

**ARCHAEOLOGICAL MONITORING  
OF EXCAVATIONS FOR THE  
WEST ABUTMENT OF THE  
PROVENCHER PEDESTRIAN BRIDGE**

Submitted to

Wardrop Engineering Inc.

**QUATERNARY  
CONSULTANTS  
LIMITED**

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## 1.0 INTRODUCTION

In conjunction with the re-construction of the Provencher Bridge, a pedestrian bridge is being built on the south side of the paired vehicular bridges (Figure 1). The eastern abutment is part of the east abutment of the eastbound span, while the west abutment is located on the west bank of the Red River, separated from the vehicle bridge by a considerable distance.

Due to the potential for impact upon heritage resources, Quaternary Consultants Ltd. was contracted by Wardrop Engineering Inc. to provide archaeological monitoring of all sub-surface operations. The monitoring was conducted under the terms of heritage Permit A43-02 (Appendix A), issued by Historic Resources Branch, Manitoba Culture, Heritage and Tourism.

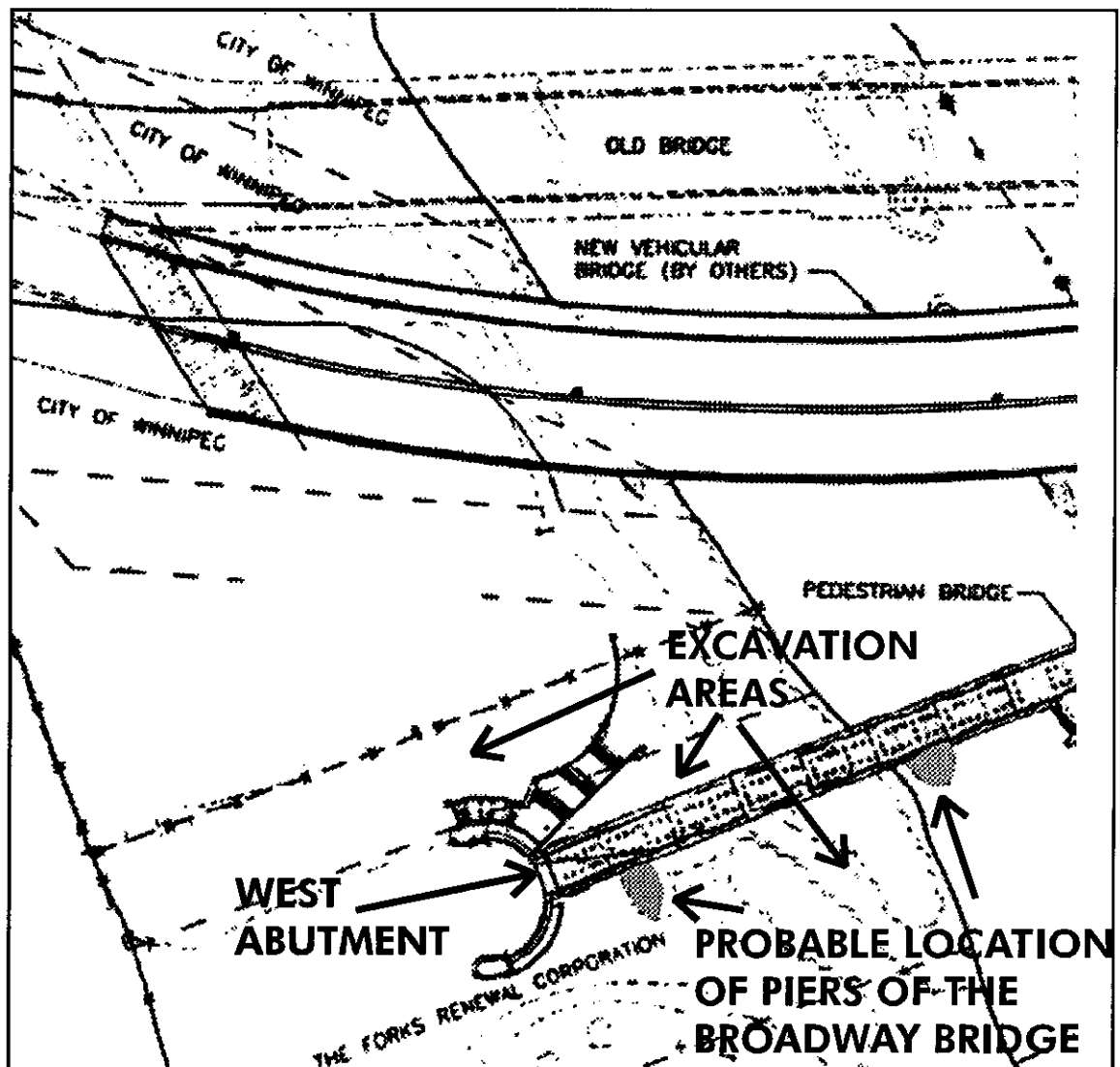


Figure 1: Location of Pedestrian Bridge and Construction Impacts

## 1.1 Scope of Project

The components of the project which required archaeological monitoring were the drilling of caissons for the west abutment, the excavations necessary for the construction of the abutment frames, two trenches for brace beams, and landscaping modifications to the riverbank east and south of the abutment (Figure 1).

A total of seven caissons—3 of 1220 mm (48 inches) diameter and 4 of 900 mm (36 inches) diameter—were drilled (Figure 2). The excavations for framing were a T-shaped block, excavated to a depth of approximately 1.8 metres. Two shallow (1 metre) trenches were excavated between the abutment and eastern edge of the upper bank of the Red River for the preparation of large grade (brace) beams mounted on piles.

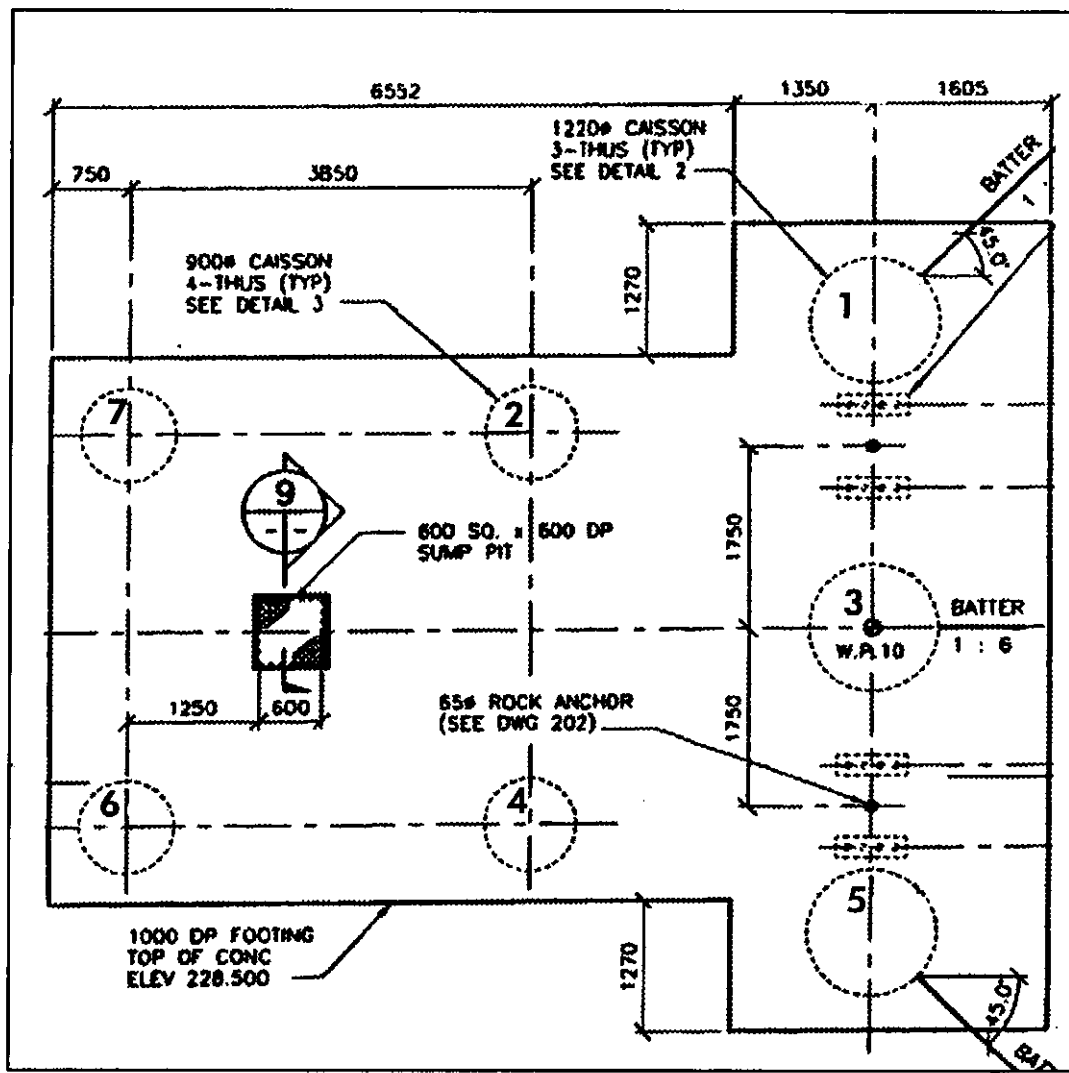


Figure 2: Configuration of Caissons for West Abutment

Prior to the preparation of the area for the drilling of the western pier, which is situated slightly off shore, some excavation at the southern edge of the excavations for the Provencher Bridge west abutment (Quaternary 2002a) was undertaken to provide an access road. The final excavations consisted of slope modifications by removing portions of the upper bank to the east and south of the abutment (Figure 3).

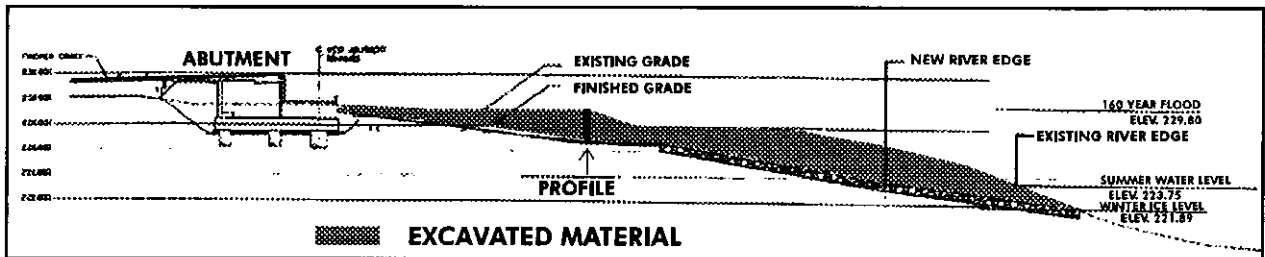


Figure 3: Extent of Slope Modification Excavations

## 1.2 Study Team

The project was directed by Sid Kroker, Senior Archaeologist. The field operations were conducted by Sid Kroker. Report preparation was undertaken by Sid Kroker and Pam Goundry.

## 1.3 Methodology

The excavations for the caissons were performed with a Soil-Mech auger using a large bit. The holes were drilled into bedrock but archaeological monitoring was only necessary until the lacustrine clays were encountered. The upper portions of the excavations consisted of various layers of fill. When the excavations extended into undisturbed original sediments below the fill horizons, the monitoring archaeologist watched for buried soil horizons and changes in soil texture which could indicate possible former ground surfaces. This was done by examining the soil retained on the auger bit after it was withdrawn from the hole. The drilling crew was quite helpful in enabling sufficient time to adequately examine the extracted soil while it was on the auger bit.

The rotary action of the auger tends to deform the soil layers to a degree, occasionally obscuring thin (less than 1.0 cm thick) soil layers. In addition, the fill layers extended below the water table, so that often the soil on the auger bit was extremely wet and discoloured through downward staining from the fill layers. Where discernible, the changes in type of deposit (fill versus original sediment) and texture (silt versus clay) were recorded as were any indicators of possible cultural layers. The depths of the different soil layers were recorded and are presented in the stratigraphic profiles.

The possible cultural indicators watched for are buried soil horizons and/or charcoal layers, ash lenses, or reddish stained soil. The presence of a buried soil layer, denoted by a dark brown or black loam layer, indicates a stable ground surface between floods which would have deposited sediments. Charcoal or ash can indicate either a natural event, such as a brush or prairie fire, or a cultural event, such as a campfire. The colour change is usually indicative of oxidation of the iron particles in Red River silt by heat—the more intense the heat, the redder the soil. If evidence of fire is observed, the layer is investigated to ascertain if the cause was natural or cultural. The presence of food remains, particularly mammal or fish bones, resting upon a buried soil is a positive indicator of an archaeological occupation horizon. Other positive indicators are the presence of fragments of earthenware containers and/or lithic tools or flakes resulting from tool manufacture.

The primary focus for recoveries from historic horizons is diagnostic artifacts, i.e., those which can provide evidence of time period, company of manufacture, and/or function. Accordingly, glass and ceramic containers which often have diagnostic markings would be curated, if present. Also, metallic objects which could be identified to function would be recovered, while non-diagnostic structural items, such as generic bricks, lumber, concrete fragments, iron pipes, and wire-cut nails, are generally not curated. There were no artifacts pre-dating the urban period.

## ***1.4 Archaeological Site Designation***

Each artifact is assigned a Borden designation as part of its catalogue number. Consisting of a four-letter prefix and a numerical suffix, this is a Canada-wide system of identifying archaeological sites based upon latitude and longitude (Borden 1954). The four letter identifier, DILg, designates a geographical block between 49° 50' and 50° 00' North latitude and 97° 00' and 97° 10' West longitude. Within each block, archaeological sites are assigned sequential numbers upon discovery.

The portion of the project on the west side of the Red River falls within the boundaries of DILg-33. This site has been defined as: lying south of Water Avenue, west of the Red River, and east of the CNR Main Line Embankment. As numerous archaeological projects have occurred within the site boundaries over the past decade (Kroker 1989; Kroker and Goundry 1990, 1993a, 1993b, 1994; Quaternary 1988, 1989a, 1989b, 1989c, 1990a, 1990b, 1990c, 1992, 1993a, 1993b, 1994a, 1994b, 1995a, 1995b, 1995c, 1996a, 1996b, 1996c, 1998a, 1998b, 1999a, 1999b, 1999c, 2000a, 2000b, 2000c, 2000d, 2001a, 2001b, 2002a, 2002b), the site designation has been expanded to include a sequential year/project identifier. The identifier for this project is 02B, denoting that this is the second project at this Borden designation during 2002.

## ***1.5 Laboratory Procedures***

During this project, a total of 12 artifacts were recovered. All of the material was brought to Quaternary laboratory facilities, where it was washed and sorted by material class and identified by the lab personnel. Material of the same type (e.g., white ceramic plate sherds) within the same location and depth were combined under a single catalogue number.

Each artifact received a catalogue number consisting of the Borden designation for the site and a sequential number for permanent identification, i.e., DILg-33:02B/####. All pertinent data associated with the artifact was entered into the computer cataloguing system which is based upon the Canadian Heritage Inventory Network (CHIN) system (Manitoba Museum of Man and Nature 1986; Kroker and Goundry 1993a:Appendix B). The computer cataloguing program is derived from **DBASE3®** and generates individual artifact catalogue cards.

Processed artifacts were prepared for storage by inserting the specimens and the catalogue cards into standard plastic storage bags, then stapling the bags closed. At the end of the project, all recovered artifacts will be delivered to the Manitoba Museum of Man and Nature which is the repository designated by the City of Winnipeg for artifacts recovered during development projects in the downtown area.

## **2.0 STRATIGRAPHY**

The stratigraphy of each of the seven caisson holes (Figure 2) was recorded (Table 1). As noted above, the lower portions of the soil columns were below water table, resulting in saturated and often soupy extractions on the auger bit. Usually, the water table was encountered at depths approximating 450 to 500 cm and usually in the form of an aquifer. If it was only a single aquifer, the installation of the sleeve could block the water and the remainder of the hole would be damp but not liquid filled. Some of the holes were not able to be blocked, requiring re-packing of the hole with clay and re-drilling. Even this did not always forestall seepage. Thus, texture changes in the riverine sediments were rarely discernible. Also, due to considerable staining due to downward leaching of coal dust and other dark substances, colour variations were totally obscured.

The upper fill layer was variable, even between adjacent holes. The concrete fragments were often massive, requiring the use of a crane-mounted hammer to break them into pieces that could be extracted with the drill bit. Much of the concrete contained reinforcing rods (rebar) indicating relatively recent manufacture and subsequent disposal. Interspersed within the concrete and clay layers were layers of black cinder, gravel, sand, lumber, and other structural debris. The depth of the fill layers suggests that considerable over-bank dumping occurred, building the upper bank outward over the original low-lying bank.

The combination of saturated, often waterlogged, soils below the fill layer and downward staining resulted in poor opportunities to observe the changes in texture and colour of the riverine sediments. Texture variations were discernible in only one hole. Of interest was the observation of fragments of wood near the base of the riverine sediments in Hole 7. However, as the hole had flooded with water, possible hydrocarbons, and sediment during the drilling of the lower layers, it was deemed that recovery for radiocarbon dating was futile due to contamination. Given the depth, these wood fragments would have derived from riverbank trees soon after the draining of Glacial Lake Agassiz. Also, the recovery for dendrochronological purposes was not viable as the wood was severely chewed by the auger, with no intact sections of trunks remaining.

STRATUM	1	2	3	4	5	6	7
Clay Fill	90	100	120	120	120	90	60
Gravel						135	
Cinder, Concrete					280	230	
Cinder, Gravel				300			300
Ash, Cinder, Sand				365	335		
Cinder, Gravel				425	380		
Concrete, Gravel, Cinder	790	730	610	600		440	700
Concrete, Clay				670	570		
Silt, Clay, Concrete						750	760
Wood, Timber					580	760	
Concrete, Clay					850		
Riverine silty clay			700				975
Organic stained silty clay			720				
Silty clay			755				
Sand			760				
Silty clay			775				
Clay			790				
Wood Fragments							985
Silty clay	880	880	885	890	1140	1035	1035
Lacustrine clay							

Table 1: Soil Profiles Recorded During Caisson Drilling

### 3.0 MONITORED EXCAVATIONS

After the caissons had been drilled and poured, the area surrounding them was excavated to a depth of 1.8 metres (Plate 1). The excavation was undertaken with a large backhoe and the removed material trucked off site. The excavated material was similar to that which had been observed during the caisson drilling, consisting primarily of clay, concrete fragments, and gravel. No non-structural artifacts were observed. Similarly, the material removed during the excavation of the shallow trenches to the east of the abutment encountered clay fill and gravel with small concrete fragments.

The final excavation component consisted of the removal of a considerable depth of material—up to 2.5 metres (Figure 3). The area of excavation extended from the west abutment to the riverbank and the north/south extent was from the limit of construction of the eastbound Provencher Bridge Project (Quaternary 2002a) to the southern edge of the sloped landscaping adjacent to the Parks Canada boundary.

Some prior impact had recently occurred in the area with the construction of an access road to connect the upper bank with the River Rouge Riverboat dock which is situated at water edge at the southern limit of construction. An earlier archaeologically monitored project was the excavation of a trench to provide services to the dock (Quaternary 1989c). At that time, only layers of structural material (gravel, crushed limestone, etc.) and structural debris were encountered.



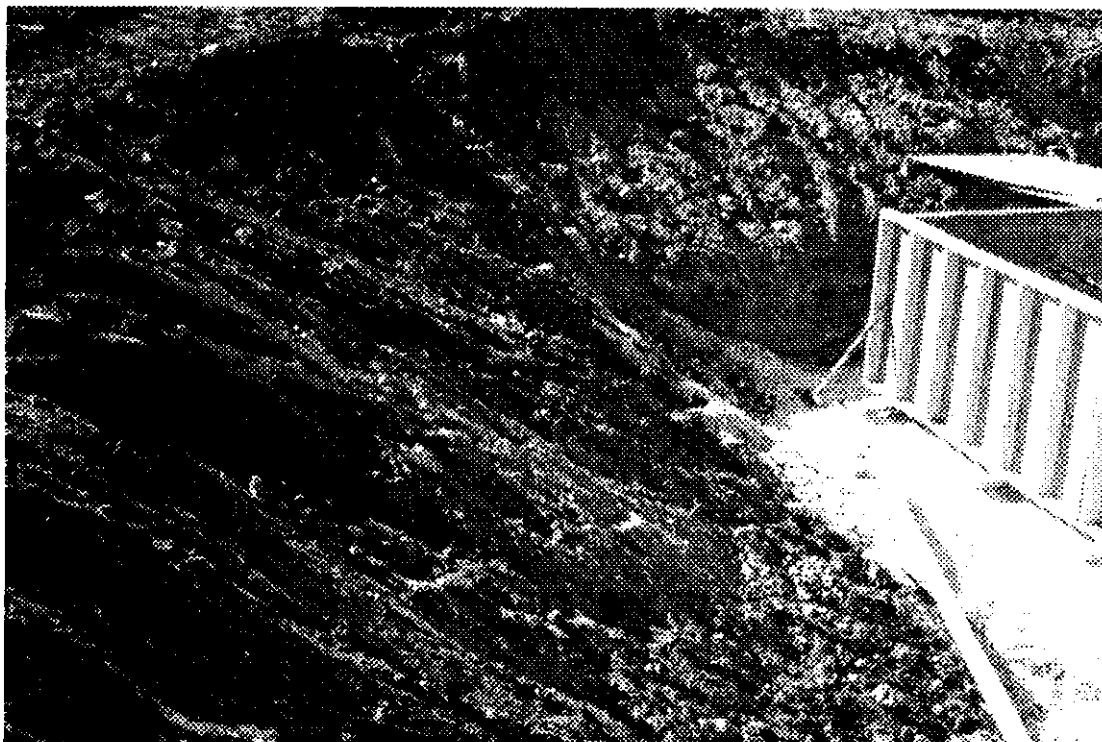


Plate 1: Excavation Around Abutment Area

During the current project, similar material was observed. At the point of deepest excavation on the upper terrace (Figure 3), a stratigraphic profile was recorded (Table 2). Most of the strata extended eastward, truncating near the former bank. The lower cinder layer, which had contained some artifacts, sloped below the level of excavation for most of the area. The materials at the edge of the riverbank consisted of a layer of silt, containing roots from shrubs and trees overlying thick dense layers of compacted crushed limestone which had apparently been dumped over the bank. Recent artifacts were recovered from the silt component.

STRATA	DEPTH
clay	0 - 70
concrete rubble	70 - 85
sand and gravel	85 - 130
clay	130 - 135
sand	135 - 140
cinder and clay	140 - 160
gravel	160 - 185
clay	185 - 195
black cinder and gravel	195 - 230

Table 2: Stratigraphic Profile in Bank Modification Area

## 4.0 RECOVERED ARTIFACTS

Twelve historic artifacts were recovered. These consisted of one in the Food Processing category, seven in the Container category, and four in the Dinnerware category.

### 4.1 *Food Processing*

This category is reserved for artifacts that are used to prepare food for consumption and range from cutlery through appliances. A single artifact, DILg-33:02B/1, is a complete, yellow plastic juicer. The circumference of the body is 127.0 mm with a grooved central dome (for juicing oranges, limes, lemons, etc.) rising 61.0 mm high. The base has numerous oblong slots and circular holes for juice drainage. The artifact shows evidence of weathering and/or chemical reaction with the soil matrix.

### 4.2 *Containers*

This category includes all artifacts, or portions of artifacts, which are used to contain products. It tends to cross-cut other functional divisions, with assignment to the category based upon form, as much as function. The category contains several sub-categories (Manitoba Museum of Man and Nature 1986), two of which are applicable to the recovered artifacts:

- ◆ Storage - the purpose of the container is to hold material, e.g., bottles, jars, tin cans; and
- ◆ Dinnerware - the artifact is used in the serving or eating of food.

#### 4.2.1 *Storage*

Storage containers include most of the commonly used artifacts in today's material culture. Many products are sold, transported, carried, or stored in a container of some type: jar, sealer, can, bottle.

##### 4.2.1.1 *Canning Sealers*

Canning sealers were introduced in the late 19<sup>th</sup> century. A variety of brand names—Crown, Gem, Perfect Seal—competed for those customers who could now preserve large quantities of food on a household basis. DILg-33:02B/3 is a complete glass lid from a canning sealer. The artifact has concentric embossed circles on the interior with a depressed centre. Some manufacturers marked their lids to match their brand name sealers, as well as making generic specimens like this one.

##### 4.2.1.2 *Soft Drink Bottles*

Many bottling firms produced alcoholic and non-alcoholic beverages, often using the same bottles which were identified by paper labels. Specimens recovered archaeologically can only be assigned to the Soft Drink category if the artifact is identified with a brand name or with a company name of a firm which only produced non-alcoholic beverages.

DILg-33:02B/4 is a complete clear bottle with a crown finish. The brand name, "W...G WELL", is painted, in a greenish-blue, in a horizontal band around the body, just below the shoulder. The bottle

itself has a distinctive decorative design of clockwise-spiraling stippled ribs and a slight pinch in the body, near the base. The embossed text on the body, at the base, reads "NATIONAL DRY LTD" and "CONTENTS 11 FL. OZ.". The base is embossed with "DESIGN REGISTERED", "5", "4875", and the "C in a triangle" mark indicating manufacture by Consumers Glass of Canada. The Wishing Well Soft Drink Company began in Winnipeg in 1938 but the soft drinks were a product of National Dry Limited, an eastern company (Stock 1978:59). The terminal date of the company is unknown but bottling and distribution of Wishing Well soft drinks was taken over by Zero Bottling Works. Stock (1978:58) illustrates three varieties of Wishing Well bottles, all of which have the spiral decoration. The orientation of the text and the size of DILg-33:02B/4 differs from these types.

#### 4.2.1.3 Beer Bottles

One complete specimen was recovered. DILg-33:02B/5 is a large, cylindrical brown bottle with a screw cap closure. Some embossed markings occur on the body, near the base, consisting of "35", "85", "1", and "C logo". The logo appears to be mirrored images of an angular G. Stippling and short bars in a circular pattern are embossed on the base. The remnants of a multi-coloured paper label are present. The label appears to be bilingual as identifiable phrases are "STRONG BE...", "946 ML", and "CERVEZA". Insufficient detail is present to identify the brand name but the presence of the Spanish word for beer suggests that it is a Mexican or Latin American product.

#### 4.2.1.4 Gin Bottles

DILg-33:02B/6 is a complete green flask with a screw cap closure. The aluminum lid is present and is marked with black text—"GILBEY'S", "TURN", and "DO NOT ACCEPT IF THIS BAND IS BROKEN". The bottle is embossed with "GILBEY'S" on the body, at the shoulder, and "12 OZS." on the body, at the base. The base has the mark of Consumers Glass, a gridded box, and "6". This may indicate manufacture in 1956 or 1966. Portions of a green, white, and yellow diamond-shaped paper label are present on the front with some legible black text reading "GI...BEY... GIN CO...L..." and, in a smaller font, "DISTILLED... AND BOTTLED IN BOND BY ... & A GILBEY ...ANI...". The final portion of the text suggests manufacture in Manitoba. Portions of a descriptive label, providing a recipe for mixing a drink using this product, are present on the back.

#### 4.2.1.5 Unassigned Bottles

The remaining artifacts are all unassignable. Artifacts in this grouping have some identifying characteristics, such as shape or manufacturer's marks. However, the data is insufficient to permit identification of the function of the container; i.e., sealer versus milk bottle or medicine bottle versus condiment bottles. Some specimens with marks could be attributed to a manufacturer but not to a functional grouping. Occasionally, the style of manufacture of the neck and lip of bottles suggests the possible contents of the container. Also, the type of closure and evidence of manufacturing technique can provide approximate dates. For example, the length of the mold seam can indicate a general age; e.g., if the seam extends to the lip of the bottle, it was produced after 1920.

DILg-33:02B/7 is a complete tapering cylindrical bottle with a screw cap closure. The colour of the glass is a pale aqua and an irregular stippled pattern occurs on the body, shoulder, and neck. The

base has a circumferential ribbed pattern and the number "12" embossed on it. No indication of manufacturer or contents can be ascertained.

DILg-33:02B/8 is a body, base sherd of a clear cylindrical bottle. The size, "NET CONTENTS 6 FL. OZ." is embossed on the body, at the base. The base is embossed with "6 OZ.", "5", and the "C in a triangle" mark identifying Consumers Glass of Canada as the bottle manufacturer.

DILg-33:02B/9 is a complete, cylindrical, clear bottle which would have been closed by a sleeve-type snap cap. There are no markings on the specimen but the style of closure suggests that the contents may have been a condiment.

### *4.2.2 Dinnerware*

DILg-33:02B/2 consists of four lip, body, base sherds from a porcelain plate, probably a dessert or bread and butter plate. The plate is white with a scalloped lip and embossed curlicue designs falling from the lip. A full-blown pink rose, with attendant greenery, occurs at the junction of the body and the base. In addition, a faded gold filigree design extends from the rose to the embossed curlicues at the lip. There are no maker's marks on this specimen.

## **5.0 INTERPRETATION**

The location of the west abutment for the Pedestrian Bridge is situated very near, if not on top of, the location of the west abutment of the former Broadway Bridge (Figure 1). The Broadway Bridge had been initially built in 1881. It was destroyed by ice and flood waters in 1882, being rebuilt that same year. The bridge was demolished in 1920 (FRC 1988:50). The piers in the Red River were still present on an air photo taken in 1927 (FRC 1993:56) and some of the original wood pilings can be observed during low water episodes.

The structural debris encountered during the drilling may be remnants of the demolished bridge. Another alternative results from the presence of Building Products and Coal Company which was situated in the immediate vicinity, beginning in 1920. In 1966, the company name changed to Building Products and Concrete Supply. The firm had its operations on the east side of Christie Street until 1974 (FRC 1988:60). Much of the debris could have originated from operations of this company, rather than the City of Winnipeg Asphalt Plant which had been located on the west side of Christie Street from 1900 to 1934.

The recovered artifacts all seem to be chronologically recent with the Wishing Well soft drink bottle probably being the oldest (circa early 1960s). The Gilbey's bottle would have occurred prior to the introduction of metric with the Spanish-labeled beer bottle being very recent.

Due to the massive layers of industrial and structural debris, the remainder of the construction of the Provencher Pedestrian Bridge raises no further archaeological concerns. The connections of the bridge to the remainder of The Forks site will be by footpaths and cycling paths, neither of which will result in impact upon heritage resources.

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**APPENDIX A**  
**HERITAGE PERMIT**



**Heritage Permit No. A43-02**

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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:

monitor the subsurface construction component, including the drilling of caissons and mechanized excavations, of the Provencher Pedestrian Bridge linking St. Boniface with The Forks in the City of Winnipeg, in order to record soil stratigraphy, to recover diagnostic historic artifacts from fill layers and to mitigate pre-industrial archaeological resources if necessary;

during the period:

August 16, 2002 – September 30, 2003.

This permit is issued subject to the following conditions:


- (1) That the information provided in the application for this permit dated the 16<sup>th</sup> day of August 2002, 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, 2003;
- (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 heritage objects are to be deposited with the Manitoba Museum by December 31, 2003, for permanent curation and storage, unless appropriate loan requirements are arranged with the Curator of Archaeology prior to that date;
- b. 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;
- c. 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.

Dated at the City of Winnipeg, in Manitoba, this 19<sup>th</sup> day of August 2002.

  
Minister of Culture, Heritage and Tourism