the monitoring of geo-technical hole #2, it had been recommended that exploratory excavation using a backhoe be conducted to ascertain the quality and extent of the archaeological deposits (Appendix B: QCL letter:June 24; QCL letter:July 4).

CN concurred and authorized the undertaking. On July 13, 1988, a backhoe was engaged to excavate the overburden to the estimated depth of the archaeological layer at approximately 2.5m below surface. Two archaeologists monitored the excavation, collecting representative artifacts from the historic level. Relict soil horizons in the upper levels were investigated. The backhoe

excavations were discontinued at a depth of 2.3m, to avoid disruption of cultural level. Excavation was continued by shovel until the cultural level was encountered at a depth of 290 cm below surface. Due to back-sloping and shoring, the area available for excavation was 60 cm x 80 cm. This area included a portion of the geo-technical bore hole in the northeast corner. The cultural level, 7 centimeters thick, was removed by trowel. All soil within the level was removed from the site for water-screening through a 2.0 mm mesh at the laboratory.

2.3 Phase III: Exploratory Excavations in FRC Jurisdiction

During the North Assiniboine Node Assessment (NANA) Project, the Site Archaeologist, after consultation with Mr. A. Baronas of FRC, decided that additional investigation of the N/S Access Road would be advantageous. The archaeological team, employed on the assessment project (NANA), was relocated to the road right-of-way, for a two-day period. A series of six test holes were excavated between the intersection of the York Avenue Extension and the Powerhouse. Each test hole was three meters long and was excavated to a depth of 3.5m.

The method of investigation was similar to that employed at the NANA operation. The backhoe, using a 24", smooth-edged bucket, would excavate the exploratory test hole in thin layers. The soil would be dumped at the side of the test hole and the crew would examine it, using garden rakes to spread the material. The presence of relict soil zones and/or cultural material required detailed examination of the excavated soil, using trowels. Soil samples of cultural levels were bagged and taken to the laboratory facility for water-screening to recover small artifacts (lithic flakes, ceramic sherdlets and fish bones). The soil profile of the excavated trench was recorded.

2.4 Laboratory Procedures

All recovered artifacts were washed, identified and sorted by provenience. While provenience was recorded for each excavation unit (geo-technical bore hole, exploratory test hole), internal provenience could not be ascertained. Material recovered from a drill drive could have originated at any location within the diameter of the hole. Similarly, the determination of the exact placement of artifacts within a backhoe trench excavation was not feasible. The depths of the recoveries were recorded.

Identification procedures consisted of identifying the object and the material of which it is composed, as well as determining the function of the object and the method of manufacture. Additional descriptive data, such as color, date of manufacture, name of manufacturer, and condition of the artifact, were recorded where ascertainable. Wherever possible, the cultural affiliation of the artifact was determined (e.g., Blackduck; Recent Euro-Canadian; Pre-Contact; etc.). In the case of faunal remains, the name of the bone element and the most appropriate taxonomic level were recorded. Faunal remains were identified to species, whenever possible.

After the artifacts had been prepared, the locational and identifying data was entered into the national archaeological database system that was being used at the NANA project. In accordance with the decision of the Ad Hoc Coordinating Committee for The Forks Renewal Archaeology, based upon the necessity of being able to readily separate recoveries from the various archaeological projects at The Forks, the artifacts were given the designation 'D1Lg-33/88B' plus a sequential number (Appendix C).

3.0 ARCHAEOLOGICAL RECOVERIES

3.1 Phase I: Geo-Technical Program

The primary data recovered from the drilling monitor program consisted of information concerning former soil horizons (Appendix A), each of which could contain evidence of cultural activity at some area within the site. Artifactual recovery was minimal; consisting mainly of recent historic material found within the upper fill layer (Level 1). The pre-Contact material consisted of a single ceramic rimsherd (D1Lg-33/88B-111), which was recovered from Level 3 at Hole #2 (Plate 2). The decorative pattern on this sherd, impressed cord-wrapped object impressions and punctates, identifies it as a specimen of the 'Blackduck' ceramic tradition. It's age is estimated at approximately 700 to 800 years ago.

The artifacts, recovered during the drilling monitor program, were cleaned, identified, catalogued within the Canadian Heritage Information Network (CHIN) computer database format, and prepared for storage. The 47 artifacts, recovered during this phase, received catalog numbers D1Lg-33/88B-93 to 122 (Appendix C).

The historic artifacts consisted mainly of glass and ceramic specimens. Windowpane and sewer tile were found at Hole #1. A square, hand-wrought nail and a fragment of a large mammal long bone was retrieved at Hole #2. Twenty-four artifacts were recovered from the relatively thick historic layer at Hole #3. These consisted of round, wire-cut nails, fragments of windowpane and sewer tile, and porcelain, stoneware, terracotta and glass sherds. One aqua glass sherd was embossed and has been identified as a beer bottle produced by the E. L. Drewry Ltd. Brewery of Winnipeg. The other glass sherds represent a minimum

of three different bottles - olive, brown and aqua in color. The stoneware sherds are the remains of a crock and the terracotta sherd represents a broken flowerpot. The porcelain sherd is a portion of a white cup, embossed with a raised floral pattern.

A sherd from an aqua Blackwoods soft drink bottle was found at Hole #4. Three other bottles were represented; green, brown and olive. Also, a cast, iron pin, probably associated with railroad activity, was recovered. A round nail was located at Hole #14. A second cast, iron pin was found at Hole #20. Hole #25 produced two glass sherds; one was a fragment of windowpane and the second represented a jar made of white glass. Hole #26 provided a round nail and a section of iron cable. Also, a sherd from a brown medicine bottle and three fragments of windowpane were recovered. At Hole #27, a stoneware sherd from a crock was found.

The results of Phase I can be briefly summarized as:

- a. considerable information on the soil stratigraphy of the site (Appendix A),
- b. some artifact recovery, primarily of historic material, and
- c. discovery of a pre-Contact occupational horizon at Test Hole #2.

3.2 Phase II: Exploratory Excavation on CN Jurisdiction

The backhoe excavation at Hole #2 resulted in the recovery of a considerable number of artifacts (Appendix C). These artifacts were cataloged with the numbers D1Lg-33/88B-1 to 92. The historic material, from Level 1, has catalog numbers D1Lg-33/88B-1 to 56 and the Blackduck artifacts, from Level 3, are cataloged as D1Lg-33/88B-57 to 92.

3.2.1 Stratigraphy

The stratigraphy of the unit has been divided into three inclusive levels, to conform with designations in other parts of the East Yard. Level 1 is the 'Historic Level' and is 70 cm thick. The upper portion of Level 1 is a grey clay fill, which overlies a layer of moderately decomposed wood (Plate 1). Level 2 consists of a series of flood deposited silt layers, tentatively identified with the 1826, 1851, 1861 and 1882 floods. This level extends from 70 cm to 120 cm below surface. Level 3 extends from the base of Level 2 to the base of the excavation at 310 cm. No strongly defined soil horizons were recorded within Level 3, indicating that flooding and silt deposition occurred frequently.

3.2.2 Artifacts from Level 1

Forty-six glass artifacts were retrieved from Level 1. Twelve fragments of windowpane were recovered, among which three different shades of glass (clear, aqua and light green) were represented. A white glass button with four holes was found. A portion of the body of an electric light bulb was recovered. The most diagnostic artifacts were sherds from glass containers. A sherd from a square-sided, olive-colored case gin bottle was found. These bottles tend to occur prior to 1900. A portion of a

white glass, cosmetic jar was located. Four sherds from a clear, medicine bottle were recovered. Two flat aqua sherds are from another medicine bottle. The remaining sherds represented at least six different beverage bottles. Two different bottles were made of green glass, similar to a 7-Up or ginger ale bottle. Seven undecorated aqua sherds were recovered, which may be portions of DLG-33/88B-4, a beverage bottle having "EST.." embossed on the shoulder. Information is insufficient to identify the manufacturer. Fragments of a clear glass soft drink bottle, with a painted red and white sunburst logo were found. Another clear sherd, perhaps from a soft drink bottle, has a portion of an embossed design containing trees. The most diagnostic specimen was a sherd of an embossed, fluted, clear glass soft drink bottle produced by the Bell Bottling Company. This company originated in 1918 as Boroditsky Brothers Aerated Waters and changed its name to Bell Bottling Company in 1924.

Thirty-four ceramic artifacts were recovered from Level 1. A porcelain, marble-like stopper for a Codd-type beverage bottle was found. Thirteen tiles fragments (blue, green, white, and multicolored) were found. Most of these were small square or hexagonal specimens. The stem of a kaolin pipe was retrieved. These clay tobacco pipes were prevalent prior to 1900. A fragment of the head of a china doll was found. The artifact has been painted pink and is stamped with "...lsdorf", indicating German manufacture. One sherd of a brown, stoneware crock was found. Numerous sherds of porcelain dinnerware were recovered: plates, saucers and cups. One sherd had a 'Blue Willow' pattern, while another had a 'flow blue' transfer printed design. A white plate and a white cup had an embossed wavy fluted patterns, while another sherd, perhaps from the shoulder of a sugar bowl or a creamer, had a thin blue line separating the lower pink section from the upper white portion. The remainder of the sherds were undecorated white porcelain.

Metallic objects consisted of a horseshoe, a fragment of coated wire, a beverage bottle cap, a male bushing, a carriage bolt and an unidentifiable iron scrap. Additionally, 19 nails were recovered. Fourteen were round, wire-cut specimens; one was a hand-wrought square nail (prevalent prior to 1890) and four were sheet-cut square nails dating to the 1890's.

Other artifacts included the carbon core of a dry cell battery, a portion of a leather shoe, a rubber O-ring, a fragment of a painted concrete brick, a splatter of dried green paint and an unidentifiable scrap of blue plastic.

Some faunal remains were recovered from Level 1. Most showed evidence of butchering, either knife cuts or saw marks. A humerus of a grouse (*Tetraonidae*) was the only non-domesticated representative. A radius was identified to pig (*Sus scrofa*). The other bones were fragments of rib, vertebrae and long bones of large mammals, probably cow.

3.2.3 Artifacts from Level 3

In addition to the rimsherd recovered during the geo-technical drilling, two other rimsherds were located during the Phase II excavation (Appendix B: QCL letter, July 18). One rimsherd has a trailed decoration on the lip (Plate 2), a style of decoration associated with southern and southwestern Manitoba ceramic traditions. The second rimsherd is an undecorated utilitarian type vessel (Plate 2). Fifteen body sherds were retrieved; four of which had a smooth surface finish similar to the undecorated rimsherd. The remainder had a fabric-impressed surface finish and are probably a part of the vessel represented by the 'Blackduck' rimsherd.

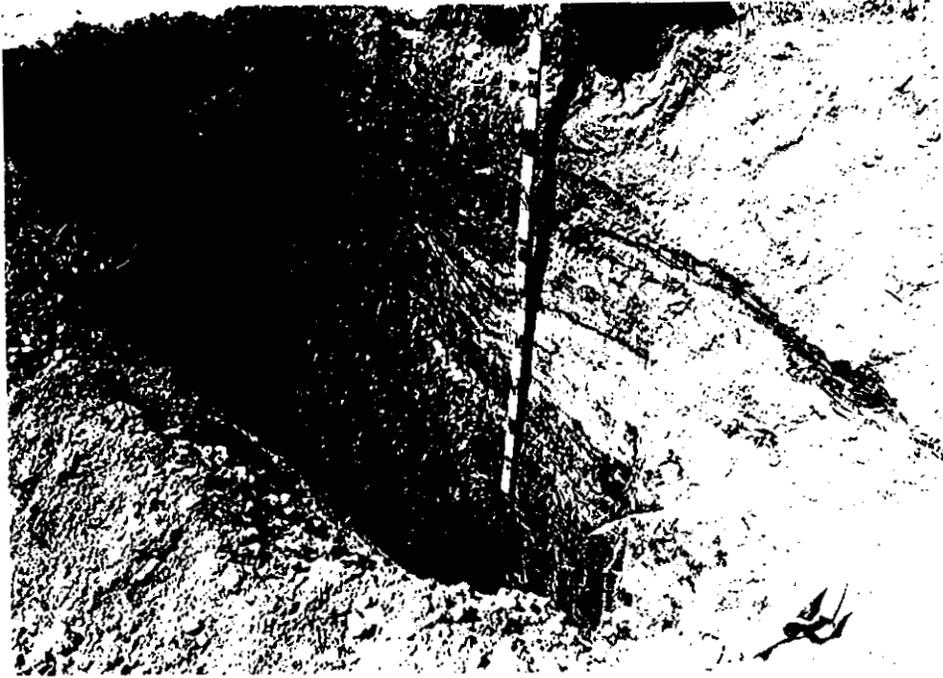


Plate 1: Stratigraphy of Test Hole 2



Plate 2: Pre-Contact Ceramic Recoveries from Test Hole 2

Some charcoal was recovered, but the majority of the artifacts from this cultural layer consisted of faunal remains. Saturated soil conditions created an anaerobic situation, resulting in excellent preservation of bone which represents the food resources of the occupants of the site. 1298 bone and scale specimens were collected. The 351 fish scales and 52 fish vertebrae have not been examined to determine the season of occupation. Two scutes indicate the presence of sturgeon (Acipenser fulvescens). The recovered fish bones indicate the presence of a minimum of 2 goldeye (Hiodon alosoides), a single sauger or walleye (Stizostedion sp.), 2 suckers (Catostomidae family) and 3 catfish or bullheads (Ictalurus sp.). Within the small area excavated, nine fish of five different species are represented. This would indicate extensive and sophisticated harvesting of the adjacent rivers.

The non-aquatic faunal resources were also utilized. A fragment of the carapace of a turtle was recovered, as were numerous unidentifiable fragments of bone from birds, small and/or medium mammals and large mammals. The only identifiable large mammal bone was a portion of a scapula from a bison.

3.2.4 Summary

Level 1 consisted of a clay fill layer overlying the remnants of a building foundation. The artifacts within the clay fill post-date World War I, as exemplified by the Bell Bottling Company sherd. The material recovered from adjacent to the foundation indicate a late 1800's date - square nails and a kaolin pipe stem.

Level 2, the historic flood episodes, appeared to be sterile, in terms of cultural material.

Level 3 contained the evidence of a pre-Contact occupation. The ceramics indicate the presence of 'Blackduck' and southwestern peoples, or at least artifacts derived from people practising each of these two ceramic traditions. The faunal remains indicate a broad-based economy which utilized all available resources; fish (several species), small and/or medium mammals, birds, and bison. The limited sample did not contain evidence of plant utilization; however, the location would suggest that both prairie and riverine forest plants would have been utilized.

3.3 Phase III: Exploratory Excavation in FRC Jurisdiction

Six exploratory test units were excavated by backhoe along the proposed route of the North/South Access Road (Figure 1). Soil profiles were recorded and the recovered 61 artifacts were curated and cataloged as D1Lg-33/88B-123 to 134.

3.3.1 Test Hole A

The excavation was located in an area of thick gravel fill (approximately 125 cm thick). Disturbed clay fill underlay the gravel to a recorded depth of 140 cm. The unit was abandoned due to inflow of ground water through the base of the gravel layer which resulted in the flooding of the bottom of the excavation unit.

3.3.2 Test Hole B

The upper 99 cm consisted of a railroad period fill, made up of cinder, ash, brick, etc. The soil profile below the fill layer (Level 1) consisted of a series of relict soil zones separated by bands of riverine silt and clay. The following table indicates the depths of these former soil surfaces.

Depth Below Surface (cm)	Stratum Description	Level	Culture Zone
99 - 104	mature soil	Level 1	
110 - 120	Plow Zone ?	Level 2	
131 - 133	juvenile soil	Level 3	
158 - 159	juvenile soil	"	
177 - 179	juvenile, hearth, fauna	"	II
203 - 204	juvenile soil	"	
245 - 246	juvenile, fauna	"	IV
290 - 291	juvenile soil	"	

No artifacts were recovered from Level 1 or Level 2. Evidence of pre-Contact occupation was observed at a depth of 177 cm, where a scattering of poorly preserved fish and mammal bone were located adjacent to the remnants of a small hearth. Only two fragments of mammalian bone were recovered from Cultural Zone II of Level 3. The second horizon containing evidence of occupation was at a depth of 245 cm. The former soil zone contained faunal remains and lithic detritus. The artifacts found in Cultural Zone IV of Level 3 consisted of three lithic flakes (one each of chalcedony, quartzite and Knife River Flint) and 48 bone fragments. Most of the faunal remains were severely fragmented, unidentifiable fish bones. One specimen was identified as part of the jaw of a sucker (Catostomidae). Also, a section of a rib from a large mammal (moose ?, bison ?) was recovered.

At a depth of 190 cm, in a riverine silt deposition layer, an isolated human bone was discovered. This bone has been identified as a complete frontal bone from the skull of an adult individual. A former soil surface (Cultural Zone II) occurs 10 cm above the location of the bone. The excavation unit surrounding the discovery was carefully trowelled to discover the context of the bone. No evidence of disturbance of the soil zone was observed, thereby eliminating the possibility of burial by the occupants of the location during the period of Cultural Zone II. No other skeletal material, nor any cultural material, was found adjacent to the frontal. It would appear that the bone derives from an individual who accidentally lost his or her life and this bone was carried to its present location during a flood of the Red or the Assiniboine River. It is impossible to determine the location of the remainder of the skeletal remains. Given the depth below surface, and the identification of Cultural Zone II as a Pre-Contact occupation, the bone is estimated to be approximately 400 years old.

Upon discovery of the human material, the reporting procedure required by the Manitoba Heritage Resources Act and the Manitoba Fatality Inquiries Act was initiated. Telephone calls, with follow-up letters, were made to Historic Resources Branch and the Chief Medical Examiner. In accordance with its consultative process (The Forks Archaeological Impact Assessment and Management Plan, Section 2.1.6), FRC informed representatives of the Native community. Letters, advising of the find, were sent to the Assembly of Manitoba Chiefs and the Treaty & Aboriginal Rights Research Centre.

3.3.3 Test Hole C

The depth of the railroad fill layer was 132 cm and consisted of an upper portion of gravel, black cinder, sand and gravel (0-48 cm), overlaying clay fill. The remainder of the excavation was through riverine silts and clays containing relict soil horizons. The depths of these strata are listed below.

Depth Below Surface (cm)	Stratum Description	Level	Culture Zone
135 - 136	mature soil	Level 1	
136 - 145	Plow Zone ?	Level 2	
183 - 184	juvenile soil	Level 3	
240 - 243	juvenile, charcoal	"	IV
300 - 301	juvenile soil	"	

The only artifact recovered from this excavation unit was a fragment of ochre (red hematite) located in Cultural Zone IV.

3.3.4 Test Hole D

The depth of the railroad fill layer was 93 cm, comprised of an upper zone of gravel, sand and ash (0-40 cm) and a lower zone of banded clay fill. The remainder of the excavation was through riverine silts and clays containing former soil surfaces. The depths of these soil zones are listed below.

Depth Below Surface (cm)	Stratum Description	Level	Culture Zone
107 - 108	juvenile soil	Level 2 ?	
123 - 124	juvenile soil	Level 2 ?	
140 - 141	juvenile soil	Level 3 ?	
172 - 173	juvenile soil	Level 3	
250 - 251	juvenile, fauna	"	IV
315 - 316	juvenile soil	"	

The fish bone in Cultural Zone IV was extremely fragmented and poorly preserved. None was retrieved. No cultural artifacts were recovered from this excavation unit.

3.3.5 Test Hole E

The upper railroad fill layer (Level 1) extended from surface to a depth of 94 cm. It consisted of a series of sequential depositions. From top to bottom, these layers are: 1 - gravel; 2 - black gravel and cinder; 3 - grey sand and gravel; 4 - gravel, black cinder and ash; 5 - grey sand and ash; 6 - reddish black sand; 7 - clay fill. Below Level 1, the excavation encountered riverine silts and clays, interspersed with a few former soil horizons, listed below.

Depth Below Surface (cm)	Stratum Description	Level	Culture Zone
110 - 111	juvenile soil	Level 2 ?	
126 - 127	juvenile soil	Level 3 ?	
142 - 143	juvenile soil	Level 3	
184 - 185	juvenile soil	"	
250 - 251	juvenile soil	"	

No cultural material was found during the excavation of this unit. The soil zones at 184 cm and 250 cm may relate to the previously noted Cultural Zone II and Cultural Zone IV, respectively. However, no evidence of occupation was observed, in either soil zone, at this location.

3.3.6 Test Hole F

The railroad fill layer (Level 1) extended to a depth of 155 cm. Numerous depositional layers made up this level. The sequence was: 1 - sand and gravel; 2 - black cinder, sand and ash; 3 - grey sand and gravel; 4 - grey clay fill; 5 - black clay fill; 6 - grey clay fill; 7 - black clay, sand and ash; 8 - black clay fill; and 8 - grey clay fill. The remainder of the excavation encountered riverine silts and clays, which were dark blue in color due to saturation with petroleum products. The discoloration made it difficult to delineate very thin, juvenile soil horizons. The recorded strata are listed below.

Depth Below Surface (cm)	Stratum Description	Level	Culture Zone
164 - 167	mature soil	Level 3 ?	
180 - 181	juvenile soil	Level 3	
240 - 250	mature soil, fauna	"	IV

Some faunal remains were recovered from Cultural Zone IV. These consisted of fragments of large mammal (moose or bison) vertebrae and unidentifiable fish bone fragments. No cultural artifacts were located.

4.0 INTERPRETATIONS AND CONCLUSIONS

The railroad activities in the East Yard over the past century have consistently added to the ground surface. Rather than excavating to produce a level terrain, fill was added. In most areas, this fill consists of sand, gravel or black cinder. The thickness of the fill level varies, ranging from 60 cm at Geo-Technical Hole #22 to 155 cm at Geo-Technical Hole #3 and Backhoe Test Hole F. The average thickness of the fill layer is 105 cm, based upon the 27 excavations discussed in this report.

Evidence of pre-railroad historic activity was located at Geo-Technical Hole #2, Geo-Technical Hole #3, Geo-Technical Hole #13 and Test Hole 2. Test Hole 2, adjacent to Geo-Technical Hole #2, recovered evidence of a structure that dates to the latter part of the nineteenth century. Square nails and a portion of a clay tobacco pipe were recovered adjacent to the poorly preserved wood foundation beam (Plate 1). Fill above the remnants of the structure dated to the 1920's. Historic artifacts were recovered from Geo-Technical Hole #3, which encountered a concrete floor at a depth of 130 cm. This floor could be from a structure which predates the construction of Freight Shed #1 (1888), although the recovered artifacts appear to date from the early 1900's. A thin layer of manure was encountered in Geo-Technical Hole #13, below the gravel and clay fill. This material may be related to use of Freight Sheds 3 or 4 in the 1890's or early 1900's.

Evidence of pre-Contact occupation of the area was encountered at Geo-Technical Hole #2, Test Hole 2, Test Hole B, Test Hole C and Test Hole F. Diagnostic native ceramic artifacts were recovered from Geo-Technical Hole #2 and Test Hole 2. At a depth of 290 cm below surface, an occupational layer was encountered, which contained ceramic artifacts and numerous faunal remains.

Based upon the decorative technique of the ceramic rimsherd, the culture of the people who occupied the site has been identified as 'Blackduck'. The period of occupation is estimated at 700 or 800 years ago. The recoveries from Test Hole B, Test Hole C and Test Hole F did not contain any diagnostic artifacts. The cultural strata are tentatively correlated with two of the five cultural horizons identified during the impact assessment of the adjacent York Avenue Extension. (These are reported in Provencher Bridge Project Archaeological Impact Assessment: on file with Historic Resources Branch, City of Winnipeg and Wardrop Engineering Inc.) Diagnostic artifacts recovered during that project permitted the identification of these cultural strata as 'Blackduck'. However, until diagnostic artifacts are located, in situ, at the test hole locations, all cultural identifications will be tenuous.

It would appear that most of the pre-Contact cultural presence occurs at the northern end of the North/South Access Road. It also seems that the depth of temporally equivalent cultural horizons is greater in the northern portion of the site than adjacent to the banks of the Assiniboine River. This is probably due to the levee effect, wherein the bank of a river is higher than the terrain beyond it. The depth of the sandy stratum, noted during the geo-technical drilling program, also increases as the distance from the north bank of the Assiniboine River increases. Accordingly, it can be assumed that the northern portion of the North/South Road was, several centuries ago, a low-lying area subject to frequent flooding. This results in the separation of cultural levels by sterile riverine silt deposits, enabling a clearer determination of the material culture of each successive occupation.

5.0 RECOMMENDATIONS

The activities of the archaeological impact assessment resulted in recovery of data concerning the soil stratigraphy of the test locations and the discovery of four locations where pre-Contact occupations had occurred.

The recommendations are predicated upon the knowledge that the depth of impact will vary throughout the site. The construction of the road bed, to an approximate depth of 130 cm will result in minimal disruption of pre-Contact archaeological deposits. The installation of various services (land drainage sewer, sanitary waste sewer and water main) will result in disruptions to depths of greater than six meters - beyond the depths of the geo-technical bore holes or the backhoe exploratory test holes.

During the summer of 1988, discussions were held with officials of Historic Resources Branch, engineers of Wardrop Engineering Inc., the Site Archaeologist of The Forks Renewal Corporation and other interested parties. Because of the techniques employed during the installation of sub-surface conduits, it is impossible to halt construction at every minor discovery. Such delays would create considerable downtime and add substantially to the cost of the operation. Additionally, the size of the equipment does not permit close examination of all extracted soil, thereby frustrating archaeological recoveries. In order to satisfy all parties, a methodology called the 'adjacent trench' technique was evolved.

This technique involves the excavation of a short trench parallel to the sewer or water main trench. It takes advantage of the fact that sub-surface services are usually placed parallel to each other. Thus, the adjacent trench can be placed within the impact zone and may be initiated during the

installation of the first sub-surface service. The adjacent trench, with appropriate back-sloping or use of a safety cage, is used by archaeologists for recovery of archaeological material equivalent to that which is being disrupted by the construction. Where the location and depth of archaeological deposits is known, through prior investigations, the adjacent trench can be sited, prior to the onset of construction. Where the location of archaeological resources is unknown, the location of the trench, if necessary, would be unknown until archaeological deposits are recognized through the monitoring of the service trench.

Considering the above preamble, Quaternary Consultants Ltd. can propose the following recommendations for the impact zone of the North/South Access Road.

1. It is recommended that three (3) equidistant exploratory backhoe test holes be excavated within the CNR portion of the North/South Access Road, prior to the installation of sub-surface services.
2. In conjunction with the above recommendation, and in light of the fact that sub-surface services will not be installed between the present location of Water and Pioneer Avenues, it is recommended that the pre-Contact discovery, at Test Hole 2, be avoided. Road construction will not disturb the 'Blackduck' stratum. This recommendation was provided to CNR during the summer (Appendix B: QCL letter, July 18).
3. It is recommended that all sub-surface modification be monitored by an archaeologist or archaeological team, depending upon the scale of the construction. Given the minimal amount of archaeological material discovered during the impact assessment, it is not presently envisioned that the 'adjacent trench'

technique will need to be employed during services installation along the FRC portion of the North/South Access Road. However, discovery of significant archaeological resources may require the implementation of this procedure. See Recommendation 5 & 7.

4. It is recommended that the construction contractor(s) be apprised of the needs of the archaeological monitoring team and of the potential of limited downtime for archaeological recovery during construction excavation.

5. It is recommended that the construction contractor(s) be apprised of the possibility of the implementation of the 'adjacent trench' technique for heritage resources recovery and the attendant need for parallel excavations and supply of safety cages.

6. It is recommended that the archaeological monitoring team be apprised of the necessity for minimizing construction downtime.

7. It is recommended that the use of the 'adjacent trench' be temperate, and that implementation of the procedure be a result of discussions with the project engineers, the contractor(s), Historic Resources Branch Impact Assessment Officer and the director of the archaeological monitoring team.

8. It is recommended that all archaeological activity conform to professional standards, as set forth in Appendix D of The Forks Archaeological Impact Assessment and Management Plan.

APPENDIX A

DATA RECOVERED DURING
ARCHAEOLOGICAL MONITORING OF
GEO-TECHNICAL DRILLING PROGRAM

TABLE OF DATA

HOLE NO.	STRATIGRAPHIC AND ARTIFACT DATA
1	Historic fill to 1.10m - wood, gravel River silts and clays containing thin, poorly defined soil zones
2	Historic fill to 1.25m, wood @ 0.80-0.90 Clay fill River silts and clays containing thin, poorly defined soil zones <u>Blackduck ceramics</u> @ 2.50 (+) meters
3	Gravel to 0.30m Clay fill containing historic artifacts (wood, brick, sewer tile, track) to 1.30m Concrete layer (25cm) River silts and clays containing thin, poorly defined soil zones
4	Sand/Gravel to 0.60m Black clay fill to 1.2m Blue, oil-soaked clay to ca. 3.0m, some trace of relict soil zones Soupy, brown clay below 4.0m
5	Cobblestone layer (0.35m) Clay fill to 1.10m River silts and clays containing thin, poorly defined soil zones
6	Gravel/Sand to 0.60m Brown-black clay fill to 1.0m Blue, oil-soaked clay and silts River silts and clays containing thin, poorly defined soil zones
12	Cobblestone/Concrete to 0.3m Clay fill to 1.1m River silts and clays containing thin, poorly defined soil zones Relict soil horizon @ 2.7m
13a	Gravel to 1.5m Oil-soaked clay to 3.0m

- 13b Brick/Gravel to 0.4m
Brown silt/clay fill
Thin layer of manure @ 0.9m
Blue, oil-soaked clay, some trace of relict soil
River silts and clays containing thin, poorly defined soil zones
- 14 Cobblestone/Brick to 0.60m
Clay fill, rusted metal @ 0.95m
Below 2.0m, river silts and clays containing thin, poorly defined soil zones
- 15 Brick/Concrete/Gravel to 0.90m
Clay fill; rusted square nail
Below 1.2m, river silts and clays containing thin, poorly defined soil zones
Sandy silt @ 3.5m
- 16 Gravel/Sand to 0.65m
River silts and clays containing thin, poorly defined soil zones
Sandy silt layer @ 4.30m
- 17 Asphalt/Gravel
Gravel/Black cinder to 0.70m
River silts and clays containing thin, poorly defined soil zones
Relict soil horizon @ 2.9m
Sandy silt layer @ 4.5m
- 18 Oil-soaked Gravel to 0.40m
Clay fill to 1.0m
River silts and clays containing thin, poorly defined soil zones
Baked, red clay & Ash (tree burn) @ 2.5m
Sandy layer @ 3.2m
- 19 Gravel to 0.50m
Clay fill; wood, clinkers
Below 1.1m, river silts and clays containing thin, poorly defined soil zones
Sand layer @ 4.0m
- 20 Gravel/Black cinder to 0.60m
Clay fill; brick, cinder to 1.3m
River silts and clays containing thin, poorly defined soil zones
Sand layer @ 2.4m
River silts and clays containing thin, poorly defined soil zones

- 21 Asphalt/Gravel to 0.8m
Clay fill to 1.2m
River silts and clays containing thin, poorly defined soil zones
Relict soil zone @ 2.5m
Sand layer @ 3.0m
River silts and clays containing thin, poorly defined soil zones
- 22 Gravel to 0.30m
Clay fill to 0.60m
River silts and clays containing thin, poorly defined soil zones
- 24 Gravel to 0.60m
Clay fill to 0.85m
River silts and clays containing thin, poorly defined soil zones
- 25 Gravel/Black cinder to 0.70m
Clay fill to 1.0m; glass sherd
River silts and clays containing thin, poorly defined soil zones
- 26 Gravel/Black cinder to 1.3m; iron, windowpane
River silts and clays containing thin, poorly defined soil zones
Sand lenses @ 3.2m
- 27 Gravel/Black cinder to 1.10m; wood, tar paper
Blue, oil-soaked silts and clays, some traces of relict soils
River silts and clays containing thin, poorly defined soil zones

APPENDIX B

CORRESPONDENCE RELATING TO THE
NORTH/SOUTH ACCESS ROAD
ARCHAEOLOGICAL IMPACT ASSESSMENT

Quaternary
Consultants
Limited

- 31 -

773 Jessie Ave.
Winnipeg, Manitoba
R3M 0Z6

(204) 453-3642

June 24, 1988

Mr. Al Baronas
The Forks Renewal Corporation
#1 Wesley at Main
Winnipeg, Manitoba

Dear Al:

RE: NORTH/SOUTH ACCESS ROAD DRILLING PROGRAM

As I mentioned, during our meeting on June 23, Dyregrov & Burgess have completed the geo-technical drilling program for the North/South Access Road. I was on-site to monitor the program during the drilling operations. As the five locations on the York Avenue Extension were not drilled, a total of 22 holes (#1 - 6; 12 - 27) were bored with a 16" auger on June 14 and 15.

The drilling program encountered minimal heritage resources below the railroad fill layer. This layer, consisting of gravel and cinder fill overlying disturbed clay, averaged one meter thick. The gravel and cinder zone ranged from 30 to 80 cm thick. Only two holes recovered archaeological material which pre-dates the railroad period.

Hole #3, immediately south of Water Ave., encountered a layer of historic debris underlying the railroad material. This layer culminated in a layer of concrete at a depth of 1.3 meters, probably representing the floor of an 1870's structure.

Hole #2, immediately north of Water Ave., encountered a layer of historic material which extended to a depth of 90 cm. Below this layer, and a subsequent layer of river silts, a prehistoric ceramic rimsherd was recovered from a depth of 2.0 to 2.5 meters. This artifact represents a native Indian occupation of the location about 700 to 800 years ago.

In light of this discovery, Quaternary Consultants would recommend that exploratory action be undertaken at the Hole #2 location prior to the initiation of construction activity. Such action would involve backhoe stripping of the upper soil zones and hand excavation of the prehistoric level, within the impact zone occasioned by the installation of sub-surface services.

Yours truly



Sid Kroker
Senior Archaeologist

Quaternary
Consultants
Limited

- 32 -

773 Jessie Ave.
Winnipeg, Manitoba
R3M 0Z6

(204) 453-3642

July 4, 1988

Miss Jane I. Fleming
General Manager Land Development
CN Real Estate
Vancouver, British Columbia

Dear Miss Fleming:

Re: Archaeological Resources on N/S Access Road

Pursuant to the telephone conversation with Ms. B. Dale Knowlan of the Winnipeg office, Quaternary Consultants Ltd. is prepared to undertake exploratory excavations to ascertain the quality and extent of the prehistoric archaeological deposits, recently discovered during soil-test drilling at Hole #2 (at the north side of Water Ave.) on the North/South Access Road. This operation will recover sufficient data to permit accurate forecasting of necessary mitigative action, if required, during the construction of the services trench, in conjunction with the road development.

The operation will utilize a backhoe to expedite excavation and in-filling and, thus, can be completed in one day. Accordingly, fencing of the location will not be necessary. Excavation will be conducted and artifacts will be processed according to the standards promulgated by The Forks Renewal Corporation.

As agreed, Quaternary Consultants will engage the backhoe and operator. The fee will be considered as a reimbursible expense. Field operations require the services of two archaeologists. Laboratory time is estimated as a function of field time and may vary, depending upon the quantity of recovered artifacts. Report preparation time will be minimal, due to the small scale of the operation. An estimated budget is attached.

It is anticipated that the operation can be undertaken within the next week. A verbal report will be provided to Ms. Knowlan, within 48 hours after the excavation. A written report will be provided to CN within ten days of the completion of field operations. An invoice will be submitted with the report.

Yours truly



Sid Kroker
Senior Archaeologist

CITY OF WINNIPEG
OPERATIONS DIVISION
SERVICES PERMIT

WATER + PIONEER

5575

District: 1

- 33 -

(THE FORKS)

Legal Description: See attached drawing for location
Street/Avenue No. _____
Lot _____ Block _____ Plan _____

- Single family residence
- Two family semi-detached
- Multiple family
- Commercial
- Industrial
- Demolition/removal
- Addition/alteration
- Other

Details TRENCHING + SOIL TESTING FOR ARCHAEOLOGICAL TESTING

Applicant: Quaternary Consult. Ltd.
Address: 773 Jessie Ave.
Phone: 453-3642
 Contractor
 Other

NOTE:
CONTRACTOR RESPONSIBLE FOR CLEANUP OF ALL MUD LEFT ON STREET DURING + AFTER CONST.

WATER SERVICE

Type of Service	Size and Type	Account No.	Fee
Domestic—Single Meter			
Domestic—Multiple Meter (standard Drawing) (application to be signed by owner)	<u>* existing approaches to be used for access to property</u>		
Domestic—Single meter multiple users			
Separate sprinkler service (fire)*			
Combined domestic and fire service, industrial, etc. (drawings)*		<u>44</u>	<u>10.00</u> 17
Booster pump installation (drawings)*			<u>10.00</u> TL
Hydrant rental (per unit per month)*		<u>5522</u>	<u>10.00</u> CATO
			<u>28 88/07/12</u>

*A set of drawings showing interconnections, cross-connections, back-flow devices, etc., must accompany application.

SEWER SERVICE

Type of Service	Size and Type	Account No.	Fee
Waste Water Sewer			\$
Rain Drainage Sewer			\$
Combined Sewer			\$
Holiday & Weekend inspection	<u>Inspection Only</u>		<u>10.00</u>
TOTAL FEE			<u>10.00</u>

Re: Indemnity Clause for Service Application and Services Permit

I undertake to observe and perform the provisions of all Dominion or Provincial statutes or regulations, and the applicable by-law or by-laws, schemes and regulations or orders and plans continued in force pursuant to Part IX of The City of Winnipeg Act affecting said land; and all specifications or instructions issued by the duly authorized officers of the City in respect of the work incidental to the subject matter of this application and to indemnify the City against all losses, costs, charges or damages caused by or arising out of anything done pursuant to any permit issued under this application.

SEE to comply with all By-Laws, requirements and Special Conditions set out herein:

Installer: [Signature] DATE: July 12/88
Designated Officer: [Signature] DATE: _____

Quaternary
Consultants
Limited

- 34 -

773 Jessie Ave.
Winnipeg, Manitoba
R3M 0Z6

(204) 453-3642

July 18, 1988

Ms. B. Dale Knowlan
Development Manager
CN Real Estate
Suite 238, 240 Graham Ave.
Winnipeg, Manitoba

Dear Dale:

Re: Archaeological Resources along the N/S Access Road

As discussed during our meeting of July 15, the archaeological investigations at Hole #2 (adjacent to Water Ave.) recovered significant archaeological material. At a depth of 2.90 meters, a layer of fish bone and artifacts was located, during the test program carried out on July 13. The preliminary assessment of the material is that it indicates the presence of a major occupation site, approximately 500 to 700 years old.

While the recovered artifacts have not been fully catalogued, ceramic sherds indicate the presence of at least three different vessels: the Blackduck type of pot represented by the initially discovered sherd (during geo-technical drilling),

: a style of lip decoration associated with pottery of the southwestern portion of the province (a prairie-adapted cultural group), and

: an undecorated utilitarian type vessel.

In addition, faunal resources were represented by a shoulder blade from a bison, vertebra from a small (beaver-size) mammal, and three or four different species of fish.

The site is important for several reasons:

- a: it is the first evidence of the Boreal Forest pottery within The Forks area,
- b: it represents an occupation, rather than a visitation,
- c: it confirms the predictive models for prehistoric land use along the Red/Assiniboine corridor.

However, given the importance of the site, certain factors definitely constrain the possibility of developing a public interpretive feature. The depth of overburden (nearly three meters) and the plastic nature of the saturated clays surrounding the cultural level would make any open-type display an engineer's nightmare. Similarly, the depth of overburden will lessen the eagerness of academic researchers to access the site.

As no sewer services are to be installed in the section between Pioneer and Water, avoidance (i.e., closure of the site) is deemed to be the most reasonable mitigative procedure. The material from the recent historic foundation at 60 cm is so disturbed that it is of minimal archaeological interest. No special provision need be made with regard to the upper fill layer or the historic component of the location.

As noted on Friday, the site could have almost any geographical configuration, perhaps extending along the proposed N/S Access Road. Also, any of the former soil horizons, which were visible in the profile photographs, may contain evidence of Pre-Contact Native occupations.

With regard to monitoring of the services installations, the methodology that was determined at the meeting seems to be the most reasonable compromise between expeditious construction and resource protection. The contractor will excavate test holes at a regular spacing (every ten meters) along the sewer line to base of impact. These test holes will be monitored for evidence of archaeological material. Data will be interpolated between test holes to provide a complete sub-surface map for the entire length of the sewer line. This map will permit archaeological assessment of the presence and extent of any prehistoric occupations which have occurred within the impact zone. Thus, the archaeologist will be able to inform the contractor which areas have no impediments to excavation and which will require special consideration.

Where prehistoric material is encountered, the contractor will remove the overburden to just above the cultural layer. The archaeological team will remove the archaeological feature en bloc. The feature will be mapped with a small grid (25 cm squares) and removed in toto for off-site processing. The artifacts will be washed, cataloged and curated. An interpretive report will be prepared.

This methodology will retrieve all archaeological information, while causing a minimal delay of construction. It is estimated that the cultural material could be removed at a rate of one square meter per hour. The laboratory time would, depending upon the type and quantity of recoveries, require 2 to 2 1/2 times the excavation hours. Analysis and report preparation time is also contingent upon the recoveries.

Given the information recovered from the test excavation at Hole #2, the depths of cultural layers could be extreme. The 500 to 700 year old site was covered with three meters of overburden. Older sites would be deeper. A steel sewer working cage may be necessary for field staff who are removing the archaeological material. This would eliminate the time of shoring individual areas for a few hours work at each location.

The sewer line is currently considered to be 300 meters long and will impact a width of about two meters. Using these figures to provide a 'worst case' scenario, maximum impact would be 500 m². This would translate into 500 person-hours (62.5 person-days) for removal of cultural material, if archaeological material occurred along the entire line. Consequent laboratory time would require 125 - 156 person-days. Analysis and report preparation would require approximately 30 person-days. The size of the field and lab team would be dependent upon the quantity of the resource. For small recoveries, two or three people would be sufficient; larger discoveries, such as the 'worst case' scenario, would require five or six staff.

As requested, Quaternary Consultants will provide a cost estimate of the 'worst case' version. The senior archaeologist would monitor the test excavations and provide the determination of 'go/no go' zones. Each of the proposed thirty excavations will require about one hour.

As noted during the meeting, the possibility of the entire line containing archaeological deposits is small. My personal 'gut' feeling is that less than 40% would contain material. This would naturally diminish the cost of mitigative action by a considerable amount. If the occupational horizons do not contain as much faunal material (especially fish bone) as Test Hole #2, the consequent laboratory time will be reduced. Basically, the above figures can be interpreted as maximums.

Hope the information is useful.

Yours truly



Sid Kroker
Senior Archaeologist

cc: J. E. Barnes, DS-Lea Consultants

APPENDIX C

CATALOG RECORD OF ARTIFACTS
RECOVERED DURING THE
NORTH/SOUTH ACCESS ROAD
ARCHAEOLOGICAL IMPACT ASSESSMENT

SPECIMEN CATALOGUE RECORD

Site: D1Lq-33/88B / THE FORKSArea: RED RIVERDonor: THE FORKS RENEWAL CORPORATIONAcc. No.: A1988-19

Cat. #	Qty	Object Name / Object Type	Material / Cultural Phase	Location on Site	Coll. Date
1	4	SHERD BOTTLE	GLASS HISTORIC	TEST HOLE 2	19880713
2	7	SHERD BOTTLE	GLASS HISTORIC	TEST HOLE 2	19880713
3	7	SHERD BOTTLE ?	GLASS HISTORIC	TEST HOLE 2	19880713
4	1	SHERD BOTTLE ?	GLASS HISTORIC	TEST HOLE 2	19880713
5	1	SHERD BOTTLE	GLASS HISTORIC	TEST HOLE 2	19880713
6	2	SHERD BOTTLE	GLASS HISTORIC	TEST HOLE 2	19880713
7	5	SHERD BOTTLE	GLASS HISTORIC	TEST HOLE 2	19880713
8	1	SHERD BOTTLE	GLASS HISTORIC	TEST HOLE 2	19880713
9	2	SHERD BOTTLE	GLASS HISTORIC	TEST HOLE 2	19880713
10	1	SHERD JAR	GLASS HISTORIC	TEST HOLE 2	19880713
11	1	WINDOWPANE PLATE	GLASS HISTORIC	TEST HOLE 2	19880713
12	4	WINDOWPANE	GLASS HISTORIC	TEST HOLE 2	19880713
13	6	WINDOWPANE	GLASS HISTORIC	TEST HOLE 2	19880713
14	1	WINDOWPANE	GLASS HISTORIC	TEST HOLE 2	19880713
15	1	SHERD BOTTLE	GLASS HISTORIC	TEST HOLE 2	19880713
16	1	BUTTON VERTICAL HOLE	GLASS HISTORIC	TEST HOLE 2	19880713
17	1	STOPPER BOTTLE	PORCELAIN HISTORIC	TEST HOLE 2	19880713
18	1	BATTERY DRY CELL	CARBON HISTORIC	TEST HOLE 2	19880713
19	1	LIGHT BULB	GLASS HISTORIC	TEST HOLE 2	19880713
20	1	SHOE	LEATHER HISTORIC	TEST HOLE 2	19880713
21	2	VERTEBRA ARTIODACTYLA	BONE HISTORIC	TEST HOLE 2	19880713
22	1	LONG BONE ARTIODACTYLA	BONE HISTORIC	TEST HOLE 2	19880713
23	1	HUMERUS TETRAONIDAE	BONE HISTORIC	TEST HOLE 2	19880713
24	1	LONG BONE MAMMALIA	BONE HISTORIC	TEST HOLE 2	19880713
25	1	RIB MAMMALIA	BONE HISTORIC	TEST HOLE 2	19880713

SPECIMEN CATALOGUE RECORD

Site: D1Lg-33/88B / THE FORKSArea: RED RIVERDonor: THE FORKS RENEWAL CORPORATIONAcc. No.: A1988-19

Cat. #	Qty	Object Name / Object Type	Material / Cultural Phase	Location on Site	Coll. Date
26	1	RADIUS SUS SCROFA	BONE HISTORIC	TEST HOLE 2	19880713
27	1	PAINT	PAINT HISTORIC	TEST HOLE 2	19880713
28	1	UNKNOWN	PLASTIC HISTORIC	TEST HOLE 2	19880713
29	1	O-RING	RUBBER HISTORIC	TEST HOLE 2	19880713
30	1	DOLL CHINA	PORCELAIN HISTORIC	TEST HOLE 2	19880713
31	1	BUSHING WALE	IRON HISTORIC	TEST HOLE 2	19880713
32	1	WIRE COATED	IRON HISTORIC	TEST HOLE 2	19880713
33	1	CAP BOTTLE	IRON HISTORIC	TEST HOLE 2	19880713
34	1	SCRAP	IRON HISTORIC	TEST HOLE 2	19880713
35	1	HORSESHOE	IRON HISTORIC	TEST HOLE 2	19880713
36	1	BOLT CARRIAGE	IRON HISTORIC	TEST HOLE 2	19880713
37	14	NAIL ROUND	IRON HISTORIC	TEST HOLE 2	19880713
38	1	NAIL SQUARE	IRON HISTORIC	TEST HOLE 2	19880713
39	4	NAIL SQUARE	IRON HISTORIC	TEST HOLE 2	19880713
40	1	SHERD PLATE	PORCELAIN HISTORIC	TEST HOLE 2	19880713
41	1	SHERD PLATE?/SAUCER?	PORCELAIN HISTORIC	TEST HOLE 2	19880713
42	2	SHERD PLATE	PORCELAIN HISTORIC	TEST HOLE 2	19880713
43	1	SHERD CUP	PORCELAIN HISTORIC	TEST HOLE 2	19880713
44	4	SHERD FLOWERPOT	TERRACOTTA HISTORIC	TEST HOLE 2	19880713
45	1	SHERD PLATE?/SAUCER?	PORCELAIN HISTORIC	TEST HOLE 2	19880713
46	1	SHERD PLATE?/SAUCER?	PORCELAIN HISTORIC	TEST HOLE 2	19880713
47	3	SHERD CUP	PORCELAIN HISTORIC	TEST HOLE 2	19880713
48	7	SHERD PLATE?/SAUCER?	PORCELAIN HISTORIC	TEST HOLE 2	19880713
49	1	SHERD CROCK	STONEWARE HISTORIC	TEST HOLE 2	19880713
50	1	PIPE ELBOW	KAOLIN HISTORIC	TEST HOLE 2	19880713

SPECIMEN CATALOGUE RECORD

Site: D1Lg-33/88B / THE FORKSArea: RED RIVERDonor: THE FORKS RENEWAL CORPORATIONAcc. No.: A1988-19

<u>Cat. #</u>	<u>Qty</u>	<u>Object Name / Object Type</u>	<u>Material / Cultural Phase</u>	<u>Location on Site</u>	<u>Coll. Date</u>
51	1	BRICK	CONCRETE HISTORIC	TEST HOLE 2	19880713
52	2	TILE	PORCELAIN HISTORIC	TEST HOLE 2	19880713
53	3	TILE FLOOR	PORCELAIN HISTORIC	TEST HOLE 2	19880713
54	3	TILE FLOOR	PORCELAIN HISTORIC	TEST HOLE 2	19880713
55	4	TILE FLOOR	PORCELAIN HISTORIC	TEST HOLE 2	19880713
56	1	TILE FLOOR	PORCELAIN HISTORIC	TEST HOLE 2	19880713
57	1	RIM SHERD LIP	EARTHENWARE LATE WOODLAND	TEST HOLE 2	19880713
58	1	RIM SHERD LIP	EARTHENWARE LATE WOODLAND	TEST HOLE 2	19880713
59	4	BODY SHERD BODY	EARTHENWARE LATE WOODLAND	TEST HOLE 2	19880713
60	11	BODY SHERD BODY	EARTHENWARE PREHISTORIC	TEST HOLE 2	19880713
61	1	SCAPULA BISON BISON	BONE PREHISTORIC	TEST HOLE 2	19880713
62	158	UNDETERMINED MAMMALIA	BONE PREHISTORIC	TEST HOLE 2	19880713
63	9	UNDETERMINED MAMMALIA	BONE PREHISTORIC	TEST HOLE 2	19880713
64	11	UNDETERMINED MAMMALIA	BONE PREHISTORIC	TEST HOLE 2	19880713
65	1	CARAPACE TESTUDINES	BONE PREHISTORIC	TEST HOLE 2	19880713
66	15	UNDETERMINED AVES	BONE PREHISTORIC	TEST HOLE 2	19880713
67	27	UNDETERMINED	BONE PREHISTORIC	TEST HOLE 2	19880713
68	52	VERTEBRA FISH	BONE PREHISTORIC	TEST HOLE 2	19880713
69	351	SCALE FISH	SCALE PREHISTORIC	TEST HOLE 2	19880713
70	415	UNDETERMINED FISH	BONE PREHISTORIC	TEST HOLE 2	19880713
71	159	RIB FISH	BONE PREHISTORIC	TEST HOLE 2	19880713
72	2	SCUTE ACIPENSER FULVESCENS	BONE PREHISTORIC	TEST HOLE 2	19880713
73	1	SAMPLE	CHARCOAL PREHISTORIC	TEST HOLE 2	19880713
74	2	DENTARY HIODON	BONE PREHISTORIC	TEST HOLE 2	19880713
75	1	QUADRATE STIZOSTEDION	BONE PREHISTORIC	TEST HOLE 2	19880713

SPECIMEN CATALOGUE RECORD

Site: D1Lg-33/88B / THE FORKSArea: RED RIVERDonor: THE FORKS RENEWAL CORPORATIONAcc. No.: A1988-19

Cat. #	Qty	Object Name / Object Type	Material / Cultural Phase	Location on Site	Coll. Date
76	3	OPERCULUM HIOBON	BONE PREHISTORIC	TEST HOLE 2	19880713
77	2	OPERCULUM CATOSTOMIDAE	BONE PREHISTORIC	TEST HOLE 2	19880713
78	1	HYOMANDIBULAR CATOSTOMIDAE	BONE PREHISTORIC	TEST HOLE 2	19880713
79	2	DENTARY CATOSTOMIDAE	BONE PREHISTORIC	TEST HOLE 2	19880713
80	2	MAXILLA CATOSTOMIDAE	BONE PREHISTORIC	TEST HOLE 2	19880713
81	2	HYOMANDIBULAR ICTALURUS	BONE PREHISTORIC	TEST HOLE 2	19880713
82	5	CLEITHRUM ICTALURUS	BONE PREHISTORIC	TEST HOLE 2	19880713
83	6	CORACOID ICTALURUS	BONE PREHISTORIC	TEST HOLE 2	19880713
84	2	QUADRATE ICTALURUS	BONE PREHISTORIC	TEST HOLE 2	19880713
85	3	ANGULAR ICTALURUS	BONE PREHISTORIC	TEST HOLE 2	19880713
86	3	DENTARY ICTALURUS	BONE PREHISTORIC	TEST HOLE 2	19880713
87	1	FRONTAL ICTALURUS	BONE PREHISTORIC	TEST HOLE 2	19880713
88	1	DENTARY; ANGULAR ICTALURUS	BONE PREHISTORIC	TEST HOLE 2	19880713
89	9	PECTORAL SPINE ICTALURUS	BONE PREHISTORIC	TEST HOLE 2	19880713
90	1	OPERCULUM ICTALURUS	BONE PREHISTORIC	TEST HOLE 2	19880713
91	1	ANGULAR STIZOSTEDION	BONE PREHISTORIC	TEST HOLE 2	19880713
92	50	UNDETERMINED FISH	BONE PREHISTORIC	TEST HOLE 2	19880713
93	2	WINDOWPANE PLATE	GLASS HISTORIC	HOLE 1	19880615
94	1	SEWER TILE	STONEWARE HISTORIC	HOLE 1	19880615
95	1	SHERD BOTTLE	GLASS HISTORIC	HOLE 4	19880615
96	1	SHERD BOTTLE	GLASS HISTORIC	HOLE 4	19880615
97	1	SHERD BOTTLE	GLASS HISTORIC	HOLE 4	19880615
98	1	SHERD BOTTLE	GLASS HISTORIC	HOLE 4	19880615
99	1	SHERD PLATE	PORCELAIN HISTORIC	HOLE 4	19880615
100	1	PIN	IRON HISTORIC	HOLE 4	19880615

SPECIMEN CATALOGUE RECORD

Site: D11g-33/88B / THE FORKS
 Donor: THE FORKS RENEWAL CORPORATION

Area: RED RIVER
 Acc. No.: A1988-19

Cat. #	Qty	Object Name / Object Type	Material / Cultural Phase	Location on Site	Coll. Date
101	4	SHERD BOTTLE	GLASS HISTORIC	HOLE 3	19880615
102	2	SHERD BOTTLE	GLASS HISTORIC	HOLE 3	19880615
103	3	SHERD BOTTLE	GLASS HISTORIC	HOLE 3	19880615
104	6	WINDOWPANE	GLASS HISTORIC	HOLE 3	19880615
105	1	SHERD BOTTLE	GLASS HISTORIC	HOLE 3	19880615
106	3	NAIL ROUND	IRON HISTORIC	HOLE 3	19880615
107	1	SHERD FLOWERPOT	TERRACOTTA HISTORIC	HOLE 3	19880615
108	1	SEWER TILE	STONEWARE HISTORIC	HOLE 3	19880615
109	1	SHERD CUP	PORCELAIN HISTORIC	HOLE 3	19880615
110	2	SHERD CROCK	STONEWARE HISTORIC	HOLE 3	19880615
111	1	RIM SHERD LIP; NECK; SHOULDER	EARTHENWARE LATE WOODLAND	HOLE 2	19880615
112	1	LONG BONE MAMMALIA	BONE HISTORIC	HOLE 2	19880615
113	1	NAIL SQUARE	IRON HISTORIC	HOLE 2	19880615
114	1	SHERD CROCK	STONEWARE HISTORIC	HOLE 27	19880615
115	3	WINDOWPANE	GLASS HISTORIC	HOLE 26	19880615
116	1	SHERD BOTTLE	GLASS HISTORIC	HOLE 26	19880615
117	1	CABLE	IRON HISTORIC	HOLE 26	19880615
118	1	NAIL ROUND	IRON HISTORIC	HOLE 26	19880615
119	1	WINDOWPANE	GLASS HISTORIC	HOLE 25	19880615
120	1	SHERD	GLASS HISTORIC	HOLE 25	19880615
121	1	PIN	IRON HISTORIC	HOLE 20	19880615
122	1	NAIL ROUND	IRON HISTORIC	HOLE 14	19880614
123	1	OCHRE	HEMATITE PREHISTORIC	TEST HOLE C	19880823
124	1	HYOMANDIBULAR ICTALURUS	BONE PREHISTORIC	TEST HOLE C	19880823
125	3	UNDETERMINED FISH	BONE PREHISTORIC	TEST HOLE F	19880823

SPECIMEN CATALOGUE RECORD

Site: D1Lg-33/88B / THE FORKS

Area: RED RIVER

Donor: THE FORKS RENEWAL CORPORATION

Acc. No.: A1988-19

<u>Cat. #</u>	<u>Qty</u>	<u>Object Name / Object Type</u>	<u>Material / Cultural Phase</u>	<u>Location on Site</u>	<u>Coll. Date</u>
126	2	VERTEBRA MAMMALIA	BONE PREHISTORIC	TEST HOLE F	19880823
127	2	UNDETERMINED MAMMALIA	BONE PREHISTORIC	TEST HOLE B	19880823
128	46	UNDETERMINED FISH	BONE PREHISTORIC	TEST HOLE B	19880823
129	1	MAXILLA CATOSTOMIDAE	BONE PREHISTORIC	TEST HOLE B	19880823
130	1	RIB MAMMALIA	BONE PREHISTORIC	TEST HOLE B	19880823
131	1	FLAKE	CHALCEDONY PREHISTORIC	TEST HOLE B	19880823
132	1	FLAKE	KNIFE RIVER FLINT PREHISTORIC	TEST HOLE B	19880823
133	1	FLAKE	QUARTZITE PREHISTORIC	TEST HOLE B	19880823
134	1	SKULL HOMO SAPIENS	BONE PREHISTORIC	TEST HOLE B	19880823

56

1546 Total

APPENDIX D

PROVENIENCE OF SUB-SURFACE
INVESTIGATION UNITS
IN RELATION TO SITE DATUM

TABLE OF DATA
(refer to Figure 1)

INVESTIGATION	NORTH	WEST
Geo-technical Hole 1	1684.2	1250.0
Geo-technical Hole 2	1657.7	1257.6
Geo-technical Hole 3	1634.8	1265.2
Geo-technical Hole 4	1605.0	1271.2
Geo-technical Hole 5	1574.8	1279.5
Geo-technical Hole 6	1539.0	1281.5
Geo-technical Hole 12	1465.8	1255.6
Geo-technical Hole 13	1419.6	1235.3
Geo-technical Hole 14	1371.3	1215.5
Geo-technical Hole 15	1325.7	1196.3
Geo-technical Hole 16	1281.8	1179.0
Geo-technical Hole 17	1233.6	1155.6
Geo-technical Hole 18	1189.5	1136.8
Geo-technical Hole 19	1144.2	1115.0
Geo-technical Hole 20	1053.0	1075.0
Geo-technical Hole 21	1188.0	1253.5
Geo-technical Hole 22	1168.2	1183.2
Geo-technical Hole 24	1178.8	1076.0
Geo-technical Hole 25	1144.7	1004.6
Geo-technical Hole 26	1162.5	959.4
Geo-technical Hole 27	1096.7	987.0
Backhoe Test Hole 2	1657.0-59.5	1257.2-59.7
Backhoe Test Hole A	1432.7-34.5	1244.5-47.5
Backhoe Test Hole B	1400.0-01.3	1232.0-35.5
Backhoe Test Hole C	1311.5-13.5	1200.0-04.5
Backhoe Test Hole D	1225.0-26.6	1165.0-69.0
Backhoe Test Hole E	1195.0-96.5	1153.5-57.5
Backhoe Test Hole F	1485.5-86.3	1260.8-64.3