ARCHAEOLOGICAL MITIGATION OF THE CANWEST GLOBAL PARK BASEBALL FACILITY

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EXECUTIVE SUMMARY

The construction of the CanWest Global Park baseball facility had advantages from a heritage resource management point of view, in that the area had already undergone an archaeological impact assessment for the previous project which had been proposed for the location. Thus, the locations where impact could be expected were known prior to the onset of construction and mitigative strategies could be designed well in advance of implementation. The 1995 impact assessment had identified a Pre-Contact occupation horizon in the vicinity of the south dugout and it was known that mitigative excavation would be required to recover the heritage resources during the construction. The overburden was removed and an archaeological team conducted resource recovery excavations.

Two cultural horizons were present within the dugout excavation. A total of 37,569 artifacts were recovered from Level 1. These artifacts included lithic tools (projectile points, scrapers, a biface, and expedient tools), ceramic sherds from cooking vessels, faunal remains from food, and floral remains. The ceramic artifacts were identified as representative of Bird Lake, Rainy River, Plains Woodland, and Oneota-like pottery styles. This mix of different cultural types was similar to those recovered from the extensive Horizon B south of Water Avenue during The Forks Access Project. That horizon was radiocarbon dated at A.D. 1285 $\pm$60.

The recoveries from Level 2 consisted of 49,283 artifacts with the preponderance (48,058) being faunal remains. The diagnostic artifacts represent a cultural occupation very similar to that of Level 1 but with fewer groups present. It is tentatively correlated with one of the five cultural horizons below Horizon B at The Forks Access Project. The date of occupation is considered to be earlier than Level 1 and after A.D. 1200.

Standard construction monitoring practices were employed for the augering of holes for pile seating, for pile cap excavations, for the open-cut land drainage sewer installations, and for the excavation of vertical shafts for watermain installations along Water Avenue. Small amounts of cultural resources were recovered from the pile augering which enabled a mapping of the sub-surface resources and eliminated areas which needed specific monitoring during pile cap excavations. The vertical shafts for the watermain installation encountered archaeological resources from Horizon B.

If further expansion of the baseball stadium, specifically an extension of the south stands, occurs, archaeological monitoring of pile augering, pile cap excavations, and grade beam excavations would need to be implemented.

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1.0 INTRODUCTION

The development of the new downtown baseball stadium, now known as the CanWest Global Park, occurred in the area which had been previously selected for the development of a sports arena. Thus, an initial archaeological assessment had been previously undertaken in preparation for construction of the Spirit of Manitoba hockey arena. The arena project eventually was abandoned. These initial studies consisted of archaeological monitoring of geotechnical investigations (Quaternary 1994a, 1995a, 1995b) with a major impact assessment of areas which would be impacted by sub-surface components of the arena construction (Quaternary 1996).

The recommendations deriving from the 1996 impact assessment stressed the need for archaeological resource management for any future projects. Further, based upon that assessment, it was known that an extensive cultural horizon occurred in the general vicinity of the location of the south dugout which would require mitigation during the construction phase of the baseball stadium. Additionally, extensive cultural deposits were known to be present on the south side of Water Avenue with the potential of extending into the project area.

The physical characteristics of the baseball stadium are such that minimal subsurface impact occurs, as compared with other types of structures. Most of the structure is above surface with only pilings, grade beams, sub-surface service installations, and dugouts below current ground level. Due to the presence of archaeological resources within the construction area, Quaternary Consultants Ltd. was retained to provide heritage resource management services. All archaeological activities—monitoring and mitigation—were carried out under the terms of Heritage Permit A16-98 (Appendix A).

1.1 Location and Scope of the Project

As depicted on Figure 1, the project is on the west side of the Red River to the north of Water Avenue in the downtown section of Winnipeg. The project occupies the land which had contained the Winnipeg Hydro Sub-Station (demolished in 1995), as well as numerous residences and businesses that had existed along the north side of Pioneer Avenue from the 1870s up to the 1960s (Quaternary 1996:104-118).

Several components of the project had potential for impact upon archaeological resources:

- drilling of seating holes for pilings for structure support;
- excavation around pilings for construction of pile caps;
- excavation between pile caps for pouring of grade beams;
- excavation of areas for the construction of dugouts on the south and north sides of the ball diamond;
- installation of a land drainage sewer which connects into the extended Pioneer Boulevard land drainage sewer (Quaternary 1999a);
- installation of watermains along the north side of Water Avenue; and
- installation of a parking lot drainage sewer west of the CNR Main Line.

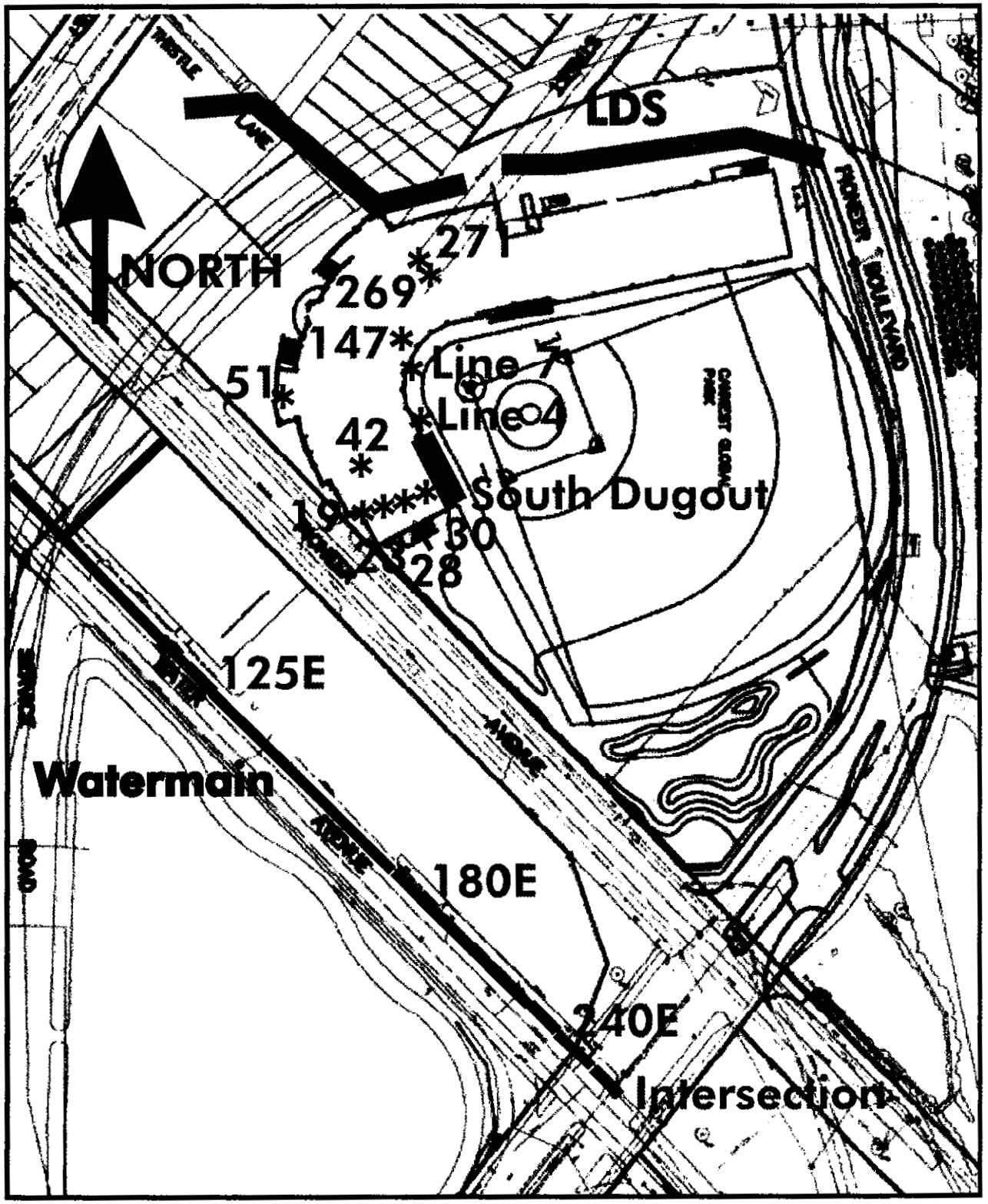


Figure 1: Map of Project Impacts and Locations of Cultural Recoveries (in red)

The first component, the piling installation, began on August 13, 1998. Pile cap excavations occurred throughout September, as did the grade beam excavations. The excavations for the south dugout, which required mitigative archaeological procedures, occurred on September 21, 1998. Mitigative action was completed by September 30. Installation of the watermain began on November 24 and was completed by December 11. The land drainage sewer installation, on the north side of the stadium, began December 14 and continued until heavy snow shut down the operation on December 18. The final portions of the land drainage sewer were installed in early February, 1999, with the parking lot drainage being excavated April 19 - 20, 1999.

1.2 Study Team

The entire archaeological resources management program was directed by Sid Kroker (Senior Archaeologist). The monitoring of the piling excavations was undertaken by Sid Kroker and Carla Parslow. The mitigative excavations at the south dugout component employed Jordi Malasiuk, Carla Parslow, and Joe Moravetz. The monitoring of construction and subsurface services excavations was conducted by Sid Kroker.

Laboratory operations, resulting from artifact recovery, were supervised by Pam Goundry (Research Archaeologist). Primary preparation was undertaken by Sid Kroker. Jordi Malasiuk identified the faunal recoveries and Pam Goundry analyzed the historic recoveries. Computer cataloguing was completed by Pam Goundry. Documentation and analysis has been undertaken by Sid Kroker and Pam Goundry.

1.3 Excavation Monitoring Methodology

The excavations for the piling seating holes was done with truck-mounted augers of three different diameters—12", 14", and 16". The auger bit is 5 feet in length and arrangements were made with the driller that after each five-foot drilling, the auger would be pulled up for observation before the extracted soil was spun off. The monitoring archaeologist would record the presence or absence of pre-European cultural deposits and the depth of the horizon, if present. The extracted soil containing the cultural material was collected for further investigation at the laboratory facilities of Quaternary Consultants Ltd. Each piling excavation received its own number so that the presence of cultural material could be mapped across the site and correlations between locations and depths could be maintained.

The pile cap excavations were undertaken with rubbermount backhoes which removed the upper soil around the piles, resulting in a roughly cylindrical excavation. Locations which had had evidence of cultural material were closely monitored by archaeologists with cultural material being recovered when encountered.

The excavations for the vertical shafts for the sub-surface services were undertaken with backhoes and the soil was trucked away from the site. Archaeological monitoring consisted of continual visual observation of the excavation. As the approximate depths of the cultural horizons had already been determined through the monitoring of the pile cap excavations and nearby prior projects, the backhoe operators were informed as to when the excavation could become sensitive. When the depth of the excavation neared the depth of an anticipated cultural horizon, the backhoe operator excavated thinner layers until immediately above the horizon. The horizon was removed *en bloc* and placed to the side of the active working area for further investigation by the archaeological team. All of the watermain and waste water pipes were installed using vertical shafts with horizontal boring. All cultural material retrieved from each of these vertical shafts was labelled with the contractor's grid for horizontal provenience. The exception to this procedure was the land drainage sewer at the northwest corner of the project which was installed in an open-cut trench.

In the excavations for the pile caps, the vertical shafts, and the land drainage sewer, the monitoring archaeologist would watch for additional buried soil horizons and changes in soil texture which could indicate possible former ground surfaces upon which cultural strata could occur. The indicators watched for were charcoal layers, ash lenses, and/or reddish stained soil. 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. These features can indicate either a natural event such as a brush or prairie fire or a cultural event such as a campfire. 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. Once the excavation is completed and the sewer cages installed, the monitoring archaeologist enters the excavation to record the soil profile in the walls of the vertical shaft.

The construction of the new watermain along Water Avenue was anticipated to impact upon the extensive cultural horizon which had been encountered during the proposed York Avenue and St. Mary Avenue relocation assessment and mitigation projects (Quaternary 1989, 1990a, 1990b, 1990c) and The Forks Access Project (Quaternary 1999b). The cultural horizon was encountered for the eastern half of the watermain (Figure 1). The backhoe operator excavated the cultural layer in its entirety and placed the soil to the side of the active work area. The archaeological team sorted through all of the excavated soil, using hand retrieval and trowels, to recover all artifacts.

The artifact recovery methods varied depending upon the temporal age of the artifacts. The upper layers of the ballpark area consist of fill and/or the residue from demolition of the buildings which had occupied the area along the north side of Pioneer Avenue. The primary focus for recoveries from the historic fill horizons was diagnostic artifacts, i.e., those which could provide evidence of time period, company of manufacture, and/or function. Accordingly, glass and ceramic containers which often have diagnostic markings were curated, if present. Also, metallic objects which could be identified to function would have been recovered, while non-diagnostic structural items, such as generic bricks, eavestrough, iron pipes, wire-cut nails, etc. are not generally curated.

1.4 Archaeological Site Designation

Each artifact is assigned a Borden designation as part of its catalogue number. The Borden designation, consisting of a four-letter prefix and a numerical suffix, is a Canada-wide system of identifying archaeological sites based upon latitude and longitude (Borden 1954). The four letter identifier, DlLg, 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. This site, lying north of Water Avenue, west of the Red River, and east of the CNR Main Line Embankment, had been previously designated as DlLg-69 (Quaternary 1996:4).

1.5 Laboratory Procedures

During the project, a total of 95,243 artifacts were recovered: 490 Historic and 94,753 Pre-Contact. These were brought to Quaternary laboratory facilities, where they were washed and sorted by material class and identified by the lab personnel. Material of the same type (e.g., Knife River Flint flakes) within the same location and depth were combined under a single catalogue number. Identification was carried to the limit obtainable by available reference works and staff expertise.

Each artifact received a catalogue number consisting of the Borden designation for the site and a sequential number for permanent identification, i.e., DlLg-69/####. The first artifact number from this project, DlLg-69/1500, continued from the last catalogue number of the previous project. 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 1993: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 card 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 vicinity of The Forks.

2.0 STRATIGRAPHY

The stratigraphy within the impact zone is both simple and complex. The macro-stratigraphy consists of historic fill overlying an intermittent A Horizon overlying sequential layers of riverine-deposited sediments. Within the riverine layers, periods of stable ground are represented by buried soil levels formed during the time between successive flood episodes. It is on these former soil horizons that potential archaeological layers can be found.

The historic activities over the past century have occurred on the soil surface which would have been deposited by the large floods experienced in Winnipeg in 1826 and 1861. The north side of Pioneer Avenue, originally called Notre Dame Street East, was occupied by small businesses, rooming houses, and residences during the 1880s and 1890s (Quaternary 1996:107). A single residence occurred on the east side of Mill Street, with stables and feed grain suppliers on the west side. Several businesses had been established along the Red River: Macaulay Lumber Mill, Dick & Banning Lumber Mill, Sash & Door Factory, Jarvis Saw Mill, and McMillan Grist Mill. The industrial area was terminated when the Winnipeg Transfer Railway Line developed a series of tracks along the Red River at the eastern edge of the ballpark area in 1890 (Quaternary 1999a). The residential district existed until the 1960s with considerable redevelopment occurring over the years. The demolition of the structures resulted in the build-up of a layer of historic deposits including structural remnants. The thickness of this component varied throughout the site, with the deepest layers alongside Pioneer Avenue. Also, infilled basements were encountered which contained massive quantities of structural debris. The northern portion of the site had been the location of the Winnipeg Hydro Sub-Station—built in 1905 and demolished in 1995. The infilled basement of this structure contained only re-deposited fill brought in from off-site.

The initial monitoring component during the drilling of seating holes for the piles produced some generalized stratigraphic knowledge. However, the rotary action of the auger tends to distort or obscure thin layers (less than 0.5 cm), so that only thicker layers of buried soils or different textured sediments (sand versus silt) can be discerned. Generally, monitoring of auger drilling can provide an overview of the stratigraphy throughout the site. A total of 228 auger holes were monitored, mainly in the south, west, and northwestern portions of the site. It was deemed unnecessary to monitor holes which were drilled within the perimeter of the basement of the former Hydro building as the depth of the basement would have eradicated the cultural horizon, if it had existed in that area.

The depth of the historic fill layer varied between 60 cm and 350 cm. The deeper deposits were associated with former building basements and previous installations of abandoned sub-surface services. In areas where the fill layer rested upon the soil horizon post-dating the 1881 flood, riverine deposits were encountered to base of the augering. Indications of an undulating former soil horizon (blackish soil and traces of charcoal) at depths of 200 to 230 cm occurred in many holes, especially on the south and southwestern sides of the area. A second, deeper soil horizon was observed at depths approximating 320 cm in the western portion of the site. An intermittent sand layer was recorded in the west and northwestern portions at depths of 340 to 370 cm below surface.

The sequences of the riverine sediments below the historic fill are quite complex when the micro-stratigraphy is examined. The primary sources of data for the detailed stratigraphy are the profiles recorded during the excavation of pile caps and at the walls of the south dugout. The profile from Auger Hole 53, in the southwest corner, is representative of that area (Table 1).

DEPTH (cm)	SOIL LAYER	COMMENTS
0 - 87	historic debris	structural mixed with gravel
87 - 108	top soil	well developed A Horizon
108 - 114	medium brown silty clay	-
114 - 116	buried soil horizon	-
116 - 150	medium brown silty clay	-
150 - 150	buried soil horizon	3 mm thick
150 - 153	tan silty clay	-
153 - 160	medium brown silty clay	-
160 - 160	buried soil horizon	5 mm thick, charcoal present
160 - 169	medium brown silty clay	-
169 - 171	tan silty clay	-
171 - 172	buried soil horizon on grey clay	-
172 - 180	medium brown silty clay	-
180 - 180	buried soil horizon	3 mm thick, correlates with **LEVEL 1**
180 - 189	medium brown silty clay	-
189 - 189	buried soil horizon	5 mm thick, correlates with **LEVEL 2**
189 - 202	medium brown silty clay	-
202 - 204	tan silty clay	-
204 - 215	medium brown silty clay	base of excavation

Table 1: Stratigraphic Profile from Pile Cap Excavation at Auger Hole 53

The excavations at the south dugout were considerably deeper, providing a stratigraphic profile from the surface to the base at 363 cm. The profile was recorded on the north wall of the excavation, slightly west of the area that required mitigation of the two cultural levels. Again, a sequence of flood-deposited silts and clays capped by a soil horizon, which would have formed during a stable period between flood episodes, was present (Table 2).

The upper fill horizon consists of various materials (cinder, sand, gravel, clay, etc.) deposited as landfill during the last century. Included within this fill layer were numerous artifacts which are discussed in Chapter 3. The well-developed soil horizon immediately below the fill layer represents the soil surface as of the 1870s and 1880s when urban activity first began in this area. Several thin buried soil layers were recorded in the riverine silts below the historic fill level. Many of these would relate to ground surfaces between the historically recorded floods—1826, 1852, 1861, and 1882.

Inasmuch as no temporally diagnostic artifacts were recovered from these strata, it is impossible to correlate any of the buried soil horizons with any of the flood episodes.

DEPTH (cm)	SOIL LAYER	COMMENTS
0 - 20	parking lot gravel	-
20 - 105	clay fill with structural debris	-
105 - 112	buried soil horizon	well developed A and B Horizons
112 - 130	medium grey brown silty clay	-
130 - 135	buried soil horizon	diffuse, probably two thin A+B layers
135 - 146	medium grey brown silty clay	-
146 - 146	buried soil horizon	5 mm thick
146 - 157	grey brown silty clay	marl inclusions
157 - 158	organic-stained layer	incipient soil horizon
158 - 169	grey brown silty clay	marl inclusions
169 - 169	buried soil horizon	4 mm thick, charcoal present
169 - 179	medium brown silty clay	-
179 - 181	grey clay	-
181 - 187	tan sand	-
187 - 188	buried soil horizon	**CULTURAL LEVEL 1**
188 - 189	grey clay	-
189 - 191	medium brown silty clay	-
191 - 204	light brown sand	-
204 - 205	buried soil horizon	**CULTURAL LEVEL 2**
205 - 207	grey clay	-
207 - 217	light brown sand	-
217 - 220	dark brown clay	organic staining
220 - 230	red brown silty clay	-
230 - 241	grey clay, hematite staining	-
241 - 251	brown silty clay, mottled hematite	-
251 - 251	buried soil horizon	2 mm thick
251 - 255	grey clay	-
255 - 256	tan sand	-
256 - 270	dark brown clay	-
270 - 290	medium brown silty clay	banded
290 - 317	grey clay, hematite mottling	-
317 - 340	grey clay, hematite stained	-
340 - 358	grey clay, organic mottling	-
358 - 363	grey clay, hematite stained	base of excavation

Table 2: Stratigraphic Profile from North Wall of Dugout Excavation

Culturally, the two Pre-Contact strata fall within the Late Woodland Period, with representations of Rainy River, Bird Lake, Plains Woodland, Red River, and Oneota-related ceramics. The projectile points recovered from the horizons are either Plains Side-Notched or a generalized triangular style. Given the minimal sediment between Level 1 and Level 2, it is probable that the two occupations were temporally quite close, perhaps only separated by one flood. An underlying assumption is that the cultural deposition at each horizon occurred as a result of a single occupation or, at most, successive occupations at the same location without an intervening flood episode.

Using information derived from The Forks Access Project, on the south side of Water Avenue, tentative dates for the two occupations can be assigned. The extensive Horizon B (Quaternary 1999b:103-135) occurs throughout the area. Radiocarbon dates of 675 ± 60 and 655 ± 55 years before present were obtained on bone samples (Quaternary 1999b:12). An immediately underlying horizon (Horizon C) yielded radiocarbon dates of 600 ± 60 and 650 ± 55 years ago. The cultural level encountered during the watermain installations along the north side of Water Avenue definitely correlates with Horizon B. Level 1, at the south dugout, is tentatively correlated with Horizon B and Level 2 may be a continuation of Horizon C. In any case, the cultural artifacts and the stratigraphy suggest that both cultural levels result from occupations of Aboriginal peoples between 600 and 700 years ago.

3.0 HISTORIC ARTIFACTS

The historic artifacts, recovered during this project, have been analyzed within functional categories based on the Canadian Heritage Inventory Network (CHIN) cataloguing format. A total of 490 artifacts were recovered.

3.1 Architectural Objects

Artifacts used in the construction, the maintenance, and the furnishing of structures are catalogued in this category. However, due to corrosion and fragmentation, many metal, glass, or wood architectural objects cannot be assigned to a manufacturer or a time period.

3.1.1 Hardware

Hardware consists of items that are used in the construction of a structure. Nails and house insulators were recovered during this project.

3.1.1.1 Nails

Six nails, all sheet-cut specimens, were curated. Sheet-cut nails were developed about 1790 (Nelson 1968:8) and were mass produced by rolling sheets of iron or steel to a uniform thickness then cutting the sheet into nails which taper from top to bottom. The thickness of the nail remains constant from head to point, while the width tapers. The T-shaped or L-shaped head was added to each individual shank. All of the recovered specimens are severely corroded. The two nails in DlLg-69/1885 have T-heads, while only two of the four nails in DlLg-69/1916 have heads remaining, one a T-head and the other an L-head.

Sheet-cut nails were being produced in Montreal in the early part of the 19th century; however they only became common in The Forks area after 1860 when river steamboats transported quantities of American goods into this region (Kroker *et al.* 1991:105; McLeod 1983:148). The first steam boat to arrive in the vicinity of The Forks was the Anson Northup which came up the Red River from Minnesota (Collard 1967:39). Her first regular run began in June of 1860 and two years later she was replaced by a larger steamboat.

3.1.1.2 Porcelain House Insulators

Five porcelain house insulators, used for electrical wiring, were curated. These include one tubular pass-through (for carrying wire through boards and planks), one rectangular two-wire cleat, and three knob insulators (Amory 1969:661).

DlLg-69/1500 is a complete, white, tubular insulator. It measures 77.1 mm in length and has a diameter of 15.3 mm on the shaft. One end of this insulator has a collar which measures 12.9 mm in length and 20.9 mm in diameter. The letter "A inside a circle" is stamped on the shaft.

DlLg-69/1501 is a complete white, rectangular, two-wire cleat insulator. An indecipherable mark, possibly the maker's mark or a part number, is embossed on the upper surface.

DlLg-69/1502 consists of the bottom halves of two white knob insulators, while DlLg-69/1503 is the top knob portion of a knob insulator. Both of the specimens in DlLg-69/1502 measure 1¼" in height and 1" in diameter, while the top knob in DlLg-69/1503 measures ½" in height and 1" in diameter. A compete, rusty, flat-head, slotted screw is still inserted into the hole through the knob in DlLg-69/1503. The 1902 Sears, Roebuck catalogue illustrates knob insulators that are about 1½" in diameter and 1¾" high (Amory 1969:661).

3.1.2 Accoutrements

Artifacts catalogued in this category are those used to put the finishing touches on a structure. Several windowpane sherds and a portion of a bathroom fixture were curated.

3.1.2.1 Windowpane

Twenty-two fragments of windowpane were catalogued (Table 3). The majority are standard thickness aqua or clear sherds.

CAT. #	QTY	COLOUR	THICKNESS	COMMENTS
1504	2	aqua	3.6 mm	-
1505	2	clear	1.7 mm	-
1506	12	aqua	2.7 mm	sherds melted together in a clump
1507	2	aqua	8.8 mm	plate glass; rope-like columns on one side
1508	1	blue	2.3 mm	-
1509	1	green	4.3 mm	daisy patterns on one side
1510	1	amber	3.4 mm	opaque; frosted; bumpy on one side
1917	1	aqua	2.8 mm	-
TOTAL	22			

Table 3: Windowpane Recoveries

Two fragments, DlLg-69/1507, are thicker plate glass with a pattern of vertical, raised, rope-like designs which give the glass an undulating, wave-like shape on the exterior side with a flat interior face.

Three sherds are different colours and may all be from a stained glass window in a building or a door. DlLg-69/1508 is a transparent royal blue with no pattern on it. DlLg-69/1509, the green windowpane, has a continuous pattern of overlapping daisies on one side, while DlLg-69/1510, the amber windowpane, has a rough bumpy surface on one face and is opaque.

3.1.2.2. Bathroom Fixtures

DlLg-69/1511 is a large, white, porcelain fragment that has been designated as part of a bathroom fixture due to its shape, thickness, and the coarseness of the paste. A 35.0 mm high foot supports the base of this piece with the body appearing to be subdivided into sections. The actual function is difficult to ascertain but it may be the basal portion of a toilet.

3.1.3 Detached Structure

This category includes artifacts which are not part of the basic structure but are attached to it in some form. Two fragments of sewer tile, DlLg-69/1512, were curated. These are made of bole and are brown mid-sections of pipe.

3.2 Lighting Equipment

At the beginning of the 20th century, a rapid evolution in lighting techniques took place. Formerly oil lighting and candlelight had been prevalent, but electric lighting became much more available. Three artifacts were assigned to this category, all in the sub-category of Electric Lighting.

DlLg-69/1522 is a thick, opaque white glass sherd. It consists of the body and neck flange of a globe from a ceiling fixture and measures 43.5 mm by 39.4 mm with a thickness of 5.6 mm. It has a honeycomb pattern on the exterior surface. DlLg-69/1523 is a large, thinner, translucent white glass sherd. It is the lip/body portion and measures 141.8 mm by 41.8 mm with a thickness of 1.9 mm. One edge is the finished edge and the sherd has a very minute curve which may indicate it comes from a large globe, probably a ceiling fixture. DlLg-69/1524 is an opaque, colour-slipped, blue-on-white glass sherd. The colour, which occurs on both sides of the sherd, is a mottled, streaky blue and white. One surface is smooth, while the other is slightly ridged. This specimen measures 32.7 mm by 44.9 mm and is 3.9 mm thick.

Numerous styles of shades and globes were prevalent in the early part of the 20th century (Ashdown 1909:1803-1832). The white glass sherds could have derived from fixtures within the railroad buildings, street light globes, and/or material deposited in the area as fill. The blue glass sherd, DlLg-69/1524, may derive from a stained glass desk lamp which has four truncated triangular panes mounted in a metal framework. Alternately, it may be from a ceiling fixture or a stained glass window.

3.3 Manufacturing Equipment

This category refers to tools and/or implements used to manufacture other artifacts. Five artifacts, all in the sub-category of Industrial, were catalogued. All of these specimens appear to be from parts of machinery.

DlLg-69/1515 consists of two pieces of a rubber O-ring which has a continuous cylindrical body. It has an external diameter of 60.0 mm and the cylindrical body of the ring has a diameter of 7.4 mm. The cortex has a spiraling ribbed appearance and there is a serrated raised ridge on the interior. Due to the tan colouring of this ring, it may be made of gutta-percha rather than vulcanized rubber.

DlLg-69/1751 is a very corroded, rectangular box with three projections on the backside. The two lateral projections are rounded, rectangular strap-like components with a central drilled hole, while the projection at the top is a flat, domed continuation of the box frame. This fragment would be screwed or bolted to a larger object.

DlLg-69/1752 is a spring balance scale (Amory 1969:564) with an encrusted brass face plate and a corroded, semi-circular iron spring holder on the back. Stamped into the face is a graduated scale with the visible numbers "8", "16", "24", "32", "40", "48". The words "WARRANTED" and "BALLANCE" [sic] are stamped above and below an eagle which has its wings spread. This logo is above the numbers which probably represent pounds (cf. model No. 9R5961 in Amory).

DlLg-69/1753 is a large, corroded, cast iron portion of a large machine. It consists of two segments bolted together. One segment is a large, truncated, conical object with three small projecting knobs, spaced at 120° and a fourth heavy, square projection. The centre of the cone is hollow giving rise to a body thickness of 23.5 mm. The base of the cone is perforated with a series of small round holes. The second portion is J-shaped with the cross-section ranging from square where it attaches to the cone portion, to circular on the long shaft of the J, to domed with a backing circular piece at the head of the J. The function of this part or the machine to which it would have been attached is unknown.

3.4 Communication

Four communication related artifacts, two glass and two porcelain, were curated, all in the sub-category of Telecommunication. Both glass insulators are the threaded, domed, pony-style. This threaded design was patented in 1865 and has been used into the 20th century (Kottman 1979:18). According to Kottman (1979:19), the pony style of insulator was so named due to the "use of [insulators] on telegraph lines, which made the pony express obsolete". DlLg-69/1513 is a small portion of the threaded section of an aqua specimen, while DlLg-69/1787 is a nearly complete aqua insulator with some chipping occurring on the edges and the base. Neither specimen has any marks to denote a manufacturer.

The two porcelain insulators are both quite large and differ in style. DlLg-69/1514 is brown with an indented cap, short neck, and a flaring body or skirt. The screw-in base is badly broken and one side of the body has been broken away. The extant piece measures approximately 9 cm in height with a width across the skirt of approximately 17 cm. Terrill (1972) does not illustrate any insulators similar to this specimen, although some of the illustrated specimens do have the wider skirt.

DlLg-69/1788 is a brown porcelain insulator which is roughly triangular in shape with a top knot and two circular attachment tunnels midway up the sides. Pieces of copper contact wire are attached through holes on either side, at the base, to interior copper screws. This specimen measures 14 cm in height, 13 cm in width, and 9.5 cm in thickness. A large iron screw is still present in one of the tunnels. Although not identical, it does resemble an illustrated insulator (Terrill 1972:17) which is more rectangular in shape but has the same massiveness and identical tunnels on the sides. These styles were called *suicide boxes* by linemen. DlLg-69/1788 is stamped on the front face with the information "WESTINGHOUSE", "PAT'D", "JULY 11 1905", and "S-29865 D". While Terrill does have a section on Westinghouse insulators, this particular style is not illustrated.

3.5 Food Processing

One artifact was catalogued in the sub-category of Utensil. DlLg-69/1516 is a carved, bone handle from either a knife, fork, or spoon. It measures 82.3 mm in length with a thickness of 7.8 mm. The width tapers from 13.7 mm at the distal end to 15.1 mm at the proximal end. The dorsal surface is flat with sharp edges, while the ventral surface is flat with rounded edges. A central hole, for the tang of the implement, is carved 44.6 mm into the shaft.

3.6 Clothing

Six artifacts, representing different sub-categories of clothing, were recovered. These could be divided into bodywear and footwear.

3.6.1 Bodywear

One small fragment of a woven textile was recovered. DlLg-69/1531 is a thin black material, possibly cotton or wool. It may be from a scarf or a shirt.

3.6.2 Footwear

Five fragments of footwear were recovered (Table 4). DlLg-69/1526 is the manufacturer's tag from a pair of black rubber boots (wellie boots). The name of the manufacturer, "ALDO", and the country of manufacture, "MADE IN ROMANIA" are printed in small, raised, lowercase letters on this rubber tag. DlLg-69/1527 is the lace-up portion of a pair of boots with six open eyelets below three iron lace hooks. DlLg-69/1528 is the flat heel and sole from a small child's shoe, perhaps fitting a one or two year old. DlLg-69/1529 is a much more ornate shoe than is usually recovered, a woman's party-style shoe. The heel and instep portion of the sole are very narrow. While it may have been a fancy sandal, there probably was a heel attached to it which would have been a narrow, spike-style heel. The upper of the shoe consists of an under layer of very thin leather with threads of gold over top of this and a band of copper-coloured cloth sewn along the edge. This upper appears to have gone over the top of the foot in an arc. The same material occurs around the heel portion of the sole. Finally, DlLg-

69/1530 is a narrow, possibly size 7, square-toed woman's shoe with a low heel attached to it with iron nails.

CAT. #	QTY	PORTION	MATERIAL	SIDE	COMMENTS
1526	1	tag	rubber	-	rubber boot
1527	1	upper	leather, iron	-	lace-up; man's/woman's shoe
1528	1	sole, heel	leather, iron	left	child's shoe
1529	1	sole, upper	leather, cloth	right	woman's party shoe
1530	1	sole, heel	leather, iron	right	woman's shoe
TOTAL	5				

Table 4: Shoes from the Ballpark Project

3.7 Recreation

Six artifacts were curated in this category, two in the Smoking Equipment sub-category and four in the Toy sub-category.

3.7.1 Smoking Equipment

DlLg-69/1517 and 1754 are portions of kaolin pipes. Kaolin pipes are a commonly found artifact in historic Canadian fur trading sites as well as at American and Australian sites (Walker 1971). Although usually indicative of the Fur Trade era, Walker (1977:262) notes that these clay pipes "held out well into the twentieth century, generally in industrial centres but also in rural areas". The manufacture of clay pipes began in the late 1500s with the earlier ones being imported from England, Scotland, The Netherlands, France, and Germany. By 1850, clay pipes were being manufactured in Canada, notably in the Montreal area as well as at other locations (Kroker *et al.* 1992:90-91). Canadian pipes were half the price of imports during this period with the imported pipes being taxed at 12.5% (Smith 1986:58).

DlLg-69/1517 is the bowl and spur of a pipe. The body of the pipe measures 43.0 mm in height and the spur 9.3 mm in height. The diameter, at the top of the bowl, is 24.9 mm. A "D" is embossed on the exterior of the bowl just above the stem (which is missing). This letter may represent the Thomas Dormer company of London, England, circa 1755. However, this style of pipe soon became widely plagiarized. Glasgow pipe makers appeared to have specialized in this type, but it was also manufactured by other English, French, German, and Quebec companies including the Bannerman firm. Thus, Thomas Dormer pipes provide little information regarding dates, companies, or manufacturing locations (Kroker *et al.* 1992:92).

DlLg-69/1754 is the mid-section of a pipe stem which measures 54.5 mm in length and tapers from 10.9 mm to 9.2 mm. The maker, "MCDOUGALL", is stamped down one side, while "GLASGOW"

is stamped down the opposite side. Duncan McDougall founded this firm in 1846 in Glasgow, Scotland. Walker notes that stem fragments with the McDougall name have been found on various Canadian sites. He further notes that "the Scottish [pipe] industry is almost entirely a 19th century phenomenon, with Glasgow and Edinburgh being the chief production centres" (Walker 1971:23). McDougall continued to manufacture and export pipes until 1967 and was the last surviving Scottish pipe manufacturing firm at that time (Walker 1971:23-25).

3.7.2 Toys

DlLg-69/1518 is the lower portion of a porcelain leg from a doll. It consists of the calf and foot and measures 14.0 mm in length. The diameter around the calf is 34.2 mm. The leg is patterned in a white ribbing, which represents a stocking, from the top of a painted brown boot on the foot to a wavy, frill-like design along the edge of the top. A thin pink ribbon (or garter), tied in a bow, is painted at the top of the calf. The heel and the tip of the toe of the boot are broken off, but otherwise the specimen is complete. The number "8" is stamped at the top, above the ribbon, on the exterior. This could be a style number, a size number, or a part number. Sussman (1979a: 179-181, Figures 141-145) notes that:

> *...china dolls are made of white glazed porcelain and were the first to be introduced in the 18th century...and continued to be produced throughout the 19th century. By 1870 soft dolls with highly glazed head, arms and legs were cheapest but their execution had become careless and stereotyped.* (Sussman 1979a:179 citing Hillier 1968:159)

Large legs (or arms) with smaller feet (or hands) were typical of this style of doll. Symons states that:

> *Doll's faces were round and arms chubby in the fashionable plumpness of the times, but feet and hands were delicately small.* [cited in Sussman 1979a:179]

Dolls such as these were not produced in England until WWI, but were an important manufacturing product of Germany prior to that time (Sussman 1979a:181). The 1902 Sears, Roebuck Catalogue (Amory 1969) illustrates numerous dolls with porcelain heads but none have porcelain limbs. This suggests that DlLg-69/1518 was produced earlier, probably in the 19th century.

DlLg-69/1519 is a slightly squashed, black rubber ball. It measures approximately 46 mm in diameter and has some cracks and gouges in it. Time and possible ground water contamination have resulted in the material becoming extremely hard.

DlLg-69/1520 is a yellow glass marble with a diameter of 14.7 mm (⅝"). Randall and Webb (1988:34-35) describe these types of marbles as machine-made solids or opaques. They also note that "...[solid or opaque] marbles were commonly known as Chinese Checkers a decade before the game was introduced in the 1930s". Solids were first made in the early 1920s by all of the major marble companies and are still made today. DlLg-69/1520 is a common size for this style of marble.

DlLg-69/1521 is a very corroded, iron toy gun—a cap gun. It resembles a single-shot revolver, although lacking a trigger or trigger-guard. This replica of a six-shooter would have been fired by thumbing back and releasing the hammer after inserting a cap under the cup at the proximal end of the barrel. The barrel

is solid and the handle has a ridged pattern to simulate a pistol grip. The name "NOVELTY" is stamped in a small rectangular panel on the left side. The similar panel on the right side is obscured by rust.

3.8 Transportation

Only one type of transportation, horse-drawn vehicles, is represented by the recovered artifacts. DlLg-69/1750 and 1922 are horseshoes. DlLg-69/1750 has a length of 184.0 mm with a width of 158.0 mm, while DlLg-69/1922 is larger with a length of 197.0 mm and a width of 167.0 mm. DlLg-69/1922 is extremely unusual. It is a specially made shoe to correct gait problems which would have resulted from the horse having leg or hoof deformities. It is intended as a winter, non-slip shoe with downward projecting bars at the heel and toes of the shoe. The heel bar is 69.0 mm long and 20.3 mm high. The left toe bar is 29.4 mm long and approximately 21 mm high and is oriented perpendicular to the leg of the shoe. The right toe bar is oriented parallel with the leg of the horseshoe and is 59.6 mm long and 14.8 mm high. In addition to the difference in orientation of the right toe bar, the right leg of the shoe curves inward more than the left and also extends approximately 2.5 cm longer.

Horses were prevalent during the beginning years of the City of Winnipeg. The Canadian Northern Railway and Grand Trunk Pacific Railway had stables at The Forks (Guinn 1980a) and a stable existed on Mill Street (near the Lombard Avenue intersection) from the 1880s until after WWI (Quaternary 1996:107). In addition, several businesses—Dick and Banning Saw Mill, McCauley and Jarvis Sash and Door Factory, Jarvis & Berridge's Saw and Planing Mill—which would have used horses for cartage, were located along the west bank of the Red River (Quaternary 1999a:5-10). Horses were used to draw firefighting equipment from the early days of the Winnipeg Fire Department well into the 20th century and some of the first fire stations were located in this area. Between 1874 and 1900, there was a station at the corner of Victoria Street (now Westbrook) and Post Office Street (now Lombard) and another station at Victoria Street and Matilda Street (now Thistle Lane) (Leah 1982:110-111). Finally, those private citizens who could afford to own a horse would have had one for personal use.

3.9 Unknown

The Unknown category is reserved for artifacts of all materials which are incomplete or not well enough preserved for a positive identification to be made, but further in-depth research may elicit an identification. Two artifacts were assigned to this category.

DlLg-69/1525 is a small glass sherd. The body is clear glass with a layer of colour-slipped white glass which has a blue surface. The sherd has a slight curve to it indicating that it is definitely not windowpane. It may be a portion of an ornamental vase.

DlLg-69/1923 is an enigmatic circular cast iron disc, 179.0 mm in diameter, with a broken handle on opposite sides. The base of the disc is featureless while the surface has a circular ridge 18 mm

from the rim. The ridge rises into a crest that flows into the star-shaped handles. The centre of the disc is perforated with numerous holes of different sizes. Most of the holes are circular: 21.7 mm (3, one of which is threaded), 3.5 mm (8), 2.6 mm (7), 2.1 mm (4). There is also a rectangular hole, 10.8 mm long by 3.2 mm wide. Two additional circular holes (3.6 mm) occur on the edge of the ridge and a kidney-shaped hole (28.7 mm long by 9.8 mm wide) occurs between the outer edge and the ridge adjacent to one of the handles. The function of this portion of an obviously bigger object is unknown at this time.

3.10 Faunal Remains

A total of 107 faunal artifacts were recovered, all butchering remains. The specimens were identified using standard references: Casteel (1976), Clarke (1981), Gilbert (1973), Olsen (1960, 1964, 1968, 1971), and Schmid (1972). All faunal remains were examined and identified as specifically as possible: body part, age of individual, and species. Evidence of butchering techniques, such as cutting or sawing, was recorded as was the condition of the specimens, i.e., charred, broken, chewed, or gnawed.

The mammal bones are dominated by cow (*Bos taurus*). A total of 56 cow elements, with a total weight of 4742.8 gms, were identified (Table 5). These represent most parts of the body including the skull, the spine, and the legs. All of the specimens derive from adult animals with many showing evidence of butchering activities such as sawing, axing, and cutting at the joints.

Representations of pig and sheep were identified (Table 6). Most of the pig remains are juvenile. Some elements could not be identified beyond the general size range of the animal, however the large mammal probably are cow, while the medium/large elements could be pig, sheep, or goat.

Almost all of the mammal bones have cut marks and/or evidence of sawing to show that the animal had been butchered. Many of the cuts, particularly those on the cow bones, indicate that the animal was sectioned into roasts and steaks. The type of butchering varies from dismembering at joints, to axe cutting of larger bones, to sawing. The upper layer of fill on the ballpark site proper and the peripheral components, i.e., north land drainage sewer and water main along Water Avenue, was slowly built up over the latter portion of the 19th century and the early part of the 20th century. The faunal remains from the ballpark site would have derived from the residences that were situated along the north side of Pioneer Avenue (formerly known as Notre Dame East).

Within the bird remains (Table 7), six elements were identified as chicken (*Gallus gallus*). The tibia of a large bird, DlLg-69/1550, derives from a very long-legged species, such as a sandhill crane. The fish remains (Table 7) consist solely of three scales which have not been identified to a particular species. Within the shellfish (Table 7), one species of local clam—black sand-shell (*Ligumia recta*)—was identified. Other shell fragments could be identified as freshwater clams (Unionidae) but could not be taken down to species. Imported shellfish, i.e., Atlantic oysters, were also present on the site.

ELEMENT	CAT.#	QTY	WT	COMMENTS
mandible	1882	1	13.2	-
scapula	1558	1	56.3	sawn
	1896	1	38.6	-
	1921	1	196.2	sawn
humerus	1559	3	108.3	sawn
	1785	1	244.9	axed, spiral fracture, stained
radius	1556	1	57.1	sawn
	1786	1	194.9	axed, stained
tarsus	1557	1	66.1	-
patella	1918	1	29.4	eroded
metatarsus	1886	1	275.5	-
innominate	1563	2	216.3	sawn, cut marks, eroded
femur	1564	7	590.9	sawn, cut marks
	1893	1	92.2	sawn
tibia	1565	7	1279.3	sawn, axed
	1883	1	267.8	sawn
	1920	1	146.0	sawn
calcaneus	1562	1	156.9	axed
astragalus	1555	1	127.0	-
rib	1560	5	123.7	sawn, cut marks
	1881	1	20.4	sawn
	1894	2	43.1	sawn
	1895	3	62.7	cut marks
	1919	6	153.9	sawn, cut marks, spiral fracture
vertebra	1561	4	172.0	sawn
costal cartilage	1554	1	10.1	-
TOTAL		56	4742.8	

Table 5: *Bos taurus* (cow) Remains from the Ballpark Project

TAXON	ELEMENT	CAT. #	QTY	WT	COMMENTS
Mammal					
Sheep (*Ovis aries*)	metacarpal	1538	1	48.3	-
	metatarsus	1541	1	20.3	cut marks
	radius	1539	1	28.6	spiral fracture
	tibia	1540	1	25.4	cut marks, spiral fracture
Pig (*Sus scrofa*)	skull	1537	1	139.2	-
	femur	1532	1	79.1	sawn, cut marks
		1897	1	21.1	juvenile, gnawed
	humerus	1533	1	10.8	juvenile, epiphysis
		1534	4	117.1	sawn
	radius	1535	1	57.5	juvenile, sawn
	tibia	1536	1	50.2	juvenile, cut marks
Large Mammal	scapula	1890	1	10.7	sawn
	rib	1542	1	12.3	juvenile
	undetermined	1545	6	14.6	-
Medium/Large Mammal	rib	1543	3	17.0	sawn, cut marks
		1898	2	13.7	sawn
	vertebra	1544	1	8.0	-
Undetermined Mammal	unidentifiable	1546	3	0.4	charred
		1880	2	0.1	-
		1899	2	0.8	-
TOTAL			35	675.2	

Table 6: Other Mammal Remains from the Ballpark Project

TAXON	ELEMENT	CAT. #	QTY	WT	COMMENTS
Aves					
Large	tibia	1550	1	15.4	cut marks
Chicken (*Gallus gallus*)	sternum	1549	1	10.4	-
	femur	1547	2	8.0	-
	tibia	1548	2	8.2	-
		1889	1	3.6	-
SUB-TOTAL			7	45.6	
Fish					
Undifferentiated	scale	1551	3	0.1	-
SUB-TOTAL			3	0.1	
Shellfish					
Undifferentiated (Unionidae)	valve	1552	1	3.9	-
	valve	1879	3	7.9	-
Black Sand-shell (*Ligumia recta*)	valve	1878	1	7.2	-
Atlantic Oyster (Ostreidae)	valve	1553	1	48.3	-
SUB-TOTAL			6	67.3	
TOTAL			16	113.0	

Table 7: Aves, Fish, and Shellfish Remains from the Ballpark Project

3.11 Containers

This category includes all artifacts, or portions of artifacts, which are used to contain products. As such, 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), four of which are applicable to the artifacts recovered from the ballpark project:

a. Storage - the purpose of the container is to hold material, e.g., bottles, jars, tin cans;
b. Cooking - containers used in the preparation of food, e.g., pots and pans;
c. Ornamental - decorative items such as vases; and
d. Dinnerware - the artifact is used in the serving or eating of food.

Within the analytical and computer cataloguing hierarchy, dinnerware is considered as a sub-category of containers. However, for discussion purposes, it is usually treated as a distinct and separate group. In part, this is due to the large quantities usually recovered, as well as the detail of information that can be derived from dinnerware specimens. Accordingly, the dinnerware recoveries are discussed in Section 3.12.

3.11.1 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: bag, box, barrel, jar, sealer, can, bottle, pail. Containers come in a variety of material types such as metal, plastic, paper, ceramic, and glass. Only ceramic and glass artifacts were recovered from this project.

3.11.1.1 Ceramic Containers

Twenty ceramic artifacts were recovered. One specimen is a porcelain cosmetic container, two specimens are terracotta flowerpots, and the remaining artifacts are stoneware items. Ceramic containers were prevalent during the 19th and earlier part of the 20th century. Many products were sold in stoneware bottles, jars, or jugs and stoneware crocks were used for storage, food processing, or home preserving.

3.11.1.1.1 Cosmetic Jar

DlLg-69/1614 is half of the lid from a white porcelain jar with a diameter of approximately 80 mm. The artifact is decorated with a wide band followed by a thin band of gold around the circumference. The flat domed surface of the lid has considerable text: "...ER" (in Gothic-style print), "...OUR LA PEAU" (in Gothic-style print), "...A" (in lower case script), and "...OLINE" (in lower case script). At least the longest phrase can be identified as French and tentatively translated as 'for the skin'. The other text may represent a trade name or a personal name.

3.11.1.1.2 Flowerpots

DlLg-69/1573 and 1588 are both single pieces of red, undecorated, terracotta flowerpots. DlLg-69/1573 is a light red, lip,body,base sherd which measures 68.2 mm in height with a thickness of 6.0 mm at the lip and 4.8 mm on the body. It would have been a 4″ pot and the colour appears to have been faded due to weathering. DlLg-69/1588 is a darker red body sherd from a larger flowerpot. It measures 47.4 mm in length, 32.9 mm in width, and 6.0 mm in thickness.

3.11.1.1.3 Crocks

Crocks of various sizes, from one quart to twenty gallons, were a standard feature in most homes during the latter part of the 19th century. They were used for storing bulk staples like flour, preserving meats in salt brine or eggs in isinglass, or preparing other foods like sauerkraut. In the prairie region, several suppliers dominated the market, particularly those of the stoneware companies of Red Wing, Minnesota and, after 1909, the various pottery firms from Medicine Hat, Alberta. Other firms in eastern Canada and the United States contributed to the steady market.

Four sherds are portions of grey crocks. DlLg-69/1911 is a lip,body sherd of a thin-walled crock. The braced lip is 10.1 mm thick and the body is 6.1 mm thick. This could derive from a smaller butter jar (cf. DePasquale *et al.* 1990:122-127). The remaining sherds, DlLg-69/1583 (1) and DlLg-69/1915 (2), are all thicker body sherds.

3.11.1.1.4 Bottles

Six artifacts were identified as stoneware bottles (Table 8). Four specimens are small, personal-use ink bottles. None have maker's marks but minor variations in lip style and colour suggest at least three different manufacturers.

CAT. #	QTY	PORTION	COLOUR	MARKINGS	PRODUCT
1577	1	complete	brown	mottled	ink
1578	1	complete	orange brown	-	ink
1579	1	body,base,lip	olive to brown	-	ink
1580	1	body,base	pale yellow brown	-	ink
1586	1	body,base	grey	-	beverage
1587	1	body,base	grey and yellow	yellow band, raised dots	beverage
TOTAL	6				

Table 8: Stoneware Bottles from the Ballpark Project

Two catalogue numbers were identified as stoneware beverage containers. DlLg-69/1586 has no markings and would appear to be from a smaller bottle size. DlLg-69/1587 appears to have a larger diameter, representing the larger 1 quart bottle size. The base and lower portion of the body is an

unmarked grey colour. A horizontal row of raised dots in a depressed band circles the body, 88.6 mm from the base. Above this row of raised dots, the colour changes to a light brownish yellow. This type of design does not match any of the stoneware bottles illustrated in Chopping (1978).

3.11.1.1.5 Jugs

While crocks were used to store predominantly dry goods, jugs were the common storage container for liquid products such as vinegar, wine, spirits, and syrup. DlLg-69/1585 is a heavy strap handle from a large grey jug. Based on the shape and size of this handle, it probably derives from a 2 gallon jug. Both plain and bicoloured jugs were produced by most pottery companies. There does not seem to be a product specific aspect to this but more than likely it was done for consumer preferences. Strap handles were more common than bale handles (DePasquale *et al.* 1990:19-31, 40-42).

DlLg-69/1912 is a spall of stoneware from a jug or possibly a pitcher. It is the typical yellow colour of stoneware mixing bowls and has an oblique depressed band for decoration. Based on the configuration and the shape, this appears to be the neck,shoulder junction of a wide-mouthed jug (DePasquale *et al.* 1990:30) or a mustard pitcher (DePasquale *et al.* 1990:85).

3.11.1.1.6 Jars

Jars are defined as having a mouth diameter at least ⅔ that of the body. Stoneware jars were used to store food products such as preserves, marmalades, butter, etc. Four sherds were designated as portions of jars. DlLg-69/1582 is a small spall from the body of a highly glazed dark brown jar. DlLg-69/1774 is the body,base portion of a plain grey jar (or perhaps bottle).

DlLg-69/1581 is the body,base portion of a white jar. The body is decorated by a continuous pattern of vertical ribs, irregularly spaced. The concave base is impressed with "MALING" and "NEWCASTLE". The firm, C.T. Maling, operated Ford Potteries at Newcastle upon Tyne, Northumberland. It specialized in earthenwares and operated between 1859 and 1890. After 1890, it became C.T. Maling & Sons Ltd. and continued until 1963 (Godden 1964:409).

DlLg-69/1884 is a body,base sherd of the ginger jar type. The sherd, truncated shortly before the base, measures 89.1 mm in height (approximately 3½"). The lip, 6.0 mm thick, has a horizontal groove slightly below it. The body is marked with a transfer printed descriptive label which reads "...AND MEDAL", "JAMES ?...", "D", "MAR...", and "PRIZE ME..." above and below a garland of oak leaves and acorns. Labels of most companies around the turn of the century made reference to prizes awarded at national or international product fairs. The contents were probably marmalade. Ginger jars, albeit unmarked ones, have been recovered from other projects in this vicinity (Kroker and Goundry 1990:58, 1993:32; Quaternary 1994b:16, 1995c:33-34, 1998:110, 1999b:52).

3.11.1.1.7 Lids

Lids would have been made to fit on several types of products—crocks, pickle jars, packing jars, preserve jars, and butter jars. One specimen was curated. DlLg-69/1584 is a central fragment of a

circular lid with traces of the central concentric rings on the outer surface. The interior is unglazed tan and the exterior is a glazed chocolate brown colour.

3.11.1.2 Glass Containers

A large number of complete and incomplete glass storage specimens were curated. Indications of the method of manufacture, which provide information about time period and technology, are often present on these artifacts. Where possible, the specimens have been identified to type of container, i.e., bottle, sealer, jar. As noted earlier, jars are defined as containers which have a generally cylindrical body and a mouth which is greater than ⅔ of the diameter of the widest part of the base or body, while bottles have a constricted mouth and neck. Further identification to a functional sub-type, such as medicine or wine, has been done where possible.

3.11.1.2.1 Condiment and Food Produce Bottles

Three artifacts were identified as either condiment bottles or jars. Condiment containers are often difficult to identify as many producers used unmarked bottles to which they affixed a paper label. Condiment specimens can sometimes be identified to specific types of products such as jams, jellies, sauces, and foods. DlLg-69/1704 is the clear, neck,lip of a sauce bottle. The lip is down-tooled and applied with a lipping tool. The mold seam extends a short distance up the attenuate neck.

DlLg-69/1710 is a complete, clear, cylindrical jar with a height of 116.3 mm and a body diameter of 56.2 mm. The mold seam extends to the top of the lip indicating manufacture after 1920. The jar would be closed with a snap cap which would fit over the slightly thickened lip. A "D in a diamond" mark, embossed on the base, indicates that the manufacturer of this jar was the Dominion Glass Company of Canada. This logo was used from 1913 (Toulouse 1971:154-157).

DlLg-69/1901 is a complete, clear, cylindrical jar with a height of 139.8 mm and a body diameter of 51.2 mm. The mold seam on this specimen also extends to the top of the lip indicating manufacture after 1920. This jar also would have been closed with a snap cap fitting over the slightly thickened lip. A "1" is embossed on the base. This jar, and probably DlLg-69/1710, would have contained pickles, olives, or other preserved foods.

3.11.1.2.2 Medicine Bottles

Three artifacts (two clear and one aqua) were curated in this category. DlLg-69/1780 is a complete, clear, cylindrical bottle with a height of 75.3 mm and a body diameter of 50.3 mm. The mold seam extends part way up the neck indicating manufacture prior to 1920. The lip, with an internal bore of 26.4 mm, has a rounded string collar and would have been closed with a cork. The base is embossed with "W.T. & CO.", "605", and "C". This bottle was manufactured by Whitall-Tatum in Millville, New Jersey (Toulouse 1971:544-547).

DlLg-69/1708 is the body,base portion of a clear, rectangular, panelled bottle. Embossed on the lateral sides are "...& PRICE" and "...URERS". The face of the bottle is embossed with "RICE'S",

"...ECIAL", and "...IC EXTRACTS". Based on the two letters prior to extracts, the product would appear to be a patent medicine, i.e., tonic extract, rather than a food flavouring product.

DlLg-69/1707 is the neck,body portion of an aqua, rectangular bottle. The mold seam terminates at the base of the neck, suggesting manufacture circa 1900. Embossed text, on the face, reads "DR S.N. THOMAS" and "ECLECTRIC...". The side panel has "INTERNAL" embossed on it. Again, this could be a patent medicine.

3.11.1.2.3 Chemical Containers

One clear, cylindrical jar with a screw cap lip was curated. DlLg-69/1711 was manufactured in a two-piece post mold and the lip was applied separately. The height of this jar is 61.6 mm and the body diameter is 44.9 mm. The base is embossed with "WELLCOME", "CHEM.", "WORKS", and a mold number, "179". The type of contents are unknown.

3.11.1.2.4 Cosmetic Containers

Two sherds and one bottle were assigned to this category. The sherds are both white glass fragments. White glass jars cross-cut categories in that these containers often were used for a variety of substances. Some have had a product name, such as Pond's, that identify the jar as containing cold cream (Kroker 1989:63; Kroker and Goundry 1993:53), while others have had script and a logo that identifies the jar as containing a food product, i.e., MacLaren's Imperial Cheese (Kroker and Goundry 1990:61). In addition, white glass jars were also used for holding unguents and ointments, precursors to the plastic jars dispensed at pharmacies today. The allocation of unmarked white glass containers to the cosmetic category is usually due to decorative aspects of the shape.

DlLg-69/1574 is a lip,body,base fragment. The out-tapering body is mounted on a two-stepped pedestal base. The lip has an inner elevated portion with the body acting as a shoulder on which the cap would rest. The height of this jar is 68.1 mm and the diameter at the shoulder is 58.6 mm. DlLg-69/1575 is a body,shoulder sherd which appears to have a constricting taper towards the base and a vertical neck.

DlLg-69/1719 is a very ornate, cylindrical, clear glass bottle closed with the remnants of a rusty screw cap. The bore of the bottle, partially visible, is quite small (between 5 and 6 mm in diameter) indicating that the contents were to be dispersed in small quantities. The bottle is decorated with a series of raised lines producing geometric patterns, some of which are highlighted with hatchure lines. A rectangular, smooth surface, probably for a paper label, occurs on the face while a similar smooth diamond-shaped area occurs on the back. The two sides have the pattern of decorative triangles enhanced by depressions and ridges in the bottle, thereby producing a firm handhold. The neck is decorated with a series of three concentric, rounded string rings. The base is marked with the logo of Dominion Glass Company of Canada and, as it does not have any of the date markers, probably was produced prior to the introduction of the date code system in 1940. Enhancing this

interpretation is the notation "RD. 1933" suggesting that the design of the bottle was registered at that time. In addition, a mold number, "4442", is present. This container probably held hair tonic.

3.11.1.2.5 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 a company name of a firm which only produced non-alcoholic beverages. Those specimens which could not be identified as soft drink containers are discussed in the more generic Beverage section. Two complete bottles and six sherds were assigned to the Soft Drink category.

DlLg-69/1779 is a complete, aqua, Hutchinson-type bottle with a portion of the iron/rubber stopper still inside the bottle. The text, "N.W.A.W.Co." and "WINNIPEG", is embossed in vertical downward reading block letters. Chopping (1978:140) identifies this as type MWIN BI1. The bottle is a product of the North West Aerated Water Company. This company began in 1889 and continued producing until 1894. It appears that they used only the Hutchinson-type bottles. The firm was located in the Cauchan Building on Main Street at York Avenue (Stock 1978:26). In an 1892 panorama of Main Street, by Clarence Steele, the North West Aerated Water Company is pictured at the north end of the block (Quaternary 1994c:46). The Cauchan Building became the Empire Hotel which was demolished in May of 1982 (The Winnipeg Sun 1982:5).

The Drewry company began in 1877 when E.L. Drewry leased the Redwood Brewery and produced beverages labeled with his name. In 1904, the company name was changed to E.L. Drewry Limited and, in 1921, it became Drewrys Limited. As well as the Redwood location, Drewry purchased the premises of the Empire Brewing Company at Mulvey Avenue East in 1892. These facilities were sold to Blackwood Brothers shortly after the turn of the century (Peterson and Sweeney 1998:27). In addition to this brand—Golden Key Brand Aerated Waters—Drewry produced numerous other soft drinks as well as several brands of beer (Stock 1978:11-19). DlLg-69/1693 is a body,base fragment of a Golden Key bottle, a soft drink produced by the E.L. Drewry Brewery from approximately 1895 until the 1920s (Stock 1978:13). The standard Winnipeg ownership clause—THIS BOTTLE IS OUR PROPERTY ANY CHARGE MADE THEREFOR SIMPLY COVERS ITS USE WHILE CONTAINING GOODS BOTTLED BY US AND MUST BE RETURNED WHEN EMPTY—is embossed on the body. The brand name, "GOLDEN KEY AERATED WATERS", and "REGISTERED TRADE MARK" are embossed around the shoulder. The base is embossed with the name of the manufacturer "E.L. DREWRY", the place of business "WINNIPEG", and the year "01". Chopping (1978:117) designates this bottle as type MWIN DG8.

Three clear specimens are identified as products of the Coca Cola company. While the beverage was invented in 1885 (Stock 1978:31), Coca Cola's presence in Winnipeg dates back to 1916, about the same time as the introduction of the standardized wasp-waist ribbed bottle. The earliest specimen, DlLg-69/1692, is a slightly chipped complete bottle. The shoulder is embossed with "COCA COLA", in script, as well as "TRADE MARK REGISTERED" and "MIN. CONTENTS 6 FL. OZS." in

smaller block letters. The base is embossed with a "D in a diamond" and other marks indicating manufacture by the Dominion Glass Company of Canada in March/April 1950 at Redcliff, Alberta. DlLg-69/1694 is a body,base sherd, while DlLg-69/1777 is a body,base,shoulder sherd. The more complete specimen has traces of "COCA COLA", painted in script, and "TRADEMARK REGISTERED" "CONTENTS 10 FL. OZS." embossed, in block letters, on the shoulder. The bases of DlLg-69/1694 and 1777 are embossed with "COCA-COLA LTD.", a "D in a diamond" logo, and other markings indicating both were produced at Redcliff, Alberta during September/October 1955. The only difference between the two basal markings is that DlLg-69/1694 has a "1" on it, while DlLg-69/1777 has a "4" on it. This additional mark may refer to a product run or a specific furnace/automatic bottling machine within the plant.

DlLg-69/1695 is a clear shoulder sherd. The word "PEPSI..." and the hatchuring design indicate that this is a portion of a Pepsi Cola bottle. Pepsi Cola was first bottled, in Winnipeg, by Blackwoods Beverages in 1936. From 1940 to the present, it has bottled its own soft drinks (Stock 1978:68).

DlLg-69/1696 is a small body portion of a clear glass sherd with a brand name painted on it. The text "CANA..." and "DRY" superimposed on a green, gridded map within a green shield identifies the company, if not the brand. Canada Dry started in Toronto in the 1890s and was introduced in Winnipeg in the late 1930s (Stock 1978:61). In addition to Ginger Ale, Canada Dry produced Bitter Lemon, Tonic Water, Sparkling Water, and Hi-Spot Lemon Soda.

The final soft drink specimen, DlLg-69/1697, is a green sherd with traces of a white and red logo. The shade of green is typical of 7-Up bottles, but it also could be Mountain Dew or several other soft drinks. The portion of the painted logo is too incomplete to firmly identify this specimen as 7-Up.

3.11.1.2.6 Beverage Bottles

As noted earlier, breweries bottled both soft drinks and beer and often used the same type of bottle for both products. Without paper labels, it is usually impossible to ascribe a specific product to an archaeologically recovered bottle. Thus, the bottles are assigned to the generalized Beverage class. Depending upon the data embossed on the artifact, it may be possible to identify the producer of the contents, the manufacturer of the container, both, or neither. Based on the extracted information, the recovered specimens are discussed in two sections: those attributable to Winnipeg bottling firms and those for which neither the manufacturer nor the producer could be identified.

3.11.1.2.6.1 Winnipeg Bottling Firms

There was an active beverage industry in Winnipeg with several firms vying for the market. Recoveries from this project include bottles representing three of these companies: Blackwoods, Drewry, and Pelissier. Two firms (Blackwoods and Drewry) dominated the local market or, at least, their bottles are the most commonly found (Table 9). Blackwood Brothers, later Blackwoods Limited, is better known as a bottler of soft drinks whileE.L. Drewry Limited appears to have concentrated on brewing beer.

The passage of the Manitoba Temperance Act in 1916 resulted in all Winnipeg brewers concentrating on the manufacture of soft drinks and beer for export. The local market for 'Temperance Beer' and medicinally prescribed spirits was further diminished by the 1918 Federal War Measures Act which was in force for one year and prevented importation of alcohol. Broad-based restrictions were eliminated by the introduction of the Liquor Control Act in 1923.

Blackwoods has a long and involved history. In 1882, it began as the Manitoba Brewing Company and became Blackwoods Brothers shortly after. In 1901, the name was changed to Blackwoods Limited. Another name change occurred in 1921, this time to Blackwoods Beverages (Aerated Water Manufacturing Company Limited). In 1923, the Whistle Bottling Company was formed to take over Blackwoods' business and, in 1934, the name reverted to Blackwoods Beverages Limited (Stock 1978:19; Chopping 1978:99-109). The early incarnations of the Blackwoods business had various locations. Just after 1900, William and A.T.R. Blackwood bought a pre-existing building (built in the early 1880s) at 409-421 Mulvey Avenue East. In 1920, Blackwoods sold this property. Originally, the building on the Mulvey site had been a factory and then, over the years, it was the home of other brewing companies—E.L. Drewry, Pelissier Brewery, Labatts. Today, various manufacturing companies occupy it (Peterson and Sweeney 1998:27).

One type of Blackwoods bottle was recovered. It is identified as Chopping type MWIN BA8-1 (1978:102). This is a Hutchinson-style bottle with the iron/rubber closure still present. In addition to the company name "BLACKWOODS" and "WINNIPEG", an early version of the ownership clause, "ANYONE FILLING BUYING SELLING OR DESTROYING THIS BOTTLE WILL BE PROSECUTED", occurs in vertical text. The base is marked with the Blackwoods logo of two Bs in a triangle and the phrase "OUR TRADE MARK".

COMPANY	CHOPPING NO.	COLOUR	CAT. NO.	QTY	PORTION
Blackwoods	MWIN BA8-1	aqua	1778	1	body,base,neck
Drewry	MWIN BG9-1	clear	1904	1	complete
	MWIN BG9-1	clear	1905	1	body,base,neck
	MWIN BG11-2	clear	1700	1	complete
	MWIN BG11-2	clear	1699	1	body,base,neck
	MWIN BG18-2	aqua	1906	1	body,base
Pelissier	MWIN BR4	aqua	1702	1	base
Unassigned	MWIN ??	light blue	1701	1	body

Table 9: Identified Winnipeg Beverage Bottles

As noted earlier, the Drewry company began in 1877 when E.L. Drewry leased the Redwood Brewery and produced beverages labelled with his name. In 1904, the company name was changed to E.L. Drewry Limited and, in 1921, it became Drewrys Limited. As well as beers and ales, the firm produced several brands of soft drinks (Stock 1978:11-13).

Three different types of Drewry bottles were recovered and identified using Chopping (1978). Drewry products are extremely useful as temporal markers in that the date of manufacture is embossed on the base of the bottles. The recovered artifacts represent the years 1902, 1904, and 1911. The Winnipeg-specific ownership clause is embossed on the body of all specimens. The company name and Winnipeg are embossed in various locations—most often on the shoulder and the base. The two bottles from 1902 are identical except for a slight amethyst tinge to the complete specimen, DlLg-69/1904. The two specimens from 1904 are identified to the type which Chopping illustrates as a base only. He separates this sub-type, BG11-2, on the basis of the text "330E" at the back of the body, near the base. This is present on DlLg-69/1700. The second 1904 specimen, DlLg-69/1699, also has text at the back, but it is in a smaller font and reads "330F". To a collector, this would be sufficient reason for designating a new sub-type, however from an archaeological point of view, the date of production—1904—is more important than the production run of the bottle manufacturer. The 1911 bottle, DlLg-69/1906, is a very dark aqua and was identified to Chopping's type based largely on colour as there are five different basal markings for Drewry bottles in 1911. The colour of many are very light green. In addition to the year digits, the letter B occurs on four of the sub-types but in front of the year on only three of the sub-types. However, in contrast to Chopping's illustrations of BG18-1, BG18-2, and BG18-3, the recovered specimen, DlLg-69/1906, has the date mark underlined.

The Pelissier Brewery has a rather convoluted history. In 1911, Pelissier & Sons manufactured Soda Water at 721 Furby. In 1914, the company, still manufacturing Soda Water, changed its name to Beaver Brewing and Bottling Company and in 1918 it expanded from 721 to 719 Furby. In 1920, there was another name change, to the Home Brewery, and a further expansion, from 719 to 723 Furby. At this time, Alphonse, Cleophas, and Henry Pelissier were all listed as executives of the company. The final expansion of the Home Brewery, on the Furby site, took place in 1924, with the Brewery now occupying 715 to 723 Furby. In 1925, the company moved to Osborne and Mulvey and changed its name to Pelissiers Limited. It remained at this location, under variations of the same name, until 1977 when it became Kiewel-Pelissier's Breweries.

DlLg-69/1702 has the beaver emblem, embossed on the base, indicating the Pelissier Brewery. Based on the outline of the beaver and the lack of additional text on the base, this specimen can be narrowed down to Chopping type MWIN BR4 (Chopping 1978:141).

The final artifact in this group is DlLg-69/1701, a light blue body sherd, with part of the Winnipeg specific ownership clause embossed on it. Variations in font and letter spacing are insufficient to identify this to a specific company or Chopping type.

3.11.1.2.6.2 Unascribed Beverage Bottles

In some cases, embossed markings cannot be traced to the manufacturer or producer. Some specimens have only mold numbers which do not provide any of this information and some recovered specimens have no markings whatsoever. DlLg-69/1902 is the body,base portion of a heavily patinated light green torpedo bottle. There are no marks to identify the company or country of origin.

3.11.1.2.7 Wine Bottles

Seven sherds and two bottles were assigned to wine bottles (Table 10). An identifying feature of early wine bottles is the kick-up which is a raised section of the base. This feature originated as a sediment trap and is currently retained as a tradition. Kick-ups are present on all of the sherds and the green bottle. Often a mamelon—a small downward projecting dome of glass—is present in the centre of the kick-up. Colour is another indicator of early wine bottles as is the type of lip. Most 19th century bottles are olive or dark green and have applied lips which would be closed with a cork.

The basal sherds do not provide any temporal markings. While the artifacts probably date to the 19th century, this cannot be confirmed by technological features such as mold seams or styles of finish. DlLg-69/1713, the complete green bottle, has a deep kick-up with a medium mamelon and an applied lip. The absence of a mold seam indicates that this container was turn-molded (Jones and Sullivan 1985:31), a common technique from the 1870s through World War I. The cork is still in place in the mouth of the bottle and a minor trace of the original paper label is present. No markings occur on this fragment of white paper.

CAT. #	QTY	COLOUR	PORTION	COMMENTS
1712	1	brown	complete, cap	CANADIAN WINERIES
1713	1	green	complete, cork, paper label	champagne sloped top;kick-up
1714	1	olive	body,base	kick-up;mamelon
1715	1	green	body,base	kick-up; mamelon
1716	4	olive	body,base	kick-up;no mamelon
1721	1	olive	body,base	kick-up;no mamelon
TOTAL	9			

Table 10: Wine Bottles from the Ballpark Project

DlLg-69/1712 is a recent wine bottle closed with a red metal screw cap. The bottle is oval in cross-section and was produced by Dominion Glass in Hamilton, Ontario in a year ending with 0, i.e., 1960, 1970, or 1980. The producer's name, "CANADIAN WINERIES LIMITED", is embossed on the base. The bottle is decorated with an embossed design of grape leaves and bunches of grapes on the upper face, near the shoulder.

3.11.1.2.8 Whisky Bottles

DlLg-69/1703 is a complete, cylindrical, brown bottle with a brown plastic screw cap in place. The base of the bottle has the "C in a triangle" mark of Consumers Glass, a mold number "2097", and possibly a date mark "6". The body of the bottle, near the base, is embossed with the volume of the contents "25 OZS." and the number "1" on the opposite side. The company can be identified by embossings on the top of the plastic cap—"SEAGRAM'S" and "FINE WHISKIES SINCE 1857".

3.11.1.2.9 Liquor Bottles

This group is a catchall for bottles that held some type of spirits but could not be assigned to whisky, gin, etc. Thirteen sherds and one bottle fit this definition (Table 11). The body,base sherds have no markings which provide temporal or manufacturer information. The applied lip indicates that the lip,neck sherd, DlLg-69/1720, was produced prior to the introduction of automatic bottling machines.

CAT. #	QTY	COLOUR	PORTION	COMMENTS
1717	1	brown	complete, cork, paper	..DSON'S BAY COMPAN...;WX184;6
1718	1	brown	body,base	WX184;6
1720	1	olive	lip,neck	applied lip;V-shaped string rim
1722	2	green	body,base,shoulder	cup mold;cylindrical
1723	3	olive	body,base	concave base;4 dots;cylindrical
1724	4	olive	body,base	cylindrical
1749	1	olive	body,shoulder	square cross-section
1784	1	olive	body,base,shoulder	turn-molded;cylindrical
TOTAL	14			

Table 11: Liquor Bottles from the Ballpark Project

DlLg-69/1784 is lacking the neck and finish which could provide some indication of the time period of manufacture. However, traces of a cup mold, in which the specimen was rotated, are present suggesting manufacture prior to 1920.

DlLg-69/1749 has the square sides and domed shoulder usually seen in case gin bottles. This shape was a function of ocean shipment of the product in that square bottles could be packed with more to a crate and were less likely to break, due to rough handling, than were round bottles. They were made in Holland, England, and America during the 19th century (Klamkin 1971:82-83). While this shape is strongly associated with gin bottles, it was not exclusive and other spirits were occasionally bottled in square containers.

DlLg-69/1717 and 1718 are the same style of bottles with identical mold numbers on the base. The bottles are oval in cross-section with indented panels on the lateral sides. DlLg-69/1718 is lacking the neck and lip, which on DlLg-69/1717 has a mold seam extending to the top of the lip. The finish

on DlLg-69/1717 consists of a down-tooled lip and a V-shaped string rim. The complete bottle is closed with a mushroom-shaped cork which has black text, "...DSON'S BAY COMPAN...", written on the yellowish background. In addition, the Hudson's Bay Company shield is also on the cork along with the phrase "MADE IN ENGLAND". Remnants of a paper label are present on the face of the bottle, but very little text is discernible, only "THE GOV..." and "...COMP...". Chopping (1978:237a-b) illustrates bottles used by the Hudson's Bay Company for sale of wines and spirits in their 1910/1911 Fall/Winter Catalogue. Superficially, the type I4861, containing Fine Old Scotch Whisky, resembles the recovered bottles, at least in outline. As the recovered containers are at least a decade older than the illustrations, the type of contents cannot be ascertained.

3.11.1.2.10 Unassigned Bottles

Artifacts in this grouping have some identifying characteristics, such as shape or manufacturer's marks. However, the data is insufficient to ascertain the function of the container, i.e., medicine bottle versus condiment bottle. Occasionally, the style of manufacture of the neck and lip of bottles suggests the possible contents of the containers. 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—if the seam extends to the lip of the bottle it was produced after 1920.

There are thirty-nine specimens in this sub-type. These vary in colour and in shape. The recoveries were divided into two sections: those sherds which have some form of marking (Table 12) and those which have no marking whatsoever (Table 13).

3.11.1.2.10.1 Marked Unassignable Bottles

Thirteen sherds have marks of various types (Table 12), all are embossed. Some of the embossings are parts of marks or logos which could represent the manufacturer. Others are definitely mold numbers. The exception is DlLg-69/1736 which has an embossed decorative pattern on the body.

CAT #	QTY	COLOUR	PORTION	MARKINGS	COMMENT
1698	2	brown	body,base	D.&.CO.;401	cylindrical
1725	1	aqua	complete	B	cylindrical; applied lip
1728	1	blue	body,base	L & W	cylindrical
1733	1	brown	body,base	5	oval
1734	1	brown	base	12	cylindrical
1736	1	clear	body	circles,diamonds	cylindrical
1739	1	clear	body	?	panelled rectangular
1740	2	aqua	body,base	7164	cylindrical
1746	2	green	body,base	D in ◊;2;2282	cylindrical
1781	1	green	neck,body,base	?	cylindrical
TOTAL	13				

Table 12: Marked Unassignable Bottles from the Ballpark Project

Two brown, body,base sherds, DlLg-69/1698, fit together. The base is embossed with "...D. &. CO." and "401". This probably represents the Parke Davis & Company of Detroit, Michigan which has been in operation since 1875 (Toulouse 1971:417-418). This company is a pharmaceutical firm and produced bottles for packaging their products.

DlLg-69/1725 is a tall (204.0 mm), cylindrical bottle with a body diameter of 73.6 mm and a lip diameter of 45.7 mm. The mold seam terminates at the neck,shoulder junction and the applied lip is a flat collar, 14.8 mm high. The base is marked with a "B" which cannot be identified in Toulouse (1971) as the only firm using a single B, Buck Glass Company of Baltimore, Maryland, used a different font. This bottle probably contained a food product and is very similar to other recovered specimens that are unmarked, DlLg-69/1726, 1782, 1783, and 1888.

DlLg-69/1728 derives from a small, cylindrical bottle with a body diameter of 39.9 mm. The embossed text, on the base, "L & W", is not identified in Toulouse (1971). The bottle, which was made in a two-piece post mold, is heavily patinated.

DlLg-69/1739 is a small section of a side panel from a rectangular bottle. Minute traces of letters are visible but insufficient to identify the product or the company.

DlLg-69/1746 was produced by the Dominion Glass Company of Canada in Hamilton, Ontario in a year ending in 2, i.e., 1942, 1952, 1962, etc. The mold number is truncated and it is not known if it was preceded with a V which would indicate manufacture during the 1950s. A stippled pattern runs around the circumference of the base, a design element common to soft drink bottles of the 1960s and 1970s. The green colour is reminiscent of Ginger Ale or 7-Up.

DlLg-69/1781 is a cylindrical, green bottle missing the upper portion of the finish. This incomplete specimen has a height of 162.6 mm and the complete specimen would probably have been less than 17 cm. The body diameter is 51.0 mm and the inner bore of the straight neck is 27.6 mm. The mold seam extends to the top of the neck where it is obliterated by the applied lip. The base is marked with a series of indecipherable, indistinct letters and/or numbers.

3.11.1.2.10.2 Unmarked Unassignable Bottles

Twenty-six artifacts were curated which could not be assigned to a specific type of bottle and had no identifying markings (Table 13). Five colours are represented—aqua, blue, brown, clear, and green. Few specimens have sufficient information for further analysis. Two of the complete, clear bottles, DlLg-69/1705 and 1706, have applied prescription lips and are the standard shape used by pharmacists and may have contained medical ingredients. Those specimens with applied lips would pre-date 1920. DlLg-69/1903 was produced in an early version of an automatic bottling machine as indicated by the horizontal mold seams at the finish/neck juncture (Jones and Sullivan 1985:36-39).

CAT #	QTY	PORTION	COMMENTS
AQUA			
1726	1	complete	cylindrical; resembles DlLg-69/1725
1741	1	body,base	oval
1742	1	base	cylindrical; concave
1743	1	body	cylindrical
1744	1	body	rectangular; panelled
1745	1	lip,neck	applied lip; V-shaped string collar
1782	1	lip,neck,body	cylindrical; resembles DlLg-69/1725
1783	1	lip,neck,body	cylindrical; resembles DlLg-69/1725; foil seal remnants
1888	1	lip,neck	cylindrical; resembles DlLg-69/1725
1903	1	complete	cylindrical; horizontal finish mold seams
BLUE			
1727	1	neck,body,base	chamfered rectangular
1729	1	body,base	cylindrical; small
1730	1	body,base	cylindrical
1731	1	body,base	oval
1732	3	body,base	cylindrical
BROWN			
1735	1	body	oval
1900	1	body	cylindrical
CLEAR			
1705	1	complete	London Oval; applied prescription lip
1706	1	complete	Baltimore Oval; applied prescription lip
1709	1	lip,neck,shoulder	applied square ring lip
1737	1	body	cylindrical
1738	1	lip,body	cylindrical jar; screw cap finish
GREEN			
1747	1	body,base	cylindrical
1748	1	body	cylindrical
TOTAL	26		

Table 13: Unmarked Unassigned Bottles from the Ballpark Project

3.11.2 Cooking

Seven artifacts were assigned to this sub-category (Table 14)—two glass and five stoneware. DlLg-69/1567 is the lip,body portion of a blue, glass measuring cup with a short, rectangular, tab handle. The tab handle is embossed with the size of the measuring cup, i.e., "1 cup" or "8 OZ". A small raised collar occurs just below the lip on the exterior surface.

DlLg-69/1576 is a corner fragment of a glass lid from a refrigerator dish. According to Weiss (1981:16-17):

> "By the middle of the '30s, many families had automatic refrigerators and glass manufacturers began producing refrigerator ware...most containers were oblong or square and many were designed to stack one on top of another to save space...most refrigerator ware was made in green, amber, blue, opaque green, white, light blue and cream, and many pieces were embossed with geometric patterns, ivy leaves or vegetables".

The base of DlLg-69/1576 has an interior downward projecting flange which would fit into the dish, while the edge of the lid rests on the lip of dish. The interior surface is decorated with a raised pattern of dots and linear rays projecting from the corner at a 45° angle towards the centre of the lid. The thick outer edge provides a raised rim around the perimeter of the upper flat exterior surface. In the middle of each side of this thick outer edge, there is a small rectangular handle consisting of short vertical ribs. These provide a surface for picking up the lid as well as being decorative. Refrigerator dishes came in various sizes with this one being nearly square and smaller. Florence (1984:66-67) illustrates Fire-King refrigerator dishes made by Anchor Hocking and notes that the sizes are 4½" x 5" and 5⅛" x 9⅛". Weiss (1981:17) illustrates a three-piece refrigerator set with the larger dish having a very similar geometric pattern to DlLg-69/1576. Unfortunately, the author does not name the manufacturer or the pattern.

CAT. #	OBJECT	QTY	MATERIAL	COLOUR	PORTION	COMMENTS
1567	meas. cup	1	glass	blue	lip,body,handle	1 CUP;8 OZ
1568	bowl	1	stoneware	white;yellow	body,base	mark?;ribbed
1569	bowl	2	stoneware	yellow	lip,body,base	ribbed
1570	bowl	1	stoneware	brown	lip,body,base	spongeware
1571	bowl	1	stoneware	brown	lip,body	spongeware
1576	fridge dish	1	glass	clear	lid	rays
TOTAL		7				

Table 14: Cooking Containers from the Ballpark Project

The remaining five sherds are all from stoneware bowls. DlLg-69/1568 is the body,base of a relatively large mixing bowl with a basal diameter of 106.9 mm. The interior surface has a white glaze, while the exterior is yellow. The body is decorated with closely spaced ribs. The base has a series of concentric rings with a very blurred indiscernible mark in the centre. DlLg-69/1569 consists of two pieces, which fit together, of a yellow mixing bowl. The height of this bowl is 105.7 mm with a calculated basal diameter of 115.3 mm suggesting that DlLg-69/1568 and 1569 are similar in size. DlLg-69/1569 is decorated with widely spaced ribs surmounted by a horizontal row of raised dots and a raised horizontal narrow band.

DlLg-69/1570 and 1571 are both sherds from mottled brown bowls. DlLg-69/1570 has a reddish brown hue, while DlLg-69/1571 is more yellowish brown in appearance. DlLg-69/1570 has a flat

base, sloping sides, and a flat, L-shaped lip. It's height measures 56.9 mm. The shape of this dish appears to be oval and it may have been used as an ovenware cooking dish or a vegetable serving dish. DlLg-69/1571 is a lip,body sherd which has a straight-walled body with a slightly out-flaring rounded lip. There appears to be a raised molded line on the exterior surface which may demarcate areas of different spongeware patterning.

DePasquale *et al.* (1990:97, 157) note that after 1906, when the Red Wing and Minnesota Stoneware companies amalgamated, new lines and glazes appeared. One of these was a mottled glaze wherein various colours, such as brown, red, or blue, were sponged, by hand, onto white ware. These mottled pieces were very popular and were produced well into the 1930s by the Red Wing Union Stoneware Company. In addition, Symonds (1974:13, 34-35) illustrates a mottled vase from the Medalta Stoneware Company which has a stamp mark that dates to the 1930s - 1940s.

3.11.3 Ornamental

The artifacts assigned to this sub-category were primarily used for their decorative features rather than any utilitarian function. Two glass artifacts, DlLg-69/1566 and 1776, and one porcelain artifact, DlLg-69/1602, were curated.

DlLg-69/1566 is a fragment of melted glass, amethyst in colour, that may have come from a bowl. DlLg-69/1776 is a large, oval-shaped, white glass specimen. The central portion is slightly depressed with a raised edge around it. There is a central smooth circular design which has raised rays that radiate out from it to the edge. It measures 130.8 mm in length and 81.5 mm in width with more than half the specimen present. The interior surface is flat and smooth with thin vertical walls which have broken off so that the ultimate configuration of the object cannot be determined. Because of this uncertainty, the artifact could be a lid with the decoration on the top, an oval jar or container with the decoration on the bottom, or a trivet with very short vertical walls projecting downward with the decorative design being on the surface.

DlLg-69/1602 is an unusual porcelain specimen. The configuration of the sherd suggests that this ornamental bowl resembled a large shallow soup plate with a wide (24.0 mm) horizontal lip. This specimen differs from a soup bowl in that the horizontal lip is stepped down from the upper rim of the body. The lip has a white background with a gold line painted along the scalloped edge and a light blue band feathered down from the edge onto the wide portion of the lip. Underlying this blue band is an embossed canoe-shaped design and rays. No decoration appears on the body.

3.12 Dinnerware

Plates, cups, bowls, etc. are types of containers. Technically, they are catalogued as a sub-category of the container hierarchy. However, due to the large numbers of recoveries of dinnerware and the different types of information that may be derived from these artifacts as opposed to other containers, they have been elevated to a separate section. One hundred and ninety-eight (four glass and 194 ceramic) dinnerware artifacts were curated.

3.12.1 Glass Artifacts

Four glass sherds were curated as dinnerware pieces (Table 15) . DlLg-69/1589 is the foot and stem portion of a goblet. Based on the curvature of the base of the bowl and the shortness of the stem, it is probably a brandy snifter. DlLg-69/1775 is the body,base of a tumbler with a heavy base and slightly outsloping walls. The exterior is decorated with a series of fourteen flutes which extend 62.0 mm in height. The basal diameter measures 60.3 mm.

CAT. #	QTY	COLOUR	PORTION	OBJECT	COMMENTS
1589	1	clear	body,stem,base	wine glass	brandy snifter
1590	1	clear	lip,body	bowl	Daisy & Button
1591	1	clear	body,base	bowl	Maple Leaf?
1775	1	clear	body,base	tumbler	fluted
TOTAL	4				

Table 15: Glass Dinnerware Sherds

DlLg-69/1590 is a small, flat-bottomed bowl, possibly a fruit nappy. The depth measures 46.2 mm and it would have had an approximate calculated diameter of 99.5 mm. A 22.0 mm wide band occurs on the exterior surface, at the lip, and is the Daisy and Button pattern. This pattern is a long-lasting pattern (Lee 1936) and occurs in both pressed glass and the more expensive cut glass. DlLg-69/1590 is pressed glass.

DlLg-69/1591 is a footed bowl with a stylized leaf in acanthus scroll. The leaves could be oak, maple, grape, or ivy (cf. Lee 1936, 1944). The interior of the concave base is decorated with a sunburst pattern of rays. Traces of a design, consisting of clumped, ovate leaves and a possible geometric design, are present on the body. This pattern could not be identified in the available references. The basal diameter measures 76.9 mm.

3.12.2 Ceramic Artifacts

Ceramic dinnerware includes place settings—plates, small bowls, cups and saucers—and serving pieces—platters, large bowls, creamers. Archaeological recoveries are often too fragmented to allow exact identification. This is reflected in the use of object types such as bowl?, plate?/saucer?, and bowl?/cup?. Because dinnerware is usually manufactured in sets of the same pattern, the decorative features of a set cross-cut the types of objects. One hundred and ninety-four ceramic dinnerware artifacts were recovered. These are separated into groups based on colour and, within each colour category, decorative design and any information such as manufacturer, jobber, company of use, etc. will be discussed.

3.12.2.1 White Ceramics

White sherds are only fragments of complete objects—there may be patterns with other colours that fit onto these sherds. One hundred and forty-three white sherds were recovered from this site. Of these, 62 sherds (Table 16) are plain white with no indication of a pattern or a manufacturer. These plain white sherds represent all the usual types of dishes—plates, saucers, cups, and bowls. The thickness of the sherds, i.e., body sherds from bowls and cups and base sherds from plates and saucers, vary indicating representation by numerous different containers.

CAT. #	QTY	PORTION	OBJECT
1621	1	body	bowl
1632	1	body,base	eggcup
1633	1	lid	bowl
1634	2	lip,body,base	saucer
1635	2	lip,body	saucer
1636	1	lip,body,base	saucer
1637	2	body,base	cup
1638	5	lip,body	cup
1639	1	lip,body,base	plate
1640	6	base	plate
1641	4	lip,body	plate
1642	9	body,base	plate
1643	6	body	bowl
1644	3	lip,body	bowl
1645	12	body	bowl?/cup?
1763	1	lip,body,base	plate
1764	1	lip,body	saucer
1765	1	body	cup
1877	1	lip,body	plate
1909	1	lip,body	cup
1913	1	lip,body	saucer
TOTAL	62		

Table 16: Plain White Dinnerware from the Ballpark Project

A heavily encrusted portion of a plain white eggcup was recovered. The deeply concave base of DlLg-69/1632 has a diameter of 45.7 mm. The diameter of the lip is unknown as that portion of the artifact is missing.

3.12.2.1.1 Manufacturers and Jobbers of White Ceramics

Several of the recovered white sherds have a maker's mark which permits the identification of the company that manufactured the dinnerware item. In addition to identifying the company, the period of manufacture can often be determined due to changes in the logos over time. Occasionally, the client for whom the dinnerware was produced is denoted by a name or insignia on the sherd.

Robert Cochran & Co.

DlLg-69/1760 consists of two sherds from a dinner-sized plate. The mark on the base is the black Royal Arms mark with "ROBERT COCHRAN & CO GLASGOW" and "IMPERIAL IRONSTONE CHINA" printed around it. The front of this plate is embossed with the three-row Wheat pattern. According to Sussman (1985:20-21), this pattern was being produced at the Britannia Pottery (Glasgow) after 1863 until 1896 and in the Verreville Pottery (Glasgow) until 1918. Because this piece has a pattern as well as a mark, it will also be discussed in Section 3.12.2.1.2.

W. & E. Corn

DlLg-69/1670 is a lip,body,base sherd from a dinner-sized plate with a portion of the black Royal Arms mark with "...E CHINA", "...ORN", and "...EM" printed below it. The upper surface of the plate is embossed with five evenly spaced flowering plants. The W. & E. Corn company was situated at Burslem from 1864 to 1891 and then moved to Longport until it closed down in 1904 (Godden 1964:175). A second plate, DlLg-69/1672 (two sherds), has a small portion of the Royal Arms mark. The clarity of print and some similar design features of the mark, as well as the identical pattern on the face, suggest that this specimen also may be a product of W.& E. Corn. These dishes will be discussed further in Section 3.12.2.1.2.

John Edwards & Co.

DlLg-69/1758 is a basal sherd from a plate. The black mark, on the base, consists of the Prince of Wales feathers with "WARRAN...", "IRONSTONE", "TRAD...", and "JOHN..." printed around it. This is the mark of the John Edwards & Company at Fenton, Staffordshire. This company produced material from 1847 to 1900 and used this mark between 1880 and 1900 (Godden 1964:231).

Thomas Furnival & Sons

Two sherds, DlLg-69/1770, from an oval dish, have a portion of a black transfer print of the logo of this company. Godden (1964:263) indicates that this mark was used from 1818 to 1890. In 1890, the company changed its name to Furnivals Limited and operated well into the 20th century.

Globe Pottery Co. Ltd.

DlLg-69/1629 is a thin, small portion of the base of a bowl or a cup with a small part of a green maker's mark present. The words, "...OTTERY CO." and "...E, ENGLAND", are printed below the base of a platform. The complete company logo consists of Atlas with a globe on his shoulders, kneeling on the platform, with Globe Pottery Co. and Cobridge, England printed below. The Globe Pottery used this mark, in Cobridge, from 1914 until 1934 when the address changed to Shelton (Godden 1964:275-276).

J. & G. Meakin

One lip,body,base sherd from a large plate has part of the black Royal Arms mark and "...MEAKIN", "...NLEY", and "...GLAND" printed on the base. DlLg-69/1626 was manufactured by the J. & G. Meakin (Ltd.) of Hanley, Staffordshire. Godden (1964:427) notes that this company began producing pottery in 1851 and the Royal Arms occurs on many of their marks. The earlier versions of the J. & G. Meakin marks did not have England on them. This particular mark was used from about 1890 onward.

Powell & Bishop

Four sherds, DlLg-69/1680, 1681 (2), and 1682, have an embossed pattern which consists of diamonds and fronds. The partial maker's mark, on the base of DlLg-69/1680, matches the mark illustrated in Godden (1964:509). This firm, located at Hanley, Staffordshire, existed for only two years (1876-1878) under this name. Originally, it began as Livesley Powell & Company in 1851. After 1878, it became Powell, Bishop & Stonier until 1891 and Bishop & Stonier until it ceased operation in 1939. These sherds will be discussed in more detail in Section 3.12.2.1.2.

St. Johns Stone Chinaware Company

Five sherds, four catalogue numbers, have the Wheat pattern embossed on the face with portions of the maker's mark of this company on the base. DlLg-69/1646, 1647, and 1649 all have most of "ST. JOHNS, P.Q.", while DlLg-69/1648 has only "STONE CHINAWARE CO." (like DlLg-69/1646 and 1647). This company was the only successful Canadian maker of whiteware during the 19th century (Sussman 1985:36). The company was in business from 1873 until 1899. These pieces will be discussed further in Section 3.12.2.1.2.

Two other sherds, DlLg-69/1628, come from a plain white saucer. They fit together and has a portion of a black maker's mark consisting of the Royal Arms and "...TONE CHINAWARE...". The design of the lion's face in the Royal Arms is very reminiscent of the above described sherds suggesting that DlLg-69/1628 is also a product of St. Johns Stone Chinaware Company.

Unknown

Four sherds have portions of maker's marks on them. However, it is impossible to assign them to a particular firm. DlLg-69/1668 and 1762, plate sherds, and DlLg-69/1627, a saucer sherd, have portions of the black Royal Arms mark. Many British companies, as well as others in the United States and several European countries, used the Royal Arms mark (Kovel 1986:267). Additional text such as "...RONSTONE CHINA", in varying fonts, is insufficient to determine the manufacturer. DlLg-69/1668 also has the scalloped edge, at the junction of the body and base, of the Wheat pattern. It will be discussed in Section 3.12.2.1.2.

DlLg-69/1631 is a base sherd from a cup. There are five parallel, smeared and blurred black lines painted under the glaze in the centre of the exterior base. This mark cannot be allocated to any known company. Possibly, this was the work of a hobbyist who decorated bisque ware and then fired it.

3.12.2.1.2 Embossing and Marks on White Ceramics

Several of the white ceramics have decorative designs formed by embossing or molding. Other undecorated sherds have marks which may indicate a company, a designer, a potter, or a product line. The most recognizable pattern, produced by many firms during the Victorian era, is the Wheat pattern.

Wheat Pattern

Thirty-four sherds have variations of the Wheat pattern on them (Table 17). Several of the specimens have only partial designs and/or indistinct embossing, thereby rendering identification of specific manufacturers impossible. Those artifacts which could be identified to a manufacturer are discussed further. The Wheat pattern was first registered by Minton and Company in 1848. Since then, at least forty-two different firms have produced fourteen or more different patterns employing wheat motifs. Thirty-eight firms operated in Staffordshire, two in Scotland, one in Canada, and the last in France (Sussman 1985:7). While many specific patterns were produced by several manufacturers, individual variations often permit identification of the company that produced the decorated dinnerware. Where wheat is combined with other elements, they are easily ascribed to the specific company. The more generalized wheat pattern can be differentiated, firstly by the number of rows of kernels in the grain—two or three—and secondly by the configuration of the leaves.

Two-Row Wheat Patterns

DlLg-69/1646, 1647, 1648, and 1649 have all been assigned to the St. Johns Stone Chinaware Company of St. Johns, Quebec (Sussman 1985:36). All of the sherds have the two rows of kernels on the ears and are relatively distinct from the Wheat pattern of other manufacturers in that the leaves and the wheat ears project sharply onto the interior bodies of the saucers.

The remainder of the two-row Wheat patterns do not have a mark, but some could be tentatively assigned to a company. DlLg-69/1657 may be a product of J. & G. Meakin, although it does not have a mark. This identification is based on the close resemblance of the head of wheat and the pattern of the leaves which are similar to the illustrations in Sussman (1985:32). She notes that "...Meakin's Wheat pattern was sold by the T. Eaton Company through its mail-order catalogues from 1897 through 1904".

CAT. #	QTY	OBJECT	PORTION	PATTERN
1630	1	pitcher	body	three rows of kernels
1646	1	saucer	lip,body,base	two rows of kernels;St. Johns*
1647	1	saucer	lip,body,base	two rows of kernels;St. Johns*
1648	2	saucer	lip,body,base	two rows of kernels;St. Johns*
1649	1	saucer	lip,body,base	two rows of kernels;St. Johns*
1650	1	saucer	lip,body	leaf only
1651	1	cup	lip,body,base,handle	two rows of kernels
1652	1	cup	lip,body	indiscernible
1653	3	pitcher	lip,body,base	two rows of kernels
1654	1	lid	lip,body	two rows of kernels;? leaf
1655	1	lid	lip,body	indiscernible
1656	1	plate	lip,body	three rows of kernels
1657	1	plate	lip,body	two rows of kernels
1658	1	plate	lip,body	leaf only
1659	1	plate	lip,body	indiscernible
1660	1	plate	lip,body	leaf only
1661	1	plate	lip,body	leaf only
1662	1	plate	lip,body	two? rows of kernels
1663	1	plate	lip,body	leaf only
1664	1	plate	lip,body	leaf only
1665	1	plate	lip,body	leaf only
1666	1	plate	lip,body	leaf only
1667	1	plate	lip,body	leaf only
1668	1	plate	body,base	scallops only;Royal Arms*
1669	1	plate	lip,body	Wheat, Rope & Ribbons
1759	1	plate	lip,body	three rows of kernels
1760	2	plate	lip,body,base	three rows of kernels;Cochran*
1767	1	bowl?	body	Wheat, Rope & Ribbons
1908	1	saucer	lip,body,base	three? rows of kernels
1914	1	plate	lip,body	indiscernible
TOTAL	34			

* see Section 3.12.2.1.1

Table 17: Wheat Pattern on White Ceramics

DlLg-69/1651 is an unmarked, largely complete cup with a distinct two-row pattern just below the lip, on the exterior surface. The design of the wheat head is very similar to that of the J. & G. Meakin company and the Mellor, Taylor and Company (Sussman 1985:32-33). In the case of a cup, the positioning of the design would be different from that on a plate and, on this cup, the position of the leaves differ from those on the illustrated Meakin plate and the Mellor, Taylor plates. Without an illustration of the configuration of the design on a cup by both of these firms, it is not possible to allocate this specimen to either.

DlLg-69/1653 consists of three sherds of a large water pitcher. This specimen is unmarked and, while having a two-row pattern, it cannot be identified to a company inasmuch as the placement of the design on a pitcher is extremely different from that on a plate. The size of the wheat heads and the orientation of the leaves tend to flow across the body rather than around as is the case on plates. An embossed ribbon pattern flows along the upper rim just below the lip, on the exterior.

Three-row Wheat Patterns

DlLg-69/1760 has the black Royal Arms maker's mark of Robert Cochran and Company of Glasgow, Scotland. Sussman (1985:20) notes that this pattern was produced after 1863 and was a primary focus of the company. While two different versions of the pattern are illustrated by Sussman, they both are distinguished by the wide, distinct middle rows of kernels.

DlLg-69/1759 has a three-row pattern with the middle row smaller than the Cochran version. Based on the leaf configuration, this plate can be limited to two firms: W. & E. Corn and Thomas Furnival and Sons (Sussman 1985).

Wheat, Rope and Ribbons

DlLg-69/1669 and 1767 have a variation of the Wheat pattern known as Wheat, Rope and Ribbons. The only known producer of this pattern is Thomas Furnival and Sons of Cobridge, Staffordshire (Sussman 1985:71). This firm began in 1843 and currently is operating although there have been several name changes over the duration (Godden 1964:263-264). The plate, DlLg-69/1669, is relatively thick and has a coarse paste, while the body sherd from the bowl, DlLg-69/1767, is composed of a much finer, whiter paste. The wheat ears, in Wheat, Rope and Ribbons, have three rows of kernels. Small lip sherds of this pattern may not contain the rope and ribbons which project downward and may therefore be identified as just the Wheat pattern.

Wheat and Hops

DlLg-69/1654 is a portion of the lid from a large covered serving dish. It is also possible that it could have been the lid from a chamber pot. The rim is decorated with a two-row wheat pattern and leaves which are both horizontal and projecting upward into the scalloped ribs. A small trace of a raised leaf occurs above the scallops leading to a tentative identification of this pattern as Wheat and Hops. Seven firms produced this pattern, however on some of the illustrated specimens, i.e., Alfred Meakin

and William Taylor, the wheat heads and leaves are oriented counter-clockwise. On DlLg-69/1654 the head and leaves are oriented clockwise leaving only five possible firms that could have produced it: St. Johns Stone Chinaware Company of Quebec; Robert Cochran of Glasgow; Furnival and Company, Clementson Brothers, and J. & G. Meakin, all of Staffordshire.

Other Embossed and Molded Patterns

Thirty-seven sherds (Table 18) have either an embossed pattern or a molded pattern. Embossed patterns were very common during the Victorian era. The dearth of reference material in the archaeological literature indicates that there has been minimal research on matching patterns with manufacturers, or even identifying patterns. Some of the recovered sherds could be identified to a known pattern or manufacturer.

Five sherds have an identical pattern which resemble Lily of the Valley but may possibly be Hyacinth, Solomon's Seal, or another member of the lily family. Each floral design consists of a single flowering stalk surmounting basal leaves. There are five of these spaced equidistant around the body, between the lip and the base. The base of DlLg-69/1670 has a black printed mark consisting of the Royal Arms and "...E CHINA", "...ORN", and "...EM" indicating the firm of W. & E. Corn during the period that they operated at Burslem—1864 to 1891 (Godden 1964:175). A portion of the Royal Arms mark also appears on DlLg-69/1672, a plate with the same design and dimensions. DlLg-69/1671 derives from one or other of these plates.

Four other sherds also have an identical pattern which consists of a central diamond with feathery fronds projecting from the sides of the diamond. This pattern also appears to be spaced equidistant around the body, separated by a featureless, slightly depressed circle. DlLg-69/1680 has a minute portion of a maker's mark which was identified as being from the Powell & Bishop company of Hanley, Staffordshire (Godden 1964:509). This firm only operated under this name for two years, between 1876 and 1878. DlLg-69/1680 is a saucer, while DlLg-69/1681 derives from a plate, and DlLg-69/1682 is either the upper portion of a shallow bowl or the bottom portion of a lid for a covered bowl. The design on this sherd is similar to the others although oriented parallel to the lip rather than perpendicular as on plates and saucers.

DlLg-69/1678 and 1679 have identical patterns even though they derive from very different objects. The design consists of a spray of deeply serrated leaves and berries in an oval cartouche. The leaves appear to be stylized and could represent any plant from currant to grape, while the berries are individual on short stalks. The botanical information is insufficient to identify the type of plant being portrayed.

The molded patterns are usually part of the design of the vessel such as vertical ribbing on bowls, pitchers, and cups. This design element was quite common on the Wheat pattern dishes but not exclusive to it. These design elements usually are not company specific and maker's marks would be necessary to identify the producer.

CAT. #	OBJECT	QTY	PORTION	COMMENTS
EMBOSSED				
1670	plate	1	lip,body,base	Lily of the Valley?;W. & E. Corn*
1671	plate	2	lip,body	Lily of the Valley?
1672	plate	2	lip,body,base	Lily of the Valley?;Royal Arms;Corn?*
1673	pitcher	1	body	leaves
1674	cup	1	lip,body	flower;leaves
1675	plate	1	lip,body	indiscernible
1676	plate	1	lip,body	scalloped;bluebells
1677	plate	1	lip,body	berries on stalk
1678	saucer	1	lip,body	berries;leaves
1679	lid	1	lid	berries;leaves
1680	saucer	1	lip,body,base	diamonds;fronds;Powell & Bishop*
1681	plate	2	lip,body	diamonds;fronds;Powell & Bishop*
1682	bowl?	1	lip,body	diamonds;fronds;Powell & Bishop*
1761	plate	1	lip,body	indiscernible
1907	handle	1	handle	four raised dots
MOLDED				
1683	bowl	1	lip,body	scalloped;ribs
1684	lid	1	lid	fluted
1685	bowl	1	body,base	ribbed
1686	cup	1	body	vertical ribs
1687	pitcher	3	body	wide ribs
1688	pitcher	1	body	wide rib
1689	pitcher	1	body	wide rib
1690	pitcher	1	body,handle	leaf at base of handle
1691	lid	1	lid	rectangular;stepped ledge
1766	cup	1	body	wide ribs
1768	pitcher	1	lip,body	wide ribs
1769	handle	1	handle	lateral ridges
1771	bowl	1	body,base	footed;wide rib
1772	bowl	1	body	horizontal raised line
1773	bowl	3	lip,body	wide ribs
TOTAL		37		

* see Section 3.12.2.1.1

Table 18: Embossed and Molded White Ceramics

3.12.2.2 Gold-on-white

Nine sherds have some form of gold decoration on them (Table 19). Most of the decoration consists of varying numbers and widths of gold lines usually parallel to the lip. This gold line pattern is a common find in this area (Kroker and Goundry 1993:92-93; Quaternary 1995c:75, 1996:72).

Two sherds have distinct designs. DlLg-69/1611 has a stylized six-parted flower on the interior surface of the base of the cup. The gold line occurs around the foot of the cup, at the base. DlLg-69/1610 has a gold line on the edge of the lip which overlaps slightly down onto the body. An extended spray of flowers and leaves is painted on the body covering the entire surface between the lip and the base. The flower type cannot be identified although it may be a stylized version of honeysuckle.

CAT. #	OBJECT	QTY	PORTION	DECORATION
1607	saucer	1	lip,body	two gold lines
1608	saucer	1	lip,body,base	three gold lines
1609	cup	1	lip,body	one gold line
1610	saucer	1	lip,body,base	one gold line;flowers and leaves
1611	cup	1	body,base,handle	stylized flower
1612	cup	1	lip,body	two gold lines
1613	cup	1	body,base	one gold line;vertical ribbing
1757	egg cup	2	lip,body	one gold line
TOTAL		9		

Table 19: Gold Patterns on White Ceramics

3.12.2.3 Blue-on-White

Sixteen blue-on-white sherds were curated (Table 20). The object types consist of plates, bowls, cups, and saucers. All of the specimens have differing designs ranging from relatively simple such as the feathered line around the lip on DlLg-69/1887 to a multi-component pattern on DlLg-69/1592. DlLg-69/1887 has a narrow dark blue band on the lip and edge of the body with steadily lightening feathering down onto the body terminating well before the base.

Floral motifs occur on six sherds. DlLg-69/1594 are three sherds from different portions of the same cup, each of which has a slightly different pattern of leaves. DlLg-69/1598 has a scalloped edge to the lip and a slight embossed curlicue pattern at the edge, falling from the lip. Portions of oak leaves occur on the body. DlLg-69/1597 is two sherds from different portions of a large bowl. They are both decorated with a blurry, horizontal blue line below the lip on the external body. Each sherd has a different floral pattern.

CAT. #	QTY	OBJECT	PORTION	PATTERN
1592	6	saucer	lip,body,base	geometric;stag;ship;tree;flowers
1593	1	plate	base	Broseley?/Temple?
1594	3	cup	body	stalk of leaves
1595	1	cup	lip,body	lines;band of dots;ribbon
1596	1	bowl	body,base	colour slipped
1597	2	bowl	lip,body	band;flowers;blurred
1598	1	plate	lip,body	oak leaves;embossed curlicues;scalloped
1887	1	saucer	lip,body,base	feathering
TOTAL	16			

Table 20: Blue Patterns on White Ceramics

The remaining sherds are all different. DlLg-69/1595 has a horizontal design pattern near the lip, consisting of two thin blue lines followed by a thicker blue line which has alternating sized white dots in it and then a final thin blue line. This design occurs on the interior and exterior. The exterior is further decorated with a hatchured ribbon folded to produce a continuous V-pattern and small sprigs of leaves in the V's as well as a large leaf that appears to be superimposed over the entire design.

DlLg-69/1593 is a basal sherd with an oriental scene which includes a pagoda-roofed doorway, steps, and trees. These design elements occur in both the Broseley and Temple patterns (Sussman 1979b:63, 218). This sherd, while very similar, does not exactly replicate either of these Spode designs and would indicate copying of the patterns by another manufacturer.

The most complex pattern occurs on six pieces of a nearly complete saucer. The rim of DlLg-69/1592 is decorated with a band consisting of linked diamonds and diagonal lines between the diamonds and the edge of the band. The entire centre of the saucer is decorated with multiple components: the central panel consists of a stag outlined against the sky and flanked by a deciduous tree; a semi-circular panel below the stag has a small sailing boat with a lateen sail; banners with rose-like flowers occur on both sides of the central panel; and stylized leafy stems with triangular flowers occur at the upper and lower left corners of the stag panel. One design element in the upper right is missing due to the breakage of the saucer. All of the components are separated by differing borders: a double lined shield-type border for the central panel; a woven diamond pattern around the sailing boat; and perforated bands for the rose banners. Unfortunately, there is no maker's mark on the base of this specimen.

3.12.2.4 Green-on-White

Five sherds have green-on-white patterns or marks on them (Table 21). Green is one of the most variable colours. This assemblage ranges from a deep blue-green through dark green to olive green and pale green. None of the patterns are identifiable.

CAT. #	QTY	OBJECT	PORTION	COMMENTS
1603	1	bowl	lip,body	banners;floral;scalloped;ribbed;out-flared lip
1604	1	plate	lip,body	floral;embossed;scalloped
1605	1	plate?/saucer?	lip,body	leaves;dots
1606	1	saucer	lip,body	arabesque designs;garlands
1910	1	bowl?	body	floral spray
TOTAL	5			

Table 21: Patterns on Green-on-White Ceramics

3.12.2.5 Brown-on-White

Six sherds have different patterns on them (Table 22). All but one are very ornate, reminiscent of dinnerware of the late Victorian period. The design on the pitcher handle, DlLg-69/1616, is more modernistic with thicker and thinner vertical lines, hook-like designs, and short rows of comma-like designs. Pattern names cannot be ascertained from the available references. DlLg-69/1617 and 1618 are portions of larger serving bowls.

CAT. #	QTY	OBJECT	PORTION	DECORATION
1616	1	pitcher	handle	lines;commas;hooks
1617	1	bowl	lip,body	fan;bow;stylized flowers
1618	2	bowl	lip,body	plants;butterfly
1619	1	bowl?/cup?	body	line;leaves
1755	1	plate	lip,body	floral;curlicues;geometric
TOTAL	6			

Table 22: Brown Patterns on White Ceramics

DlLg-69/1755 resembles the border portion of Flower Vase, a Copeland and Garrett pattern circa 1828 (Sussman 1979b:115). While not the exact pattern, the design elements show an obvious derivation suggesting that this may be the earliest of the patterns represented in this colour grouping.

3.12.2.6 Ceramics of Various Colours

Blue and Gold-on-White (DlLg-69/1599, 1600, 1601)

DlLg-69/1599 and 1600 have identical patterns and are from the same set of dishes. DlLg-1599 is a lip,body sherd from a cup. The pattern consists of a gold line along the lip. The exterior surface has a 6.8 mm wide band of alternating X's, made up of crossed parallel lines, and diamonds with

dots in them just below the lip. A stylized pattern of two flowers with leaves occurs on the body, below the band. A 5.3 mm wide blue band occurs on the interior surface just below the lip. DlLg-69/1600 is a lip,body sherd from a saucer with the gold line along the lip and a 5.3 mm wide band of X's and diamonds just below the lip on the interior surface. A small portion of a leaf occurs just below the band on the saucer.

DlLg-69/1601 is a body sherd from a cup. The pattern consists of a single, five-petalled flower on a stem with stalks of leaves emanating out from it. Superimposed over this pattern is an embossed Old English P. The letter is painted in blue and outlined in gold. This cup could be part of a dinnerware service or it could be a presentation or memorial cup that would have been placed in a china cabinet for show.

Black-on-White (DlLg-69/1756)

DlLg-69/1756 is a lip,body,base sherd from a bowl. The depth of the bowl measures 79.5 mm from the lip to the base with the overall height of the bowl measuring 94.6 mm including the footed base. The bowl is decorated on both the exterior and interior surfaces. The decoration on the interior consists of a 34.3 mm wide band, just below the lip, which has a series of floral arrangements on a dotted background. The top of the band has a pattern of continuous triangular shapes while the bottom of the band is a flowing ragged pattern. On the interior base of the bowl, there is a small portion of a scene, a temple or minarets. The same building occurs on the exterior of this bowl along with two figures (one standing and one sitting on a step of an ornate walk), trees, mountains, and at least one other larger temple-like building.

Brown (DlLg-69/1572)

DlLg-69/1572 is a brown spout from a lustreware teapot. Cox (1970:XIV, 305) defines lustre as "...a thin metallic sheen...applied over a tin glaze [resulting in] a brightly shining metallic overglaze that has become iridescent".

Brown and Yellow-on-White (DlLg-69/1622)

DlLg-69/1622 is a ribbed body sherd, possibly from a small pitcher, either a cream or milk jug. The pattern consists of the bent wing of a bird with the top feathers painted yellow and the tip feathers painted brown.

Gold-on-Cream (DlLg-69/1615)

DlLg-69/1615 is two body sherds and a handle sherd from a cream-coloured jug or pitcher. The body is decorated with ribs. A scalloped, draped, shawl-like design occurs towards the upper portion of one of the sherds. The plain background, on this same sherd, is decorated with stylized sprays of leaves, in gold. The handle has no decoration, either molded or painted.

Multicoloured (DlLg-69/1620, 1623, 1624, 1625)

The multicolour category consists of those artifacts which have a pattern of more than three colours. DlLg-69/1620 consists of two body sherds from either a bowl or a cup. The floral pattern includes leaves, flowers, and berries. The basic outline is brown with leaves and flower petals denoted in silver-grey. Sprays of fronds, in gold, are also present.

DlLg-69/1623 is a basal sherd, from a plate, with a scene on it. This picture consists of one female figure, in a green kimono, walking along a path which is bordered by green grass and clusters of pink and blue flowers. She is following another figure, possibly male. Only the head portion of that figure is present. A small portion of a tree is also present.

DlLg-69/1624 is two basal sherds from a plate. These sherds fit together and the pattern is also an Oriental theme. A central cartouche contains a pagoda surrounded by different types of trees and mountains. Outside this cartouche are clumps of yellow and pink chrysanthemums.

DlLg-69/1625 is a lip,body,base sherd from a saucer. It has a red line along the lip with a very stylized pattern of grey, blue, and black dabs with large red blobs, red dots, and red lines painted over them. There are also gold dabs randomly positioned on the sherd. This saucer is rather garish and may have been decorated by an amateur experimenting with design.

4.0 PRE-CONTACT ARTIFACTS

During the monitoring of the drilling of the piling seating holes, Pre-Contact cultural resources were recorded at several locations (Figure 1). The backhoe excavations for pile caps in these locations were monitored by an archaeologist and mitigative recovery of the resources was undertaken. These isolated cultural loci are discussed at the end of this chapter.

Pre-Contact cultural deposits were recorded during the impact assessment of 1995 (Quaternary 1996) and the location of the south dugout was such that the excavations would impact upon the resources. Accordingly, arrangements were made for the implementation of mitigative recovery operations during the construction period. The mechanized excavations were monitored with the archaeologist directing the backhoe operator during the removal of the overburden. Once the overburden had been removed, a team of archaeologists removed the cultural resources, using standard professional excavation methods. The archaeological investigations recorded the presence of two cultural horizons, separated by a thin layer of riverine silt, indicating at least one minor flood episode between the successive occupations. The configuration of the two cultural horizons within the dugout perimeter were slightly different (Figure 2).

4.1 Level 1

The uppermost horizon was present in the west portion of the dugout with minor traces in the central portion. The cultural deposits were absent between the two loci, probably as a result of riverine erosion removing the soil and the encapsulated artifacts. The horizon sloped downward to the east.

A total of 37,569 artifacts were recovered from Level 1. These consist of 2404 lithic artifacts, 364 ceramic artifacts, 32,237 faunal remains, and 2564 floral remains.

4.1.1 Lithic Artifacts

The lithic component of pre-European tool kits is the portion that tends to preserve the best. Bone and wooden tools, as well as clothing and other organic artifacts, decay or burn during prairie/forest fires. Due to the indestructibility of stone artifacts, they have become one of the standard diagnostic tools for assessing cultural affiliations. This assessment is predicated upon the assumption that there were standardized forms for each type of artifact within each cultural group at a specific time period. However, considerable variation can occur due to the degree of skill of the individual tool maker, the quality of the lithic material from which the tool is being made, and the borrowing of ideas from other cultural groups.

The 2404 lithic artifacts are analyzed within the following categories: tools (14 = 0.6%), detritus (2072 = 86.2%), fire-cracked rock (220 = 9.2%), and unmodified lithic material (98 = 4.1%).

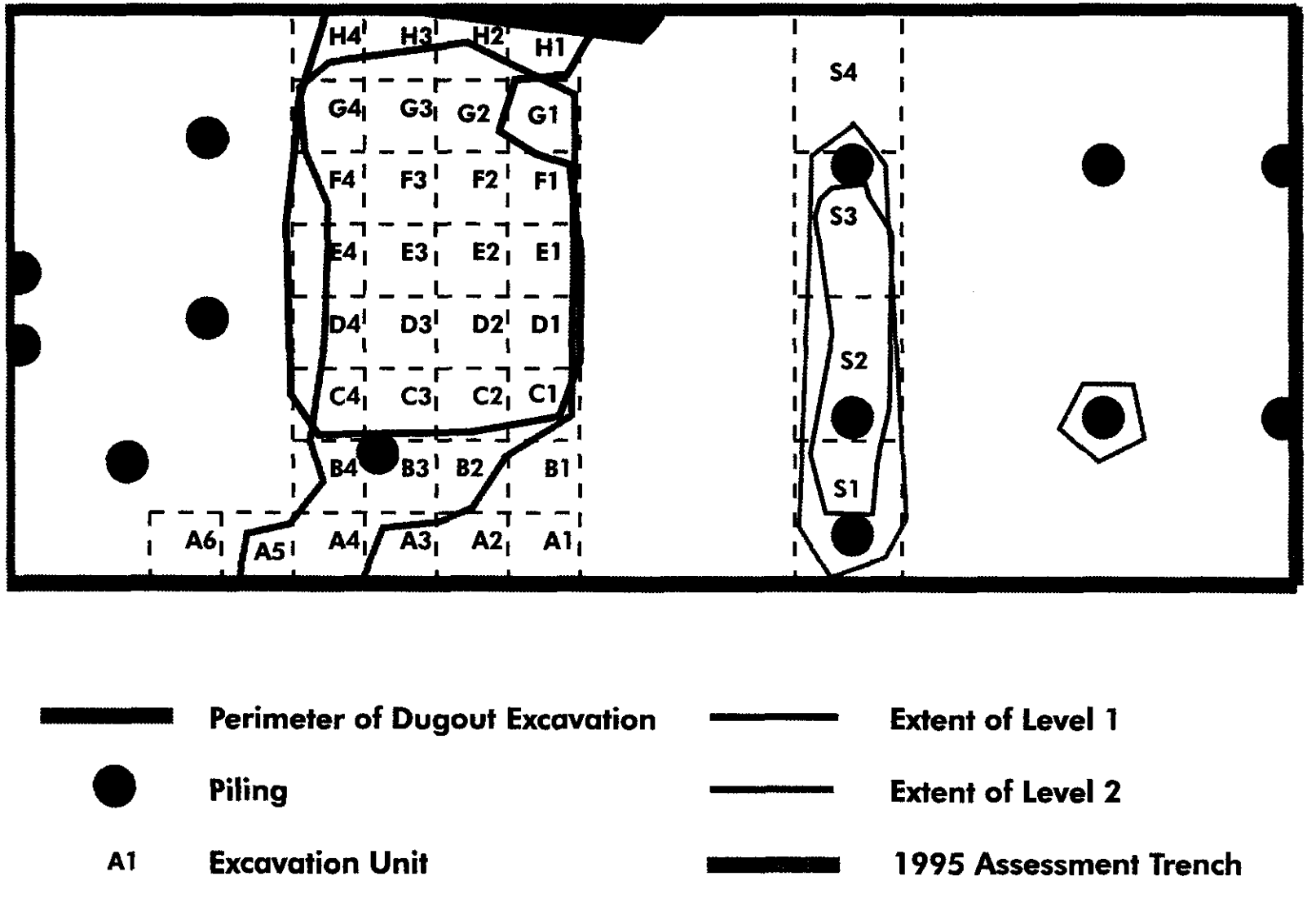


Figure 2: Extent of Cultural Horizons in Dugout Excavation

4.1.1.1 Lithic Tools

Fourteen lithic tools were recovered from Level 1. These consist of five projectile points, two scrapers, a biface, three retouched flakes, and three utilized flakes. Each type will be described in the appropriate sections below. The locations of the recoveries are designated on Figure 3.

Archaeologists record a sequence of measurements on various aspects of different tools. These measurements can be used to perform statistical comparisons with other tools within the site and between sites. The standardized types of measurements for projectile points are different from other tools and include the length and width of the blade, the length and the width of the base, the depth and angle of side-notches (if present), and the angle of the tip. For other tools, the measurements focus on the working edge: the width of the working edge; the length of the working edge (the distance off-linear which is positive for convex edges like scrapers and negative for concave edges like spokeshaves); and the edge angle.

4.1.1.1.1 Projectile Points

The measurements for the five projectile points (Plate 1), recovered from this level, are delineated in Table 23. The specimens are depicted on Plate 1.

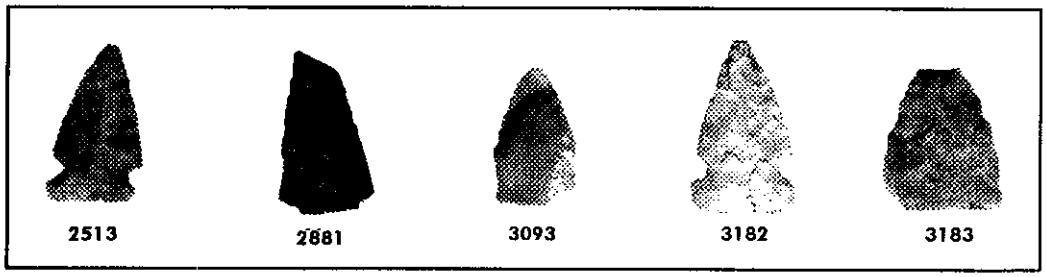


Plate 1: Projectile Points Recovered from Level 1 (actual size)

DlLg-69/2513 is a complete Plains Side-notched projectile point made from grey chert. The base is linear and has no evidence of grinding. The tip is slightly rounded either through wear or very minimal impact shattering.

DlLg-69/2881 is an incomplete Plains Side-notched projectile point made from a highly metamorphosed reddish quartzite. This specimen is missing the tip of the blade and the entire base. The notches are approximately 1.5 to 2.0 mm deep and the blade is slightly more lanceolate than DlLg-69/2513.

DlLg-69/3093 is a small, isosceles, triangular projectile point made from a cortical flake of a grey-brown chert. Minimal edge modification has occurred on this cortical flake, with the upper blade sharpening flakes resulting in a tapered point. The proximal portion of the artifact has parallel edges extending one-third of the way up the point.

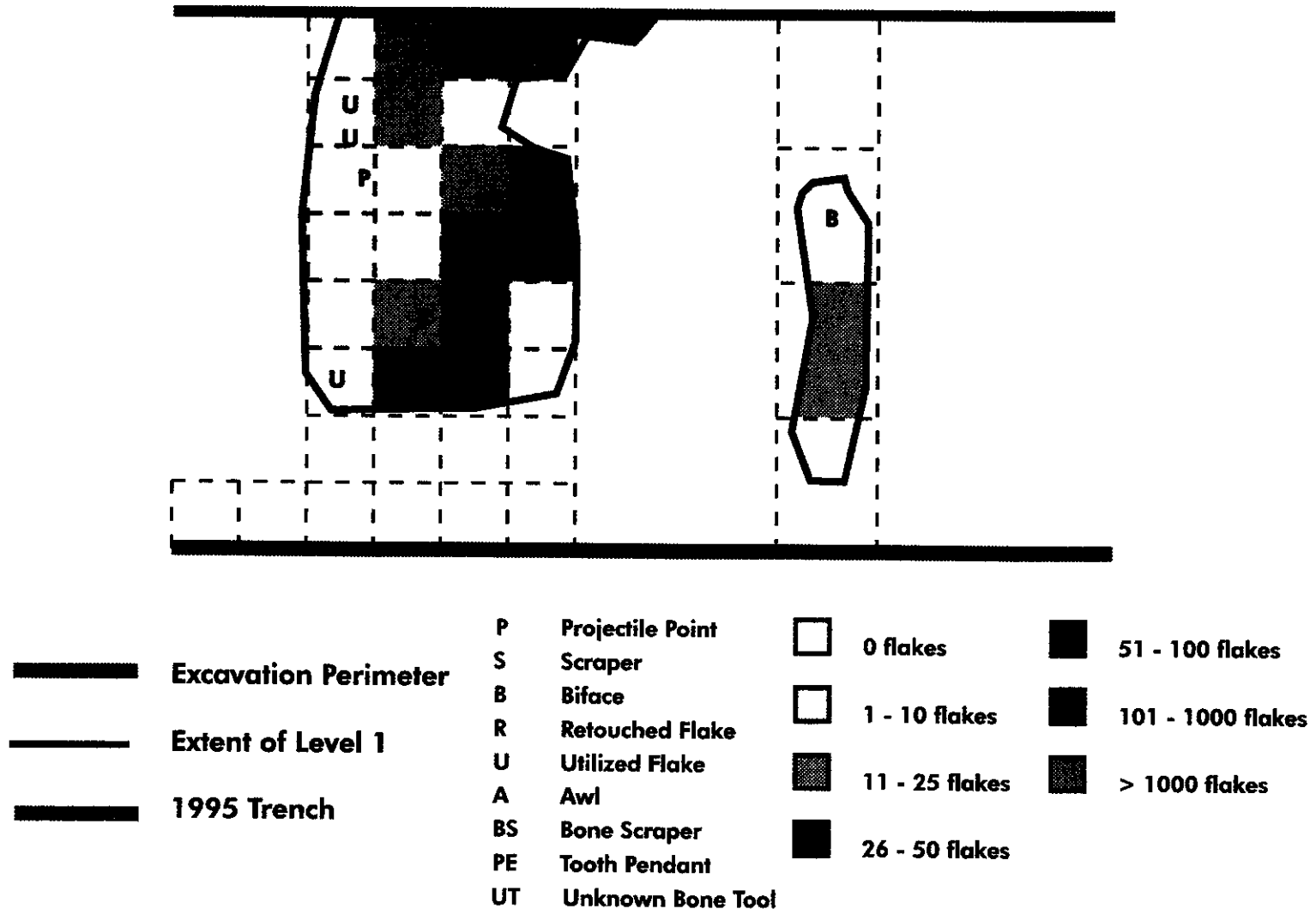


Figure 3: Provenience of Tools and Density of Lithic Detritus Recoveries from Level 1

DlLg-69/3182 is a complete Plains Side-notched projectile point made from white chert. The base is linear and has no evidence of grinding but some degree of rounding due to wear. The tip is slightly chipped with the extreme end missing.

DlLg-69/3183 is an incomplete projectile point made from pink Swan River Chert. This specimen has been broken below the tip and at the mid-section. It cannot be determined whether this was a notched or triangular point.

CAT.#	LENGTH	WIDTH	THICK	WT	BLADE WIDTH	BLADE LENGTH	NOTCH DEPTH	TIP ANGLE
2513	21.3	12.1	4.5	0.9	12.1	16.1	1.7 1.6	41°
2881	22.6	12.8	3.8	1.2	12.8	N/A	N/A	N/A
3093	18.8	10.9	2.3	0.6	10.9	18.8	N/A	53°
3182	23.6	13.3	4.2	1.0	12.6	14.9	1.9 1.8	44°
3183	19.5	15.1	3.4	1.0	N/A	N/A	N/A	N/A

Table 23: Measurements of Projectile Points Recovered from Level 1

Side-notched and triangular projectile points are common for this time period and appear to cross-cut cultural boundaries. The geographical range of both types is throughout the western plains and into the edges of the boreal forest.

4.1.1.1.2 Scrapers

Scrapers are a functional tool type where the lithic material is flaked to produce a steep sloping edge which allows the use of considerable pressure in a lateral movement to remove tissue (fat, meat, etc.) from a hide without cutting the material. The steepness of the slope is usually a result of the type of material, although rarely do scraping tools have an edge angle of less than 45°.

Two scrapers were recovered from Level 1 (Table 24). DlLg-69/2407 is an almost square scraper made from grey Swan River Chert. The end and left margins have steep retouch producing convex working edges. The working edges show considerable step fracture from extensive use. DlLg-69/3094 is an end scraper made from a cortical flake of greyish chert. Minimal modification occurs with steep retouch at the right distal corner and minimal flaking on the rest of the working edge. The tool appears to be a quickly manufactured specimen, where minimal effort was used to provide a working edge. Given the obvious degree of expediency and the minor amount of edge rounding due

to wear, it is probable that this tool was used for scaling fish rather than hide preparation or bone/woodworking.

CAT.#	LENGTH	WIDTH	THICK	WT	WORKING EDGE MEASUREMENTS		
					WIDTH	LENGTH	ANGLE
2407	11.4	13.4	6.7	1.2	10.9 (E) 10.4 (L)	1.7 (E) 2.6 (L)	68° (E) 77° (L)
3094	15.2	21.1	5.3	1.8	14.6	2.9	57°

Table 24: Measurements on Scrapers Recovered from Level 1

4.1.1.1.3 Biface

DlLg-69/4231 is a small, end fragment from a possibly elliptical biface. The specimen is made from a cortical flake, the interior of which is a grey chalcedony and the exterior is reminiscent of Swan River Chert. The specimen measures 12.6 mm in length, 27.1 mm in width, and is 10.0 mm thick. It weighs 3.2 grams. Bifacial retouch occurs on all margins although more frequently on the non-cortical face.

4.1.1.1.4 Retouched Flakes

The term is used to identify lithic flakes which have had minor amounts of sharpening along the edge to enhance the sharpness or the sturdiness of the tool. Generally, these tools are considered as expedient tools which are fashioned for a short-term use and often discarded thereafter.

Three retouched flakes were curated (Table 25). DlLg-69/2248 is a trapezoidal flake of Selkirk Chert with fine unifacial retouch along one lateral edge. The opposite lateral edge has the original cortex. The retouch emphasizes the acute angle of the flake cleavage formed during lithic reduction.

CAT.#	LENGTH	WIDTH	THICK	WT	WORKING EDGE MEASUREMENTS		
					WIDTH	LENGTH	ANGLE
2248	26.6	20.8	8.9	4.1	17.9	0.0	42°
2265	20.5	15.8	6.2	1.6	12.4	0.6	34°
3095	34.0	20.7	6.0	4.3	10.4	2.7	42°

Table 25: Measurements on Retouched Flakes Recovered from Level 1

DlLg-69/2265 is an irregular shaped flake of grey chert which has unifacial retouch along a small portion of the distal margin. This margin culminates in a sharp point that has moderate wear polish suggesting use of the tip as a graver or awl.

DlLg-69/3095 is a trapezoidal flake of Selkirk Chert which has a small area of bifacial flaking on the right margin at the distal end. The entire specimen appears to have been heat altered with a dark grey patina over most of the body.

4.1.1.1.5 Utilized Flakes

Utilized flakes are those which have been used without any further modification. The evidence of use is the wear polish and micro-striations along the working edge. As with retouched flakes, these tools are used only briefly for the job-at-hand and discarded after use.

Three utilized flakes were recovered from Level 1 (Table 26). DlLg-69/2066 is an irregular triangular flake of reddish-brown Swan River Chert. One margin has edge rounding due to wear. This margin is undulatory, precluding measurement of the working edge length. DlLg-69/3023 is an irregular flake of reddish-brown Swan River Chert which has wear polish on two cleavage planes. The slightly convex end working edge has moderate rounding due to wear. A similar degree of wear is present on the concave right margin where the natural breakage pattern was utilized as a serendipitous spokeshave. DlLg-69/3025 is an ovoid flake of grey-white chert. A portion of the right margin shows a mild degree of wear polish suggesting limited use as a scraper-like tool.

CAT.#	LENGTH	WIDTH	THICK	WT	WORKING EDGE MEASUREMENTS		
					WIDTH	LENGTH	ANGLE
2066	25.5	20.6	6.3	3.1	15.9	irregular	46°
3023	35.3	30.8	9.9	9.4	20.8 (E) 17.7 (R)	2.8 (E) -2.6 (R)	32° (E) 57° (R)
3025	46.6	28.6	9.8	10.3	28.8	2.7	59°

Table 26: Measurements on Utilized Flakes Recovered from Level 1

4.1.1.2 Detritus

Detritus is the category under which the byproducts and waste elements of the tool manufacturing process are catalogued. This category refers to lithic material and includes flakes and cores. It can also include fragments of copper and, in proto/post-Contact times, iron. This category also includes waste products from the manufacture of bone or wooden tools.

The manufacture of stone tools is a complex process. Cobbles and pebbles of the desired raw material are struck with a hammerstone to remove flakes. A source cobble with flakes removed is known as a core. The flakes which have been removed are further shaped, using a stone or antler billet to strike off smaller flakes to thin the original object and to produce the desired shape. At this time, a pointed implement called a flaker, usually made of antler, is used to press small flakes from the edge to produce a sharp, straight cutting edge. During this process, many flakes are produced—some are further modified as retouched flakes, others are used *as is* as expedient cutting tools, but most are discarded at the place of manufacture.

Three cores and 2069 lithic flakes (Table 27) were recovered from Level 1. All three cores are Swan River Chert specimens with a combined weight of 27.4 grams.

Within the 2069 flakes, thirteen lithic material types are represented, the predominant one being undifferentiated chert (1621 flakes = 78.3%). The next most frequent materials are Swan River Chert (114 flakes = 5.5%) and quartzite (111 flakes = 5.4%).

MATERIAL	GROUP	QUANTITY	FREQUENCY	WEIGHT	FREQUENCY
Chalcedony	I	28	1.4	3.2	0.7
Chert	IV	1621	78.3	236.0	52.7
Gunflint Chert	VI	4	0.2	4.7	1.0
Jasper	I	1	<0.1	0.1	<0.1
Jasper Taconite	VI	2	0.1	0.1	<0.1
Knife River Flint	II	58	2.8	4.3	1.0
Quartz	III	4	0.2	0.6	0.1
Quartzite	IV	111	5.4	39.5	8.8
Rhyolite	III	10	0.5	5.2	1.2
St. Ambrose Chert	I	86	4.2	9.5	2.1
Selkirk Chert	V	28	1.4	44.8	10.0
Silicified Sediment	IV	2	0.1	1.4	0.3
Swan River Chert	I	114	5.5	98.4	22.0
TOTAL		2069	100.1	447.8	99.9

Table 27: Flake Recoveries from Level 1 by Material Type

If the probable source areas for the materials are considered, six groupings occur:

Group I: Materials found throughout the western portion of Manitoba. This group includes Swan River Chert from the Swan River Valley region near the Saskatchewan border and St. Ambrose Chert from Lake Manitoba. Other materials, i.e., chalcedony and jasper, are found in deposits such as the Souris Gravel Pits.

Group II: Materials found to the south. The primary example of this group is Knife River Flint which occurs at quarry locations in North Dakota.

Group III: Materials associated with the Canadian Shield, found to the east and to the north of the Red River. This group consists of quartz and rhyolite.

Group IV: Materials whose distribution is a result of glacial transportation and can be found throughout the province. This group is represented by quartzite, siltstone, silicified sediment, and the various types of undifferentiated chert.

Group V: Materials from nearby quarry sources. This group is represented by Selkirk Chert and the limestone matrix in which the nodules occur.

Group VI: Materials from the western Lake Superior area, especially around Thunder Bay. This group includes Gunflint Chert and Jasper Taconite.

The most frequent group is Group IV, representing 83.8% of the total. Group I provides 11.1% followed by Group II which provides 2.8%. Group V accounts for 1.4% of the total, with Groups III and VI having minimal representation, 0.7% and 0.3% respectively. Inasmuch as lithic materials are not available at the site, all material would have been transported to the location by the occupants. Some materials, such as Group IV, could have been obtained at creek mouths and riffle areas to the west along the Assiniboine River. Group V materials could have been found slightly downstream on the Red River at the St. Andrews Rapids (Selkirk Chert). Most of the other lithic types are the result of long-distance transport. Although Knife River Flint tends to be ubiquitous in Manitoba archaeological sites, the frequency in this site, 58 flakes = 2.8%, is minimal. The source area is considerably south of the Winnipeg region and probably arrived at this location through trade or special trips to mine from the quarry source in North Dakota (Burns 1995:33-34). A similar mechanism is postulated in the case of the Group VI materials (Gunflint Chert and Jasper Taconite) which would have had to have been transported through the Winnipeg/Rainy Rivers systems.

The most predominant groupings of lithic materials would represent source areas recently visited by the occupants. An assemblage such as this one, which shows a very strong reliance on locally obtained material, indicates a knowledge of regional lithic source areas and suggests the practise of gathering tool-quality material when the opportunity arises. As certain types of material are favoured for specific tools, often that type of material is carried until needed. Thus, representations of previously visited areas or source areas accessed by traders can occur as components of the current lithic assemblage.

The map showing the density of detritus concentrations (Figure 3) indicates that considerable tool manufacture occurred, with the activity focused in the northeast corner of the excavation. Most of the recovered flakes are minuscule indicating final retouch and sharpening. Some larger flakes, indicating primary lithic modification, are present but even these rarely weigh more than 5 grams.

4.1.1.3 Fire-cracked Rock

Fire-cracked rocks are those specimens which have evidence of being subjected to intense heat. Depending upon the structure of the rock, extreme temperature variations causes different results. Fine-grained homogenous lithic cobbles, such as limestone, quartzite, and rhyolite, will spall and shatter into angular fragments, while coarse-grained granitic rocks will tend to decompose into smaller granular fragments of the different parent materials, i.e., granite, granodiorite, diorite, etc.

A total of 220 fire-cracked rocks were recovered from Level 1 (Table 28). Concentrations of fire-cracked rock tend to indicate hearths and cooking activities areas and are delineated on Figure 4. The densest concentration occurs around Unit E1.

MATERIAL	QUANTITY	FREQUENCY	WEIGHT	FREQUENCY
Dolomite	1	0.5	271.7	7.2
Granite	205	93.2	2669.9	70.4
Limestone	10	4.5	525.6	13.9
Quartzite	4	1.8	325.0	8.6
TOTAL	220	100.0	3792.2	100.1

Table 28: Frequency of Types of Fire-cracked Rock from Level 1

Granitic specimens account for the highest number as well as the greatest weight. The next two main types are diorite and limestone. There are two possible explanations for the large numbers of granitic fire-cracked rocks. Firstly, granitic specimens may have been subjected to more instances of heat, thereby increasing the degree of decomposition. This would be the case if the specimens were used as hearth stones. Secondly, and more probably, the degree of fragmentation is a reflection of the internal structure of the rock. A fine-grained homogenous stone would be more cohesive than one which is coarse-grained and composed of several types of distinct crystals.

There are a limited number of purposes which limestone and granitic rocks can fulfill, one of which is as raw material for tool manufacture. Granitic cobbles can be shaped, by pecking and grinding, into hammerstones. The granular nature of the stone precludes the manufacture of cutting implements, although tabular granitic spalls can be shaped into chithos.

Limestone and dolomite fracture erratically and are not usually selected for tool manufacture, although coarsely flaked choppers can be made from them. Limestone is also relatively soft and cutting tools would wear out quickly. Chert nodules are often embedded in limestone deposits and large cobbles could have been collected for chert recovery. Treating the limestone cobble by subjecting it to intense heat prior to shattering would have resulted in fractures passing around the chert nodule rather than through it, thereby resulting in a better recovery rate of usable chert for tool manufacture. Annealing, or heat treating, chert can produce a more tractable stone.

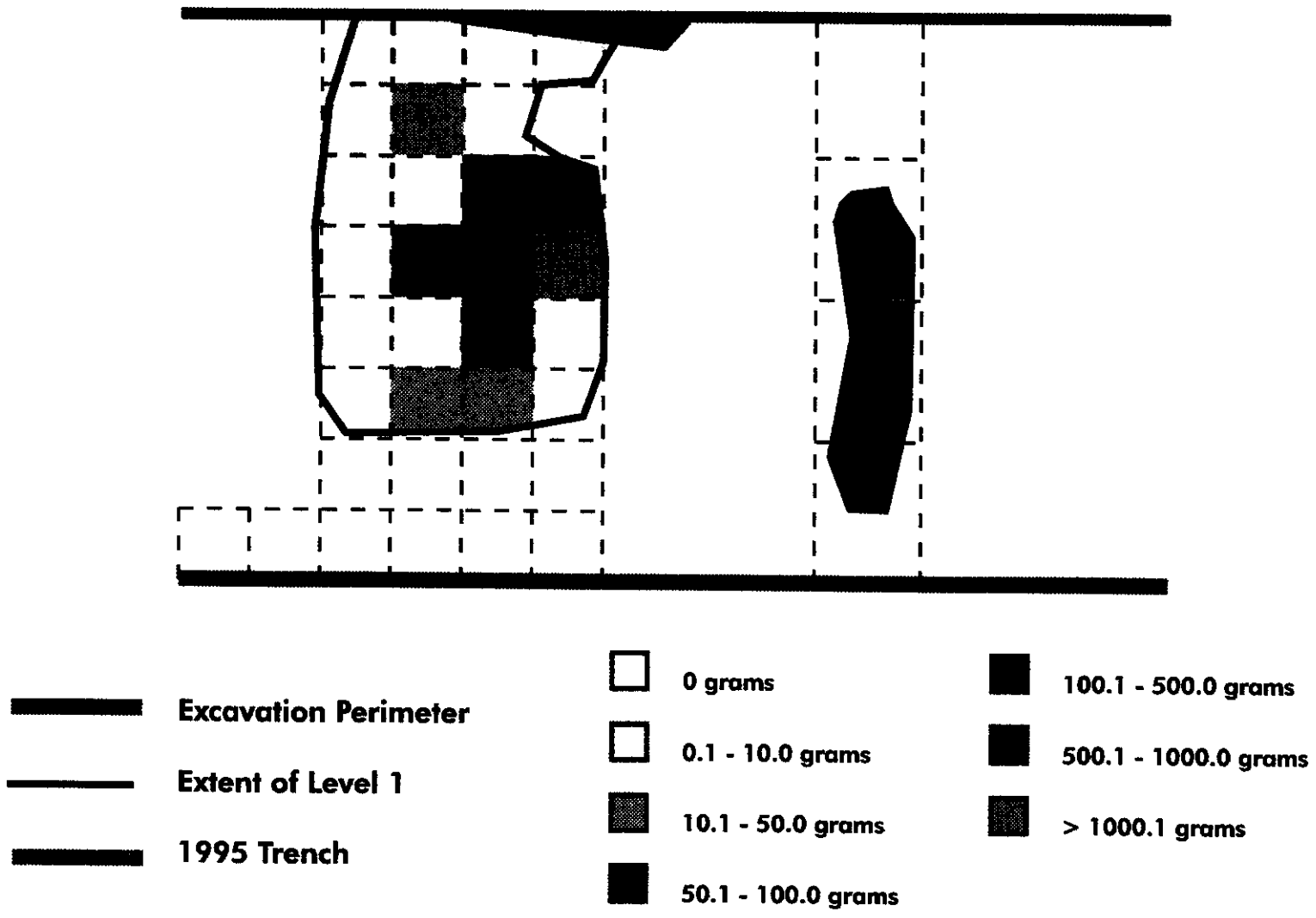


Figure 4: Density of Fire-cracked Rock in Level 1

Stones could have been used as boiling stones. Ethnographic literature records the use of heated stones to cook soups and stews. The liquid food, in a hide, basket, or ceramic container, is gradually raised to boiling point by the addition of stones which have been heated in the adjacent fire. The documentation does not record if certain types of stones were preferred or if it was a case of using what was available. Intuitively, one would suspect that hot stones which would produce small granular spalls upon suffering thermal shock, when submerged in cold liquid, would not be the optimum choice. If this supposition is valid, perhaps the limestone and other fine-grained rocks were brought to the site for use as boiling stones.

4.1.1.4 Unmodified Lithic Material

Given that the site location is in a flood deposition zone, all rock would have been imported into the location by people. It is remotely possible that some lithic specimens could have been rafted into the area on winter ice. Six lithic artifacts were recovered which show no evidence of cultural alteration, either flake scars or heat modification fracture lines. These spalls may have exfoliated naturally from larger cobbles that were brought onto the site for specific purposes such as hearth stones, lithic raw material, or teepee weights. The materials represented by these spalls are: one diorite (5.1 gms) and five schist (0.5 gms).

Another type of unmodified lithic material, which has a cultural use, was recovered. This consists of ninety-two very small, reddish ochre fragments weighing a total of 1.0 grams. The ochre was recovered from nine excavation units on the central and northern portions of the west excavation block. Ochre is a naturally occurring deposit of iron oxide found in two forms. Limonite has a yellow or yellow-brown colour while hematite is reddish. Ochre was used for decorative purposes with the mineral being pulverized and mixed with a variety of suspending media, e.g., bear grease, fish oil, or goose fat. Resultant pigment was used either as a personal cosmetic or general purpose paint for teepees, ceramics, parfleches, etc. In addition, powdered ochre was frequently added to dye mixes as the iron content would assist in setting the dye (Densmore 1974:370-373).

4.1.2 Ceramics

A total of 364 ceramic sherds was recovered from Level 1. This quantity consists of 207 body sherds, one piece of daub, and 156 rim sherds which could be allocated to seven discrete vessels. Daub is fired waste clay from ceramic pot manufacture. Figure 5 depicts the density of ceramic recoveries in each of the excavation units.

4.1.2.1 Body Sherds

As with every ceramic assemblage, the bulk of the sherds are from the body of the pot. Mathematically, this makes sense since the decorated portions of the vessel usually account for less (generally much less) than 20% of the total vessel surface. Body sherds have traditionally been considered less diagnostic than the rims, necks, and shoulders that comprise the decorated portion of the vessel. However, it is the experience of archaeologists who replicate pottery that decorations

are normally easier to reproduce than surface impressions. Until a systematic method of analyzing and describing the visible variation in the body sherds is developed, the level of description tends to be relatively coarse.

Surface treatment was the only attribute apart from weight that was systematically examined for every item in this assemblage. The surface impressions (or lack thereof) for 58.0% of the assemblage (120 sherds) could not be determined, due to the small size of the sherds or the fact that their exterior surfaces were exfoliated and missing. For those sherds whose surface impressions could be identified (87 sherds), textile impressed was the largest category with 43.6% (38 sherds), followed by obliterated textile which was 34.5% or 30 sherds. Smooth surfaces accounted for 21.8% (19 sherds).

4.1.2.2 Rim Sherds

Most of the 156 rim sherds have been assigned to seven discrete vessels (Plate 2) on the basis of decoration and provenience. The locations of each of vessels is marked on Figure 5.

Vessel 1 consists of 131 lip, neck, and shoulder sherds (from twenty catalogue numbers) ranging from large (5.6 cm x 4.3 cm) to minute (0.5 cm x 0.4 cm). The profile of the vessel is a sharply outflaring lip with an acute neck curve and a rounded shoulder. The vessel is decorated with a row of CWOI (cord-wrapped object impressions) on the top of the lip, diagonal rows of small circular punctates (<2 mm) on the neck below the lip, and four or five horizontal rows of vertical rectangular punctates (7 mm high x 2 mm wide) from the neck curve to the shoulder. The surface treatment below the decoration is fabric impressed with the decorated portion being obliterated fabric impressed. The neck and lip are relatively thick (5 - 8 mm) grading into a thinner body wall at the shoulder (approximately 3 mm). The sherds that could be assigned to this vessel were recovered from 10 adjoining grid units (Figure 5). This vessel is identified as Bird Lake.

Vessel 2, found in Units G2 and H1, consists of six lip and neck sherds (DlLg-69/2928 and 3086). The flat lip is decorated with irregular CWOI and the interior of the neck is stamped with vertical rectangular stamps (11 mm high x 3 mm wide). The exterior neck, which has been smoothed, has no decoration. This vessel is identified as Bird Lake.

Vessel 3 consists of four lip,neck sherds from Unit D1 (DlLg-69/2173 and 2174). The flat lip has partially obliterated markings which may be CWOI modified by scraping the lip to produce a smooth surface. The exterior lip has closely spaced oblique (left to right) CWOI decoration. This vessel is tentatively identified as Rainy River ware.

Vessel 4 consists of three lip,neck sherds from Unit D2 (DlLg-69/2252). The flat lip is slightly thickened and decorated with perpendicular CWOI. The smoothed neck is decorated with spaced oblique (left to right) CWOI. This vessel is similar in style to Vessel 3 and is also tentatively designated as Rainy River ware.

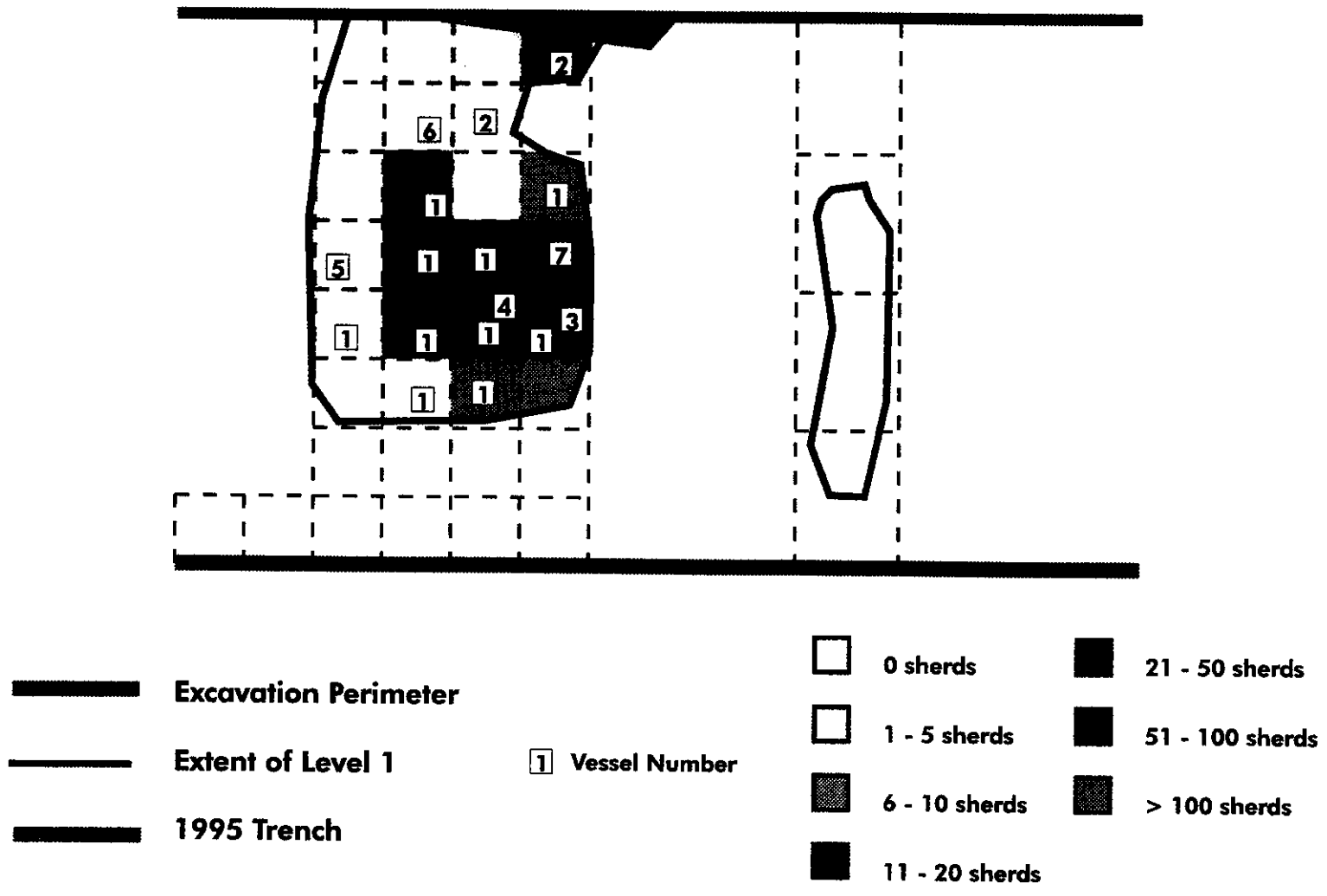


Figure 5: Provenience of Discrete Vessels and Density of Ceramic Recoveries from Level 1

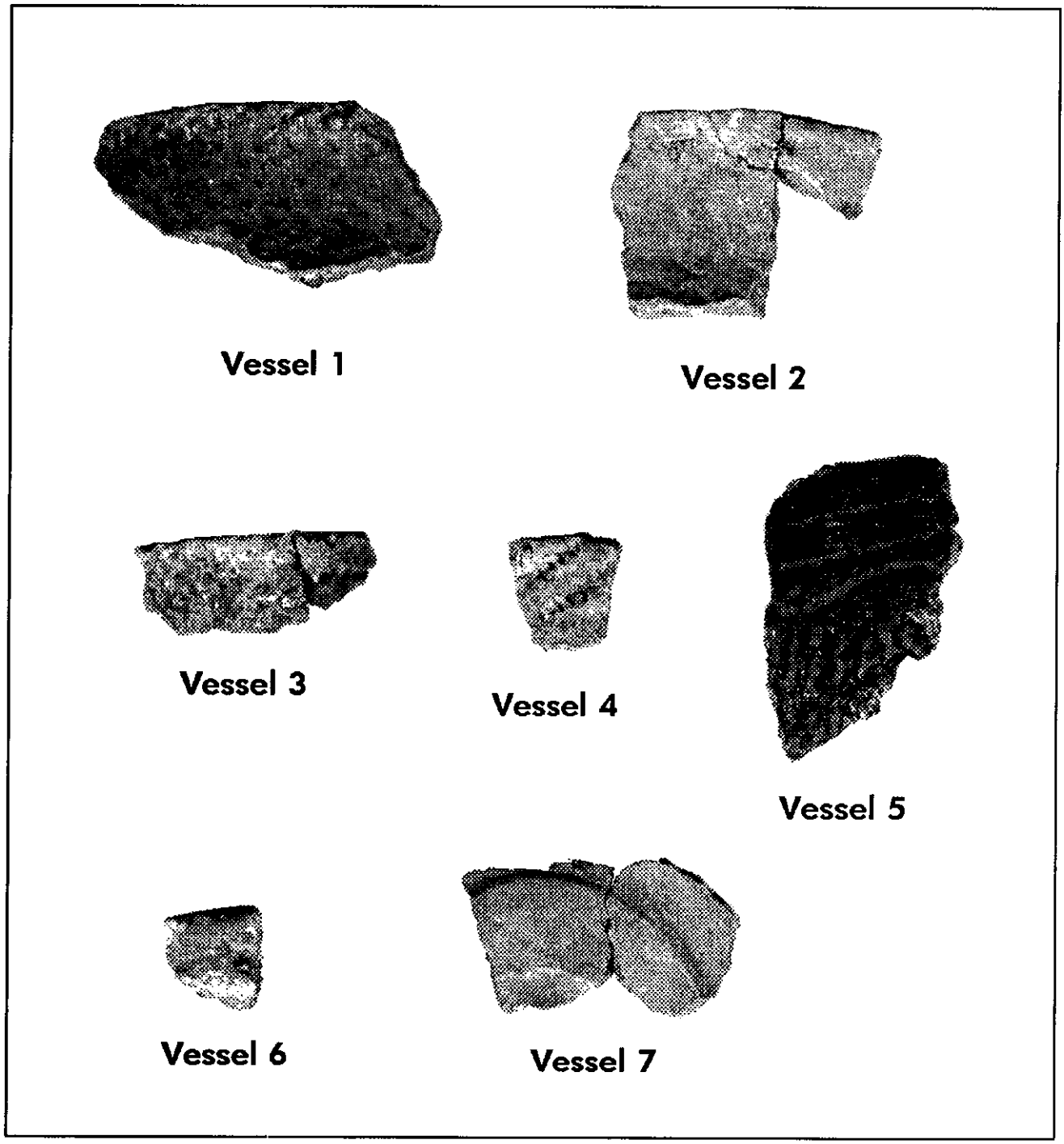


Plate 2: Ceramic Vessels Recovered from Level 1 (sherds actual size)

Vessel 5 is a single neck sherd from Unit E4 (DlLg-69/2608). This thin-walled specimen (approximately 5 mm thick) has an exterior decoration of at least three horizontal trailed lines above a single undulating trailed line. This style is characteristic of Plains Woodland ceramics.

Vessel 6 is designated on the basis of three lip,neck sherds from Unit G3 (DlLg-69/2959). The flat lip is slightly outflaring and is decorated with small rectangular (5 mm x 3 mm) stamps perpendicular to the circumference. The neck is marked with partially obliterated oblique (right to left) CWOI. The stamping is characteristic of Bird Lake which is also known to have CWOI decoration (Lenius and Olinyk 1990). This vessel is tentatively identified as Bird Lake?/Rainy River?.

Vessel 7 consists of four sherds decorated with a swirling trailed pattern. The marks are quite broad, measuring 9.5 mm in width and slightly over 1 mm in depth. In addition to the trailed lines, a single circular, shallow punctate (11.5 mm in diameter) is present. This style of decoration resembles that of Oneota pottery from north-central Minnesota (Anfinson 1997).The specimens in DlLg-69/2403 were all recovered from Unit E1.

Some rim sherds could not be assigned to discrete vessels. DlLg-69/3246 is a smoothed neck sherd which has some similarities to Vessel 2. DlLg-69/3087 is an obliterated fabric impressed shoulder sherd from Unit H1. It does not resemble any of the vessels from the immediate vicinity—Vessel 1, Vessel 2, or Vessel 6. DlLg-69/2706 is a smoothed neck sherd with an incised zigzag pattern. The markings are narrow (1.5 mm) and shallow (0.5 mm). DlLg-69/2509 is a minute neck sherd which cannot be matched with any other specimen.

4.1.3 Faunal Remains

The largest number of artifacts in Level 1 consist of faunal objects. These include a human tooth, five bone tools, a pendant made from an artiodactyl tooth, and fifty samples with the remainder of the faunal material being either butchering remains or natural faunal deposits. The faunal material was identified using the standard references: Casteel (1976), Clarke (1981), Gilbert (1973), Mundell (1975), Olsen (1960, 1964, 1968, 1971), Schmid (1972). All of the faunal remains were examined and identified as specifically as possible: body part, age of individual, and species. Evidence of butchering techniques, such as cut marks, was recorded as was the condition of the specimen, i.e., charred, broken, chewed, or gnawed.

4.1.3.1 Human Tooth

DlLg-69/2856 is a single fragmented molar which has evidence of a massive cavity underlying the entire crown of the tooth. The structural integrity of this tooth was severely damaged by the cavity and the specimen was recovered as three small fragments, weighing 0.6 grams. The presence of the tooth, in the site, would indicate that one of the occupants was suffering from a severely abscessed tooth which broke in his/her mouth and was spit out onto the ground.

4.1.3.2 Faunal Tools

Five worked bone implements were recovered (Figure 2). Three tools, two awls and a scraper, would have been used for clothing manufacture. These are broken and would have been discarded when they no longer fulfilled their function as a tool. The remaining two tools appear to be complete but their function cannot be ascertained.

4.1.3.2.1 Clothing Manufacture

4.1.3.2.1.1 Awls

Awls would have been used to pierce tanned hide for the insertion of sinew or fibre for sewing. Usually, the shaft of the implement is sturdy and the point is quite sharp. Most archaeologically recovered awls are broken, as a favoured tool would be carefully handled and seldom lost. The measurements for the two recovered awls are found on Table 29.

CAT.#	QTY	PORTION	LE	WI	THICK	WT	ELEMENT	COMMENTS
2499	1	complete	82.6	7.1	4.3	1.6	rib	highly polished
3110	1	proximal	33.5	13.5	9.1	1.4	4th metacarpus	broken
TOTAL	2					3.0		

Table 29: Bone Awls from Level 1

DlLg-69/2499 is carved from a medium mammal rib with the specimen being split longitudinally and the distal end carved and ground to a sharp point (Plate 3). Considerable wear polish occurs on the cortical surfaces. The tip has an angle of 18°.

DlLg-69/3110 is the distal portion of the fourth metacarpus from an elk (*Cervus elaphus*). This element has a natural sharp point and was often used, unaltered, as an awl. The distal end is missing. However, the high degree of polish on the articular facets and remaining proximal portion of the shaft indicate considerable usage of this specimen.

Depending on the element used, the manufacturing process for an awl varied. When a metacarpus was used, the bone was split lengthwise with a stone, bone, or wooden wedge and then either the proximal or distal articular end was sawed or snapped off. The remaining shaft was ground smooth and angled at the end to form a sharp point (Lang and Harris 1979:175). The splinters produced during this process could also be made into awls. When ribs were used, they were cut into a suitable length, with one surface cut away. The sides of the remaining half were rubbed smooth and the end worked to a sharp point. Cancellous bone is usually present on the inside of rib awls as removal of this would have caused a thinning of the tool (Burns 1994:115-116).

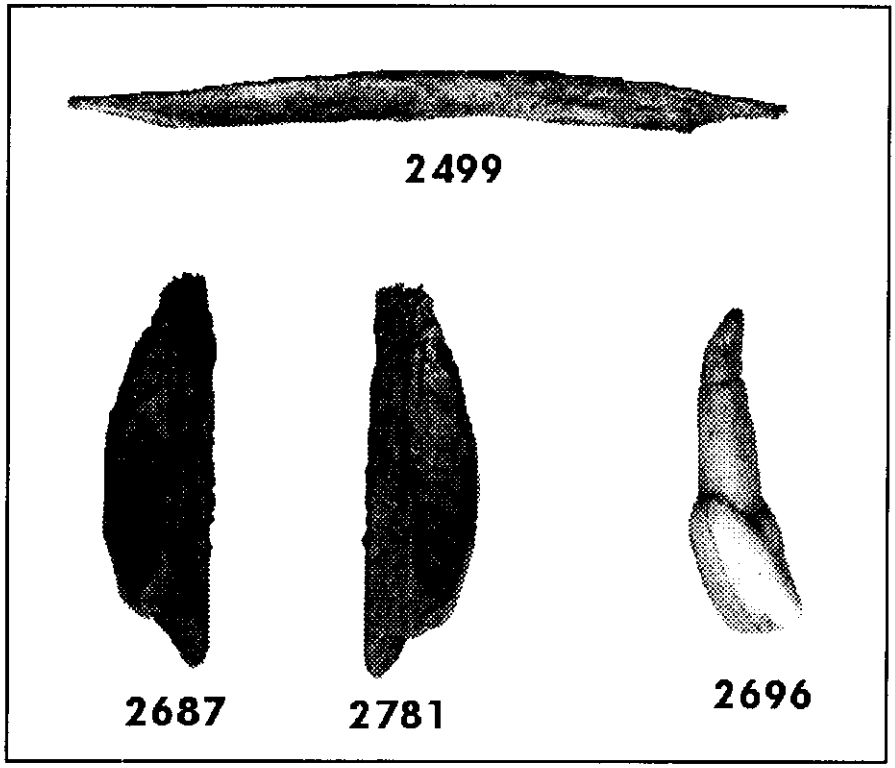


Plate 3: Selected Bone and Tooth Artifacts from Level 1 (actual size)

4.1.3.2.1.2 Scrapers

Scrapers were used in the early phases of the clothing manufacturing process to remove tissue and fat from hides prior to tanning. Often scrapers are made of lithic material, but the cortical portion of bone has a hard enough texture to withstand heavy pressure. The advantage of bone is that it will not as readily cut or tear more delicate hides. DlLg-69/2697 is made from a section of flat bone, e.g., scapula or innominate, from a large mammal. The artifact is triangular in shape with a long working edge (base of the triangle). The dimensions are 90.4 mm long, 30.2 mm wide, and 1.9 mm thick. It weighs 4.0 grams. Extensive horizontal striae, parallel to the working edge, occur on both faces of the artifact. The working edge, with an angle of 33°, has a high degree of wear polish. Given the degree of edge rounding and wear polish on the non-working edges, it appears that this specimen was originally part of a larger tool which broke and then was used by itself as a functional artifact.

4.1.3.2.2 Undetermined Implements

DlLg-69/2687 and 2781 are both modified portions of the nasal bones from a whitetail deer (*Odocoileus virginianus*). The two tools are from the left and right nasal bones of the same animal (Plate 3). The measurements, as would be expected, are almost identical:

DlLg-69/2687 is 45.5 mm long, 13.2 mm wide, 4.7 mm thick and weighs 1.5 grams, and
DlLg-69/2781 is 45.4 mm long, 12.9 mm wide, 4.6 mm thick and weighs 1.3 grams.

Three small, perpendicular cut marks are present on the ventral surface of DlLg-69/2781.The proximal end, at the suture line of both tools, is unmodified but the distal portion has been carved to produce a projecting rounded point at the medial edge. Considerable wear polish occurs on the projecting point with some wear on the sloping lateral margin, as well as on the ventral surface of the implement. The points are not sharp enough or long enough to have functioned as awls. The wear on the points appears on all surfaces although it is more pronounced on the extreme tip. There does not seem to be a difference in wear between the dorsal and ventral sides of the tip. The wear pattern does not match that observed on scraping tools or perforating tools and, as such, the exact function of these implements cannot be ascertained. A possible use could be for pottery making where the point is used for inscribing lines on the surface of the pot or the notched shelf below the point could be used as an edge trimmer for shaping lips of pots prior to drying and firing.

4.1.3.3 Pendant

DlLg-69/2696 is an incisor from a large artiodactyl (elk, moose, or bison). It weighs 3.0 gms. The proximal end of the root has been incised to form a groove which encircles the specimen (Plate 3). This groove would have been used to seat a sinew or fibre string for attaching the tooth to an article of clothing or a necklace. Ethnographically, faunal elements, such as feathers, quills, bones, and teeth, were used for decoration. Early Europeans recorded the adornment characteristics of various tribes encountered in western Canada. Elk teeth as pendants or necklace components were noted for the Sioux (Karklins 1992:128), the Piegan (Karklins 1992:101), and the Assiniboin (Andrews 1962:122).

4.1.3.4 Butchering Remains

As is usually the case, food residue in the form of butchering remains is the highest percentage of recovery. A total of 32,088 artifacts, with a combined weight of 4634.4 grams, was recovered. The density of the recoveries, by excavation unit, is depicted on Figure 6. While samples could be construed as butchering remains, in that they are the result of cluster cataloguing of minute residue obtained during the wet screening process, they are not included in the quantities or weights of butchering remains. This is done so as not to skew the percentages inordinately in favour of undetermined or unidentifiable fragments. As such, the quantities that can be identified to specific taxa more closely reflect the actual food procurement practices of the peoples that camped here.

For comparative purposes, the identified taxa are listed in the following tables—non-mammal classes (Table 30) and mammal (Table 31). The frequencies of each taxon are calculated on the combined weight and quantities of both tables to give a picture of the relative frequency within the entire faunal food assemblage. It should be noted that even though these are considered as butchering remains, some taxa may have been harvested solely for their fur rather than food. However, this cannot be readily ascertained given our current 20th century biases.

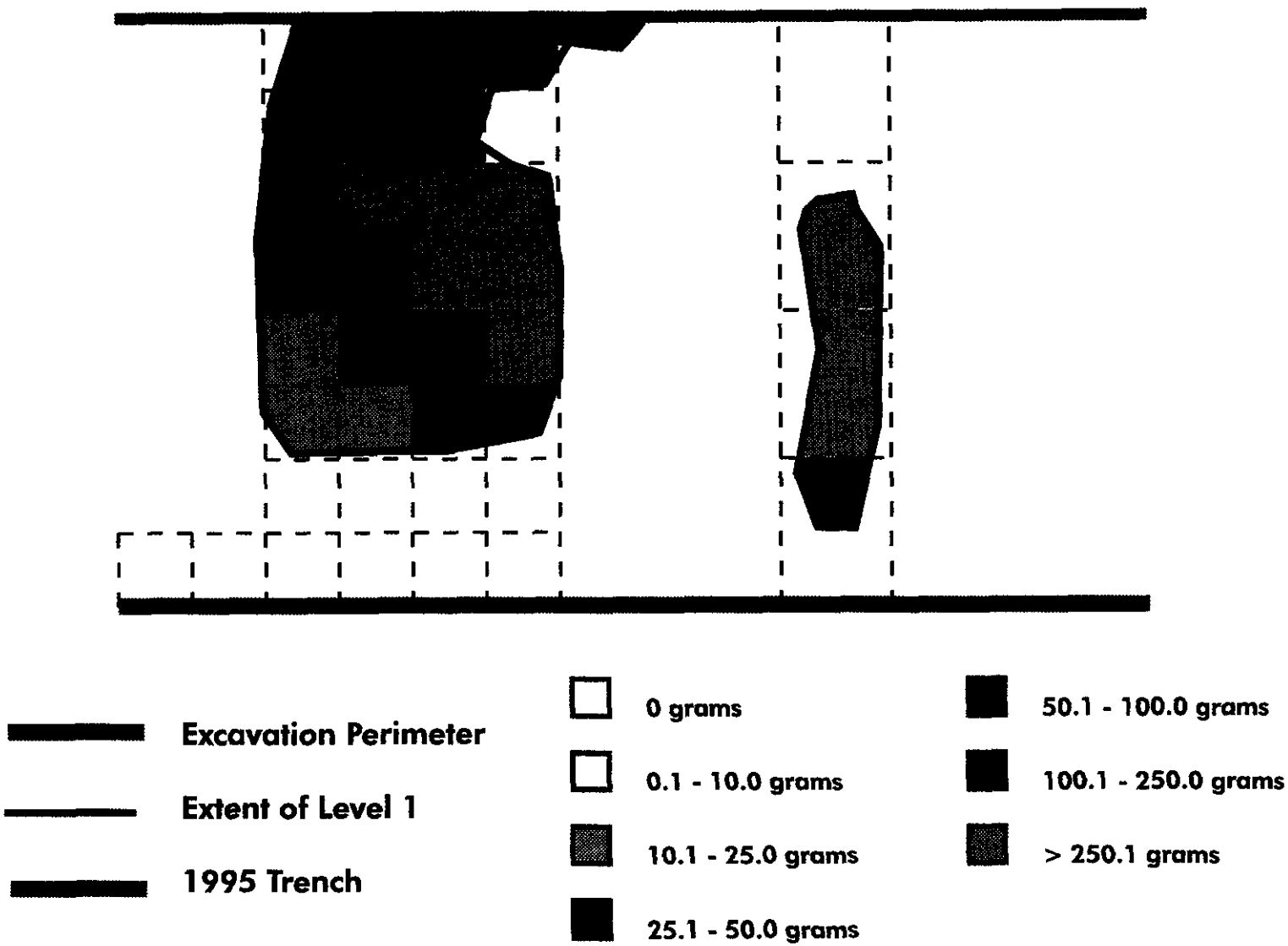


Figure 6: Density of Faunal Recoveries from Level 1

Evidence of butchering is preserved on the bone elements in the form of cut marks where the joints were separated and/or the flesh was stripped from the bone for further preparation. Only four fish elements, primarily from catfish, have cut marks, two bird elements have cut marks, and cut marks are recorded on 2.0% of the mammal remains.

A large percentage of mammalian bone, especially long bones, exhibits spiral fracture indicating breakage while fresh. This breakage was probably for the production of bone grease during which the bones are broken into small fragments (Zeirhut 1967:35) and then boiled to extract the fat (Paget 1909:78). The resulting bone grease, variously termed marrow fat, soft fat, and grease (Hurlburt 1977:19-21), was consumed directly or used for making pemmican. The product has been described as "...quite hard like tallow, and has the appearance and very nearly the flavour of the richest yellow butter" (Catlin 1926:131).

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Undetermined Class	68	0.2	7.5	0.2
TOTAL UNDETERMINED	68	0.2	7.5	0.2
Aves				
Large Aves	26	0.1	23.7	0.5
Medium/Large Aves	59	0.2	13.0	0.3
Medium Aves	10	<0.1	2.4	0.1
Small/Medium Aves	2	<0.1	0.2	<0.1
TOTAL AVES	97	0.3	39.3	0.8
Undifferentiated Fish	28158	87.8	980.3	21.2
Catfish (*Ictalurus* sp.)	2071	6.5	2372.4	51.2
Drum (*Aplodinotus grunniens*)	57	0.2	20.1	0.4
Perch family (Percidae)	139	0.4	8.2	0.2
Pike (*Esox lucius*)	2	<0.1	0.8	<0.1
Sturgeon (*Acipenser fulvescens*)	6	<0.1	1.2	<0.1
Sucker family (Catostomidae)	94	0.3	12.2	0.3
Walleye/Sauger (*Stizostedion* sp.)	2	<0.1	0.1	<0.1
TOTAL FISH	30529	95.1	3395.3	73.3
Freshwater Clam (Unionidae)	47	0.1	11.6	0.3
Three-ridge clam (*Amblema plicata*)	1	<0.1	31.8	0.7
Fat Mucket (*Lampsilis radiata*)	1	<0.1	18.5	0.4
White Heel-Splitter (*Lasmigona complanata*)	1	<0.1	1.3	<0.1
Black Sand-shell (*Ligumia recta*)	4	<0.1	29.9	0.6
TOTAL SHELLFISH	54	0.2	93.1	2.0

Table 30: Undetermined, Aves, Fish, and Shellfish Remains from Level 1

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Mammal				
Large Mammal	890	2.8	766.2	16.5
Medium/Large Mammal	347	1.1	142.5	3.1
Medium Mammal	74	0.2	19.7	0.4
Small/Medium Mammal	6	<0.1	0.8	<0.1
Deer/Cow Family (Artiodactyla)	10	<0.1	81.1	1.7
Deer Family (Cervidae)	1	<0.1	16.5	0.4
Cow Family (Bovidae)	-	-	-	-
Bison (*Bison bison*)	4	<0.1	63.8	1.4
Carnivore Family (Carnivora)	2	<0.1	0.2	<0.1
Dog/Wolf/Coyote Family (Canidae)	1	<0.1	1.0	<0.1
Rodent Family (Rodentia)	-	-	-	-
Beaver (*Castor canadensis*)	5	<0.1	7.4	0.2
TOTAL	1340	4.2	1099.2	23.7

Table 31: Mammal Remains from Level 1

Some post-depositional trauma occurs during or immediately after the food preparation process when bone fragments are placed into the fire. The result is bone which is either charred or calcined (so thoroughly burned that only the inorganic white calcium carbonate remains). Charred bones account for 1.8% of the total mammal sample, while calcined bones are 4.6%. Two bird elements are calcined (2.9%).There appears to be a differential treatment of fish butchering remains as only sixteen specimens are charred or calcined. This may be a product of the initial butchering where the head, comprising the majority of the skeletal elements, is discarded prior to cooking.

Other post-depositional trauma is also recorded on butchering remains. Carnivore chewing, either by domesticated dogs or scavenging canids, occurs on only two mammal elements. This small proportion tends to suggest that scavenging occurred during visits to the location by coyotes or wolves after the departure of the occupants rather than the presence of dogs in the campsite.

Calcium is not a common mineral for animals to obtain from natural sources and the consumption of bone to obtain it is evident in rodent gnawing of the discarded butchering remains. Only one mammal bone displayed the characteristic tooth marks of small rodents, i.e., mice and voles.

A small component of the mammalian assemblage (17 elements) has evidence of weathering suggesting surface exposure prior to incorporation into the soil matrix by the deposition of sediments during a high water episode. Other post-depositional effects are the presence of copper staining on five fish elements. This indicates that the bone was in close proximity to a copper tool or a scrap of waste copper from tool manufacture. No copper artifacts were recovered suggesting that oxidization and subsequent dissolving in ground water had eradicated the specimen.

A very small portion of the mammal assemblage consists of juvenile bone. Four specimens identified as large mammal (1), medium mammal (2), and beaver (l) have the porous surface indicative of the bones of young mammals. While it is tempting to use the presence of foetal or newborn animals as an indicator of a spring occupation, it must be noted that historical records have documented bison bearing calves as late as August. Young of most species are usually born in the spring and bone has reached its adult appearance by the time the individual is 6-8 months old. The minimal presence of juvenile individuals does not strongly suggest a spring occupation.

Archaeologists have many techniques to analyze the protein component of Pre-Contact diets. The most common method is to determine the minimum number of individuals of each species represented at the site. This is done by selecting the most frequent element, e.g., left dentary of a catfish, right femur of a bison, etc., and using that number as the minimum number of animals that would have been harvested. A rigorous analysis uses these minimum numbers and an average body weight of the particular species to determine the amount of usable meat that is represented by the bones in the faunal assemblage. This can be further refined by using base line measurements of the specific element and calculating percentage size ratios of the recovered specimens and then applying that corrected value to the usable meat formula. As an example, a dentary from a 20 pound catfish measures a certain length and the archaeological specimens may range from 50% to 150% of that size. The usable meat would be a compilation of the combined ratios times 20 pounds. A study of this magnitude would fall within academic parameters and is beyond the scope of a mitigative project.

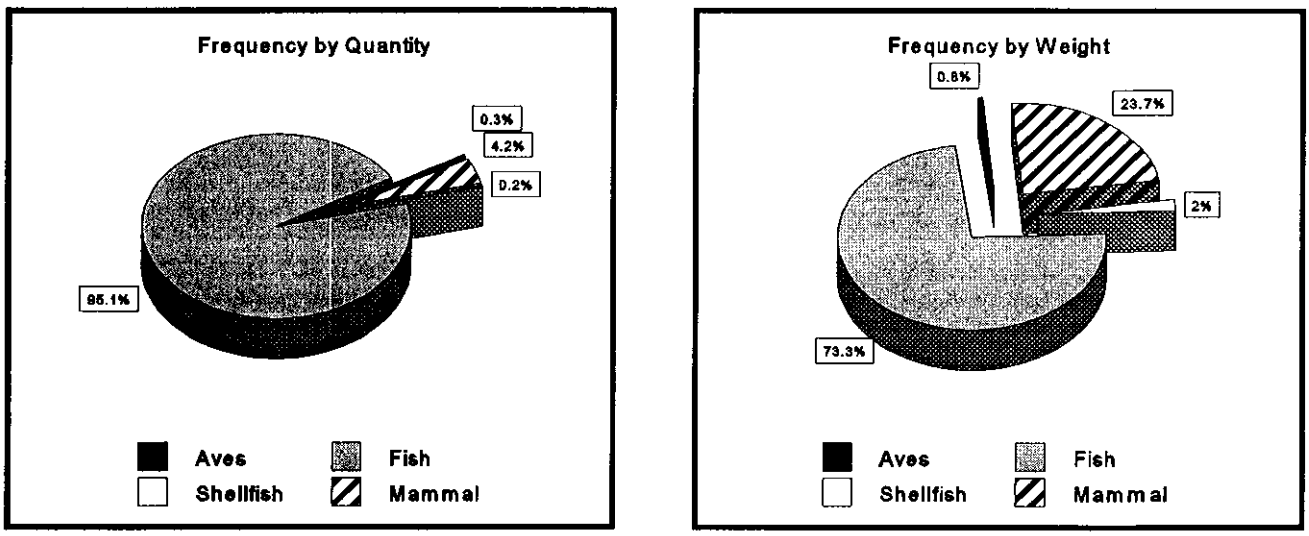


Figure 7: Butchering Remains from Level 1

The frequency of the butchering remains are illustrated by both quantity and weight (Figure 7). In the quantity graph, the fish remains overwhelm the other taxa. However, as fish bone is small and light in comparison to the larger and denser mammal bone, the proportions tend to be reversed when weight is considered. In this rather simplistic type of analysis, the amount of available meat is deemed to be relatively proportional to the weight of the residue, although in the case of shellfish, the weight of the discarded shell is considerably greater than that of the available meat.

With the above caveats, it can be seen that approximately one-quarter of the protein component of the occupants' diet was fulfilled by meat from mammals. Much of the bone could not be identified beyond large or medium/large mammal (Table 31). The identified species—bison, dog/wolf, and beaver—supplied minor amounts of the diet. Some of these species may not have been used for food but were harvested for fur instead.

Within the fish, catfish was overwhelmingly dominant (Table 30), providing one-half of the total protein. Seasonality is not a factor as all species identified in the assemblage spawn in the spring. The selectiveness of the harvest may be a result of the fat content of catfish flesh, with the other species caught for variety. Alternatively, if bulk fishing techniques, such as netting, were utilized, the mix of species may be representative of the aquatic biotic assemblage at the fishing location. Further analysis of vertebra and scales, which can often be identified to specific taxa within a rigorous analysis, could produce data which would determine the season of harvest, as annular growth rings (like tree rings) occur in both elements.

The low proportion of bird remains suggests that the occupation did not take place during either the spring or fall migration periods. Alternatively, the option of bird hunting was not as economically productive as that of fishing or big game hunting and birds were only obtained when the opportunity arose during other activities. It would seem that shellfish were actively gathered—perhaps an activity for children, along with plant and berry harvesting.

4.1.3.5 Samples

Samples are an expeditious mechanism for the cataloguing of myriads of minuscule recoveries. These consist of specimens recovered on a 4, 2, or 1 millimetre screen and contain diverse artifacts, i.e., charcoal fragments, shell fragments, and small fragmented bone elements. Intensive detailed study of the material catalogued as samples may result in the identification of various plant or animal species, but most of the dominant taxa are already represented by larger recoveries. The additional information obtained through a comprehensive analysis of samples is usually that of degree and further confirmation of specific taxa rather than the identification of previously unrecorded species. Fifty samples weighing 2699.9 grams were catalogued from Level 1, eight from a 4 mm screen (309.7 gms), twenty from a 2 mm screen (1021.6 gms), and twenty-two from a 1 mm screen (1368.6 gms).

4.1.3.6 Naturally Deposited Fauna

Ninety-two specimens of non-food faunal remains have been curated (Table 32). Representations of these types of faunal specimens are often incorporated into cultural deposits. They include frogs, which burrow into the soil for hibernation, and natural residents such as small rodents who tend to scavenge occupation sites. The aquatic taxa, freshwater snails and pea clams, are deposited as part of the sediment load during flood episodes and are part of the soil substrate below the cultural level. As the cultural material mixes slightly with the upper portion of the original soil, these taxa are incorporated within the cultural matrix.

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Amphibia	53	57.7	3.3	55.9
TOTAL AMPHIBIAN	53	57.7	3.3	55.9
Freshwater Snails (Gastropod) Ramshorn Snails (Planorbidae) Pond Snails (Lymnaeidae)	 8 4	 8.7 4.3	 0.5 0.3	 8.5 5.1
TOTAL GASTROPODS	12	13.0	0.8	13.6
Freshwater Clam (Eulamellibranchia) Pea Clams (Sphaeriidae)	 13	 14.1	 0.7	 11.9
TOTAL CLAM	13	14.1	0.7	11.9
Mammal Small Rodent (Rodentia)	 14	 15.2	 1.1	 18.6
TOTAL MAMMAL	14	15.2	1.1	18.6
TOTAL	92	99.9	5.9	100.0

Table 32: Natural Faunal Remains from Level 1

4.1.4 Floral Remains

The 2564 floral recoveries encompass charcoal, seeds, and nuts (Table 33). An intensive analysis to determine the representative species is beyond the scope of a mitigative report, however, it can be assumed that most of the charcoal would derive from locally available trees. These would include oak, maple, willow, poplar, and birch. Many of the charcoal specimens are large enough for species determination at a macro-analysis level. Cursory examination of random specimens indicate that the charcoal derives from deciduous trees rather than coniferous.

TYPE	QTY	WT	COMMENTS
Charcoal	2466	62.9	minute to moderate size
Seed			
Undetermined	3	0.2	one charred, one germinated
Lithospermum	5	0.3	puccoon
Prunus	1	0.1	chokecherry or pincherry
Nut	89	2.7	hazelnut
TOTAL	2564	66.2	

Table 33: Floral Recoveries from Level 1

Five seeds, DlLg-69/2955, 3254, and 3310, are definitely puccoon (*Lithospermum* sp.) (Montgomery 1977:59). DlLg-69/3309 is a seed which was arrested at a stage of germination and appears to resemble puccoon. The *Prunus* seed, DlLg-69/3091, is carbonized and fragmented and cannot be identified to either of the probable species, *Prunus pensylvanica* (pincherry) or *Prunus virginiana* (chokecherry). The nuts are identified as hazelnut. Two species, *Corylus americana* and *Corylus cornuta*, would have occurred along the Red and Assiniboine Rivers (Looman and Best 1979:301).

4.2 Level 2

Level 2 is located immediately under Level 1, separated by a thin layer of riverine silt (2 - 5 cm thick). The outline of the cultural deposits is similar to that of Level 1 (Figure 2) with a slight extension to the south of the block area and a presence at Pile 15 to the east. The elevation of the horizon decreases towards the east with the manifestation at Pile 15 being 25 cm deeper than at the block area.

A total of 49,283 artifacts were recovered from Level 2. These consist of 254 lithic artifacts, 24 ceramic artifacts, 48,058 faunal remains, 942 floral remains, and 5 soil samples.

4.2.1. Lithic Artifacts

The 254 lithic artifacts, from Level 2, are analyzed within the following categories: tools (6 = 2.4%), detritus (137 = 53.9%), fire-cracked rock (85 = 33.5%), and unmodified lithic material (26 =10.2%).

4.2.1.1 Lithic Tools

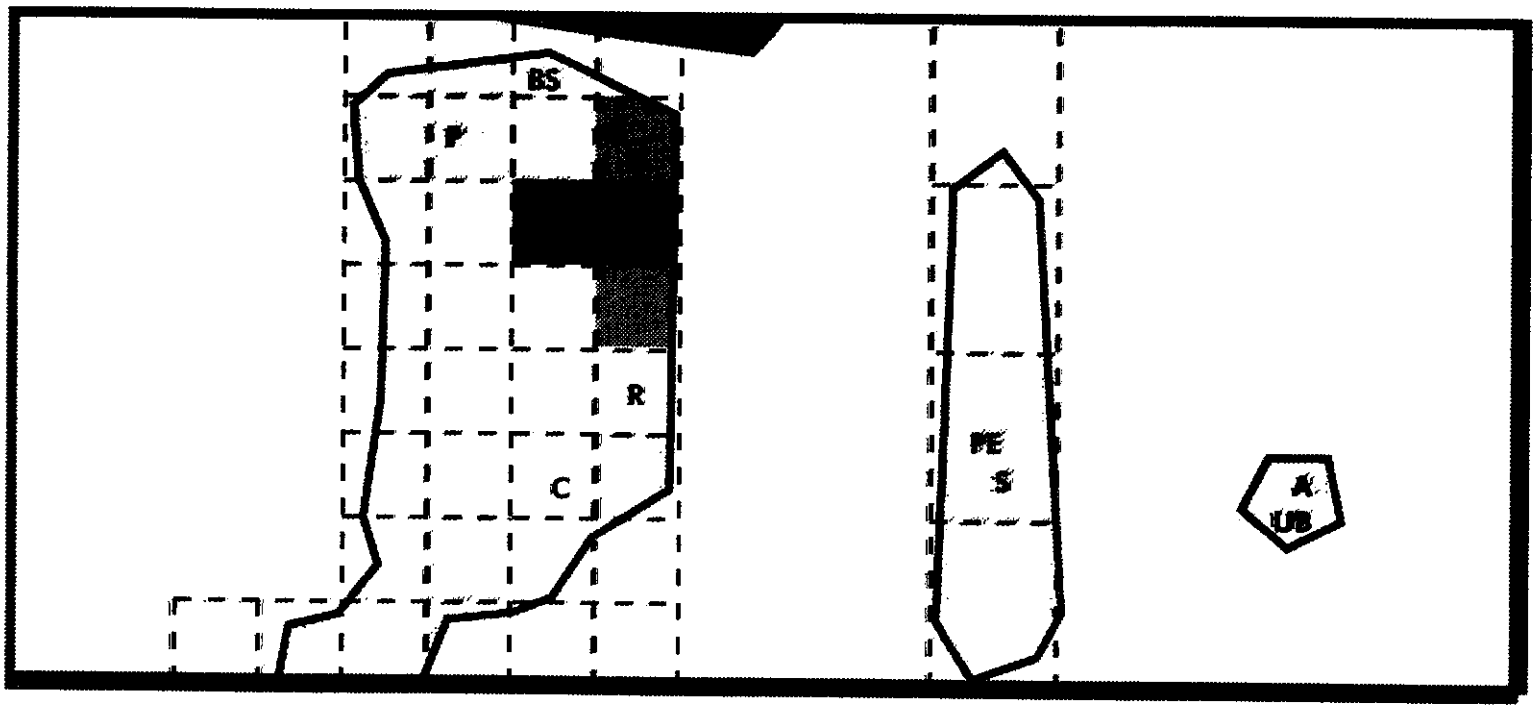
Six lithic tools were recovered from Level 2. These consist of one projectile point, one scraper, two retouched flakes, a pièce esquillée, and a chitho. Each type will be described in the appropriate sections below. The location of these tools is depicted on Figure 8.

4.2.1.1.1 Projectile Point

DlLg-69/3931 is a fragment of a Plains Side-notched projectile point made from Knife River Flint. A medial portion of the point, containing one of the side notches, is present. The base, most of the blade, and the opposite side-notch are missing. This fragment weighs 0.3 grams.

4.2.1.1.2 Scraper

DlLg-69/4153 is a triangular scraper made from a grey-white chert flake. The distal end has varying degrees of retouch to produce a slightly convex working edge. The overall dimensions of this artifact measure 17.0 mm in length, 22.7 mm in width, and 9.4 mm thick. It weighs 2.7 grams. The working edge is 22.7 mm long and 3.6 mm wide with a working edge angle varying between 42° and 81°.



Excavation Perimeter

Extent of Level 2

1995 Trench

P	Projectile Point
S	Scraper
C	Chitho
R	Retouched Flake
PE	Piece Esquille
A	Awl
BS	Bone Scraper
UB	Unknown Bone Tool

0 flakes

1 - 10 flakes

11 - 25 flakes

26 - 50 flakes

51 - 100 flakes

101 - 1000 flakes

> 1000 flakes

Figure 8: Provenience of Tools and Lithic Detritus Density in Level 2

4.2.1.1.3 Chitho

DlLg-69/3538 is a fragment of an ovoid chitho made from granite. The specimen measures 41.1 mm in length, 55.5 mm in width, and is 24.9 mm thick. It weighs 46.1 grams. The curved distal end shows some evidence of irregular flaking and considerable evidence of grinding, probably due to use wear during hide processing. Chitho is a Cree word which is used to designate large stone tools which were used during the processing of large hides. The chitho is made from a granular rock which will crumble rather than cut when heavy pressure is used during fat and tissue removal.

4.2.1.1.4 Retouched Flakes

Two retouched flakes were curated (Table 34). DlLg-69/3565 is a triangular flake of grey chert with unifacial retouch along the longest edge. DlLg-69/3882 is a small, rectangular flake of Knife River Flint which has fine unifacial retouch along the distal and right lateral margins. Moderate wear polish occurs on the working edge but not on the proximal portion of the tool suggesting that the implement broke and the hafting portion is missing.

CAT.#	LENGTH	WIDTH	THICK	WT	WORKING EDGE MEASUREMENTS		
					WIDTH	LENGTH	ANGLE
3565	22.4	9.0	4.1	0.6	22.4	0.2	51°
3882	17.7	9.1	3.3	0.5	16.1 (D) 6.8 (R)	0.8 (D) -0.2 (R)	37° (D) 27° (R)

Table 34: Measurements on Retouched Flakes Recovered from Level 2

4.2.1.1.5 Pièce Esquillée

DlLg-69/4154 is a rectangular tool made from Swan River Chert. Pièce esquillées are used for bone and/or woodworking and are similar to a wedge for splitting. A distinguishing characteristic is evidence of percussion on both the distal and proximal ends with some degree of crushing on both. The artifact is 26.1 mm long, 15.4 mm wide, 10.3 mm thick with a weight of 4.5 grams.

4.2.1.2 Detritus

One core and 136 lithic flakes (Table 35) were recovered from Level 2. DlLg-69/3518, the single core, is a rhyolite specimen that weighs 112.3 grams.

Within the 136 flakes, eight lithic material types are represented. Swan River Chert is the dominant type with undifferentiated chert as the next most frequent. The most frequent group is Group I, representing 54.4% of the total. Group IV provides 40.5% with minor representation of Group II (3.7%) and Group V (1.5%). The Group IV materials could have been obtained at creek mouths and

riffle areas to the west along the Assiniboine River, while people were camped at this location. A similar mechanism could have resulted in the presence of Group V materials which would have been found slightly downstream on the Red River at the St. Andrews Rapids (Selkirk Chert). The Group I materials probably would have been obtained by the occupants on prior travels through southwestern Manitoba. Although Knife River Flint tends to be ubiquitous in Manitoba archaeological sites, the frequency in this level, 5 flakes = 3.7%, is minimal.

MATERIAL	GROUP	QUANTITY	FREQUENCY	WEIGHT	FREQUENCY
Chalcedony	I	16	11.8	1.6	4.9
Chert	IV	42	30.9	14.3	43.7
Jasper	I	1	0.7	0.1	0.3
Knife River Flint	II	5	3.7	0.8	2.4
Quartzite	IV	13	9.6	6.7	20.5
St. Ambrose Chert	I	2	1.5	0.2	0.6
Selkirk Chert	V	2	1.5	1.1	3.4
Swan River Chert	I	55	40.4	7.9	24.2
TOTAL		136	100.1	32.7	100.0

Table 35: Flake Recoveries from Level 2 by Material Type

The map showing the density of detritus concentrations (Figure 8) indicates that tool manufacture occurred at this site with the activity focused in the northeast corner of the western block of the excavations. Many of the recovered flakes are small indicating final retouch and sharpening.

4.2.1.3 Fire-cracked Rock

Eighty-five fire-cracked rocks were recovered from Level 2, eighty-one of which are granite while four are limestone. DlLg-69/4156 and 4424, the four limestone rocks, weigh 665.2 grams and the granite specimens weigh a total of 3268.9 grams. The density of fire-cracked rock recoveries, by weight, are delineated on Figure 9. The densest deposits derive from Unit E2 with smaller amounts peripherally. Concentrations of fire-cracked rock tend to indicate hearths and cooking activities.

4.2.1.4 Unmodified Lithic Material

Twenty-six small fragments of reddish ochre were curated. The total weight is 0.5 grams. The ochre was recovered from four excavation units, D1, E1, F1, and G4, on the eastern edge of the west excavation block.

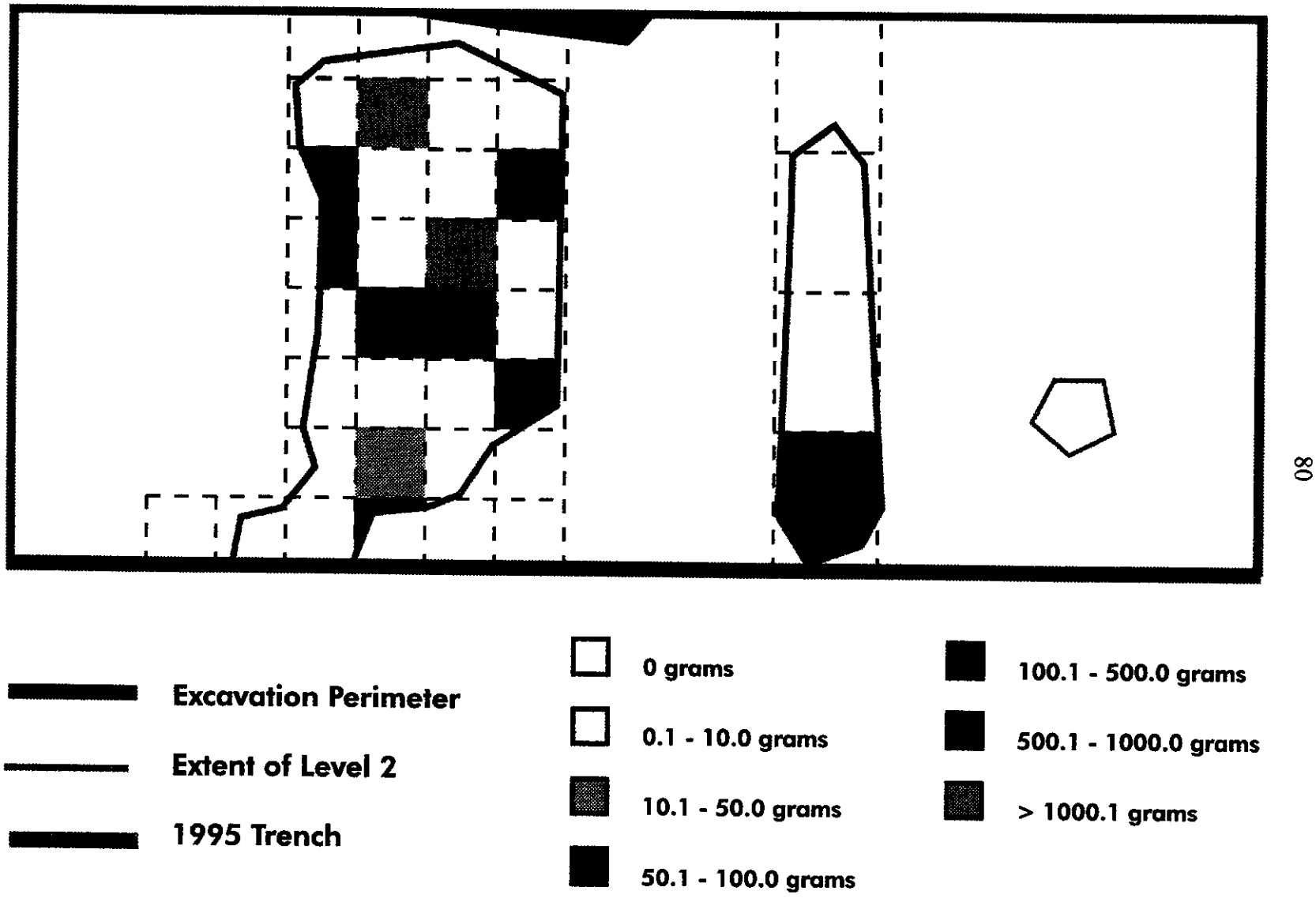


Figure 9: Density of Fire-cracked Rock Recoveries from Level 2

4.2.2 Ceramics

A much smaller ceramic assemblage was present in Level 2 with only a total of 24 sherds recovered. These consist of nineteen body sherds with two pieces of daub and three rim sherds. The locations of the designated vessels and the density of recovered sherds are portrayed on Figure 10.

4.2.2.1 Body Sherds

The surface treatment for the nineteen body sherds consists of textile impressed or smooth. The surface impressions could not be determined for three sherds (15.8% of the assemblage). Textile impressed sherds were dominant with 68.4% (13 sherds), followed by smooth with 15.8% (3 sherds).

4.2.2.2 Rim Sherds

The three rim sherds have been assigned to two discrete vessels. DlLg-69/3858 consists of two neck sherds which have horizontal and undulatory trailing. The design, surface treatment, and degree of carbon encrustation matches the sherd, DlLg-69/2608, designated as Vessel 5 in Level 1. This vessel was identified as Plains Woodland. The presence of these three diagnostic sherds in different levels could be due to any of several mechanisms. The sterile sediment layer between the two cultural horizons is relatively thin, ranging between 5 cm and 1 cm. A ceramic sherd may have been pressed downward from the upper level, a vertically standing sherd from the lower level would have been encountered first during the excavation of the upper level, or cryoturbic action could have elevated the lower sherd to the upper level.

Vessel 8 is defined from a lip,neck sherd (DlLg-69/4151) from Unit S2. Like Vessel 1, it has a widened, outflaring lip. The decoration consists of CWOI, perpendicular to the circumference of the lip, and oblique T-shaped stamps on the exterior neck. The implement used to make these stamps is unknown. The presence of the stamps, albeit a previously unrecorded type, and the CWOI suggest that this vessel is either Bird Lake or Rainy River.

4.2.3 Faunal Remains

As in Level 1, the largest number of artifacts in Level 2 consist of faunal objects—bone tools, butchering remains, natural faunal deposits, and samples. The total number is 48,058 with a total weight of 2542.6 grams. Of this total, seven are bone tools and thirty-six are samples. The remainder are either butchering remains or naturally deposited specimens.

4.2.3.1 Faunal Tools

Seven worked bone implements were recovered. Five of the tools, two awls and three scrapers, were curated in the category of clothing manufacture. The function of the remaining two tools cannot be ascertained. The provenience of these tools is marked on Figure 8.

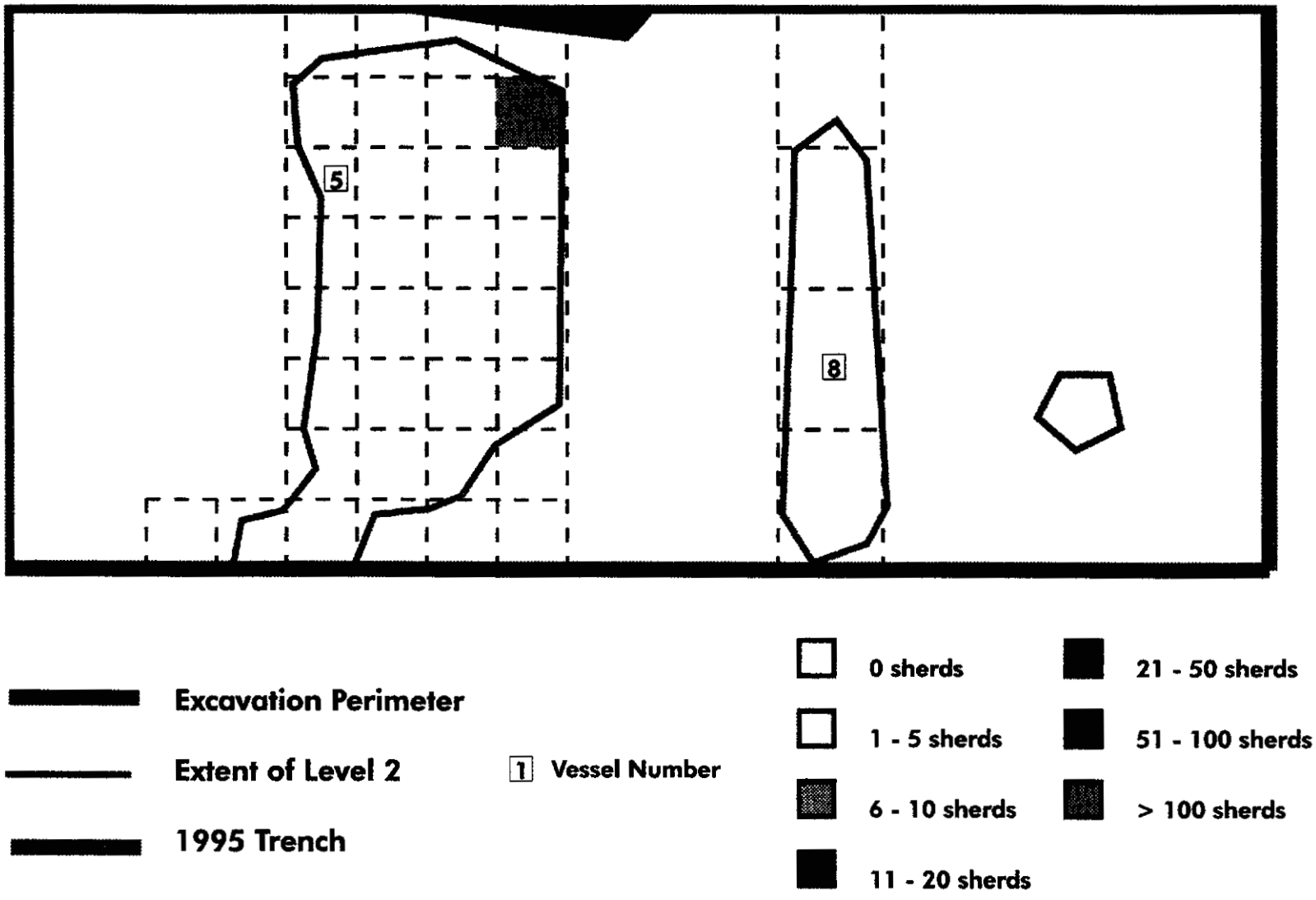


Figure 10: Provenience of Discrete Vessels and Density of Ceramic Recoveries from Level 2

4.2.3.1.1 Clothing Manufacture

4.2.3.1.1.1 Awls

The measurements for the two recovered awls are found on Table 36. DlLg-69/3877 (Plate 4) is made from a vertebral process from a large artiodactyl. The proximal end is carved to a flat surface and the distal end is carved and ground into a sharp conical point. Heavy wear polish occurs on the distal 3 cm of the point with moderate wear polish on projecting ridges on the medial shaft. The tip has an angle of 17°.

CAT.#	QTY	PORTION	LE	WI	THICK	WT	ELEMENT	COMMENTS
3877	1	complete	210.1	27.6	8.5	18.8	vertebral process	sharp
4419	1	proximal	21.9	6.5	1.9	0.2	unknown	polished
TOTAL	2					19.0		

Table 36: Bone Awls from Level 2

DlLg-69/4419 is a pointed implement made from a cortical flake of mammalian bone (Plate 4). The thickness of the bone suggests that the original material derives from a long or flat bone from a medium mammal. The sharp tip results from an oblique spiral fracture line yielding a tip angle of 26°. Slight wear polish occurs on all lateral margins. It is probable that this artifact is a portion of a longer specimen which probably was hafted or a longer specimen which was used as an expedient tool and discarded when broken.

4.2.3.1.1.2 Scrapers

Three bone implements were recovered which have working edges that indicate a function as a scraping and/or a cutting tool (Table 37). Due to the limited knowledge about bone tools during the late Pre-Contact period, these implements are catalogued as scrapers with the caveat that their true function may be something different.

CAT.#	QTY	PORTION	LE	WI	THICK	WT	ELEMENT	COMMENTS
3791	1	complete	151.8	42.4	12.1	19.0	vertebral process	ground
3840	1	proximal	190.2	58.8	20.8	60.4	scapula	carved
3986	1	complete	319.0	50.3	11.4	63.4	rib	carved
TOTAL	3					142.8		

Table 37: Bone Scrapers from Level 2

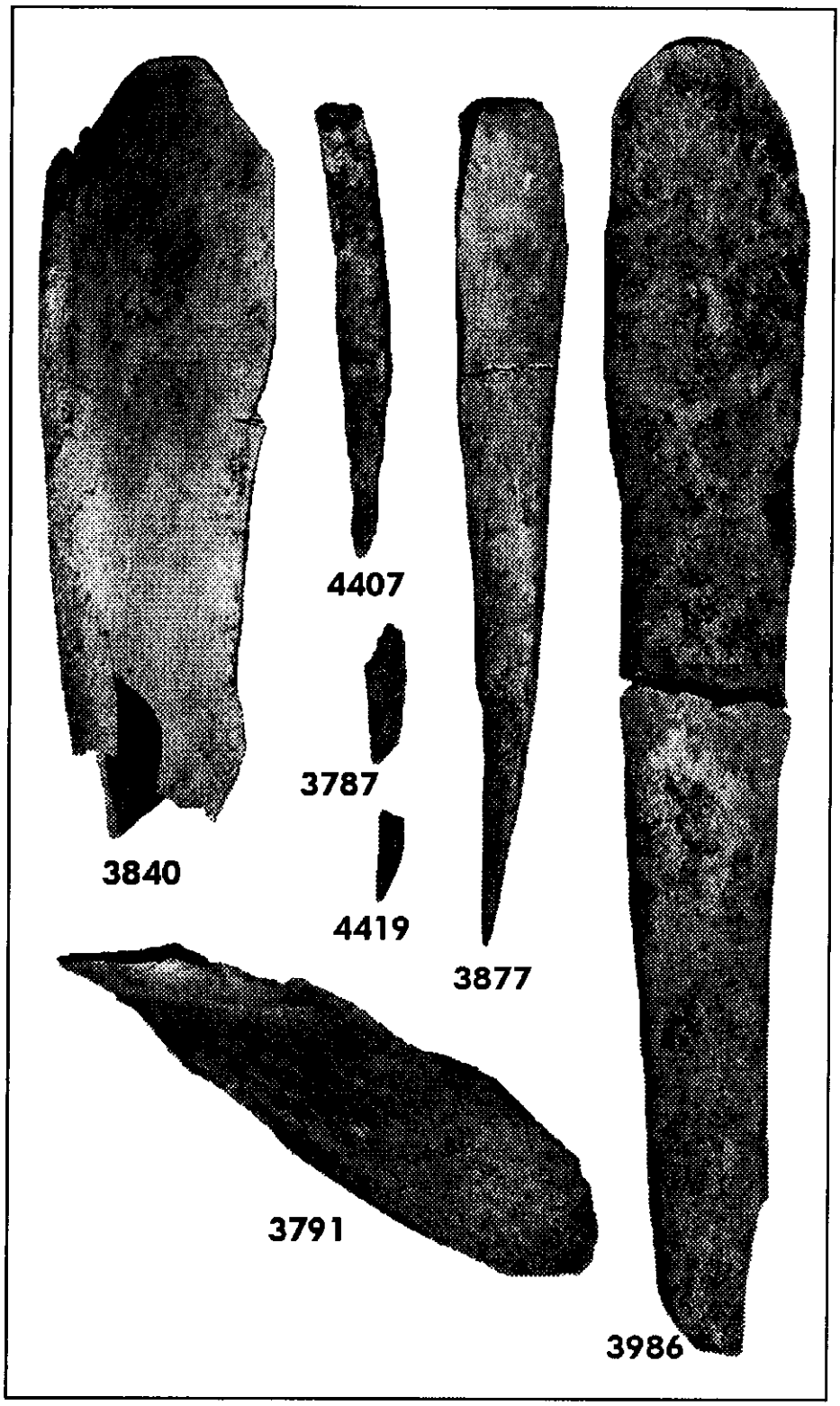


Plate 4: Bone Tools from Level 2 (60% actual size)

DlLg-69/3791 is a modified spinous process from a large artiodactyl (Plate 4). The process has been broken away from the body of the vertebra and the distal end has been roughly carved into a rounded end. The working edge occurs on the anterior edge of the process and has been made into a sharp edge by grinding with a moderately coarse-grained rock. The striae are parallel to the working edge. The working edge itself is 61.8 mm long with a very slight curve. The edge angle is 29° suggesting that this implement could also have been used as a knife.

The majority of the blade of the scapula from DlLg-69/3840 has been broken away to form a roughly rectangular outline with a rounded distal tip (Plate 4). The thin edge of the remaining portion of the blade shows considerable rounding from wear and slight traces of wear occur on the rounded distal end. The lateral working edge is 60.0 mm and is truncated by a notch chipped into the margin. The edge is not sharp enough to have worked as a scraper or cutting implement. The wear occurs on dorsal and ventral portions of the working edge suggesting that whatever function this tool fulfilled, it could have been a back and forth motion resulting in wear on both faces. One possible use could have been as a leather softener to push back and forth on tanned hide to make the leather more supple.

DlLg-69/3986 is a large rib from a large artiodactyl (Plate 4). The proximal head has been broken off and the remaining blade-like portion has been carved to produce a broad spatulate end. The natural margins of the rib are relatively sharp and wear polish occurs on both sides on the distal half of the implement. Some wear polish occurs on the dorsal and ventral surfaces of the proximal end suggesting that the tool was used *as is* without an additional handle component. The exact function of this implement is uncertain. The wear on both edges suggests that it could be used in either hand or with a lateral motion in either direction. The degree of wear is not as pronounced as in DlLg-69/3840 and the edge sharpening observed on DlLg-69/3791 is not present. The natural sharpness of the lateral margins could have been used for cutting as opposed to a heavy scraping function. Alternatively, the relatively sharp margins could have served as scrapers for hide processing which may have required a two-handed grip to pull the implement back and forth.

4.2.3.1.2 Undetermined Implements

DlLg-69/4407 is a section of medium/large mammal rib cut to a rectangular shape with a taper to a distal point (Plate 4). It measures 111.3 mm in length, 13.0 mm in width, 5.2 mm in thickness and weighs 5.7 grams. The artifact shows considerable evidence of weathering and some reddish-brown staining. In spite of the weathering, a high degree of polish occurs on the ventral face. The working end of this tool is a rounded pointed distal end. This point is quite rounded and appears to have been shaped by grinding as well as considerable wear. The tip is not sharp enough to have functioned as an awl. This interpretation is further enhanced by the lack of wear polish beyond the distal 6 mm. The general shape of the working tip is very similar to that recorded on the two nasal bone tools, DlLg-69/2687 and 2781, recorded in Level 1. As with those tools, the exact function of DlLg-69/4407 cannot be ascertained.

DlLg-69/3787 is a small, rectangular section of medium mammal bone with slight evidence of wear at the pointed distal end (Plate 4). This specimen measures 34.5 mm long, 9.9 mm wide, 4.1 mm thick and weighs 0.7 grams. Wear polish occurs on the distal end and the right lateral margin. The specimen probably was part of a larger tool which was discarded after breakage. No wear polish that would suggest hafting or hand grasping is evident on the remaining portion. The wear polish ranges from moderate on the distal right margin to extremely heavy at the proximal tip.

4.2.3.2 Butchering Remains

A total of 47,828 artifacts, with a combined weight of 1784.7 grams, was recovered. For comparative purposes, the identified taxa are listed in the following tables—non-mammal classes (Table 38) and mammal (Table 39). The frequencies of each taxon are calculated on the combined weight and quantities of both tables to give a picture of the relative frequency within the entire faunal food assemblage. The mapping of the density of the butchering remains (Figure 11) provides a view of the activity areas within the occupation site.

Evidence of butchering is preserved on the bone elements in the form of cut marks where the joints were separated and/or the flesh was stripped from the bone for further preparation. Only three fish elements have cut marks, while they are present on thirty-three mammal elements. In addition, a large percentage of mammalian bone, especially long bones, exhibit spiral fracture indicating breakage while fresh.

Some post-depositional trauma occurs during or immediately after the food preparation process when bone fragments are placed into the fire. Charred bones account for 8.3% of the total mammal sample, while calcined bones are 1.8%.There appears to be a differential treatment of fish butchering remains as only sixteen specimens are charred and two are calcined.

Other post-depositional trauma is also recorded on butchering remains. Carnivore chewing occurs on four mammal elements. This small proportion tends to suggest that scavenging occurred during visits to the location by coyotes or wolves after the departure of the occupants rather than the presence of dogs in the campsite. A small portion of the mammalian assemblage (4 elements) has evidence of weathering suggesting surface exposure prior to incorporation into the soil matrix by the deposition of sediments during a high water episode. Five mammal elements show evidence of root etching which would occur after incorporation.

The frequency of the butchering remains are illustrated by both quantity and weight (Figure 12). In the quantity graph, the fish remains overwhelm the other taxa but the proportions are reversed when weight is considered.

With the above caveats, it can be seen that approximately ⅔ of the protein component of the occupants' diet was fulfilled by meat from mammals. Much of the bone could not be identified beyond large or medium/large mammal (Table 39). Bison supplied 15% of the diet and probably more, as much of the large and medium/large mammal bone likely derived from bison.

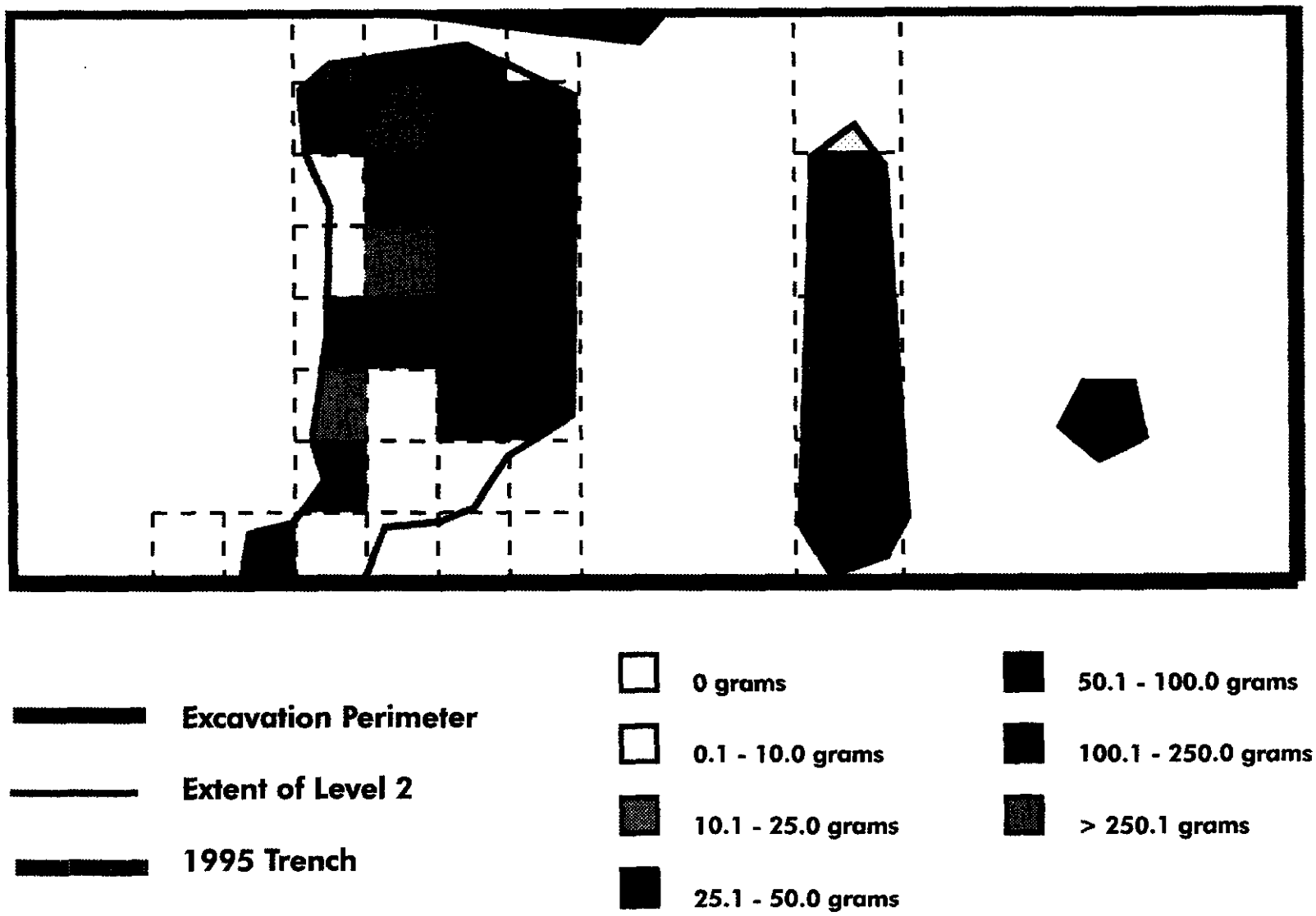


Figure 11: Density of Faunal Recoveries from Level 2

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Undetermined Class	22	<0.1	0.9	0.1
TOTAL UNDETERMINED	22	<0.1	0.9	0.1
Aves				
Medium Aves	9	<0.1	2.4	0.1
Small Aves	1	<0.1	0.1	<0.1
TOTAL AVES	10	<0.1	2.5	0.1
Undifferentiated Fish	46553	97.3	309.3	17.3
Catfish (*Ictalurus* sp.)	303	0.6	262.0	14.7
Drum (*Aplodinotus grunniens*)	7	<0.1	3.2	0.2
Perch Family (Percidae)	1	<0.1	1.2	0.1
Pike (*Esox lucius*)	12	<0.1	6.8	0.4
Sucker family (Catostomidae)	17	<0.1	3.5	0.2
Walleye/Sauger (*Stizostedion* sp.)	1	<0.1	0.1	<0.1
TOTAL FISH	46894	98.0	586.1	32.8
Freshwater Clam (Unionidae)	36	0.1	1.9	0.1
Black Sand-shell (*Ligumia recta*)	3	<0.1	11.6	0.6
TOTAL SHELLFISH	39	0.1	13.5	0.8
Turtle (Testudines)	8	<0.1	17.5	1.0
TOTAL TURTLE	8	<0.1	17.5	1.0

Table 38: Undetermined, Aves, Fish, Shellfish, and Turtle Remains from Level 2

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Mammal				
Undifferentiated Mammal	59	0.1	4.0	0.2
Large Mammal	144	0.3	473.1	26.5
Medium/Large Mammal	484	1.0	167.4	9.4
Medium Mammal	91	0.2	23.1	1.3
Small/Medium Mammal	3	<0.1	0.4	<0.1
Small Mammal	2	<0.1	0.2	<0.1
Deer/Cow Family (Artiodactyla)	58	0.1	187.9	10.5
Cow Family (Bovidae)	-	-	-	-
Bison (*Bison bison*)	6	<0.1	282.2	15.8
Rodent Family (Rodentia)	-	-	-	-
Beaver (*Castor canadensis*)	8	<0.1	25.9	1.5
TOTAL	855	1.8	1164.2	65.2

Table 39: Mammal Remains from Level 2

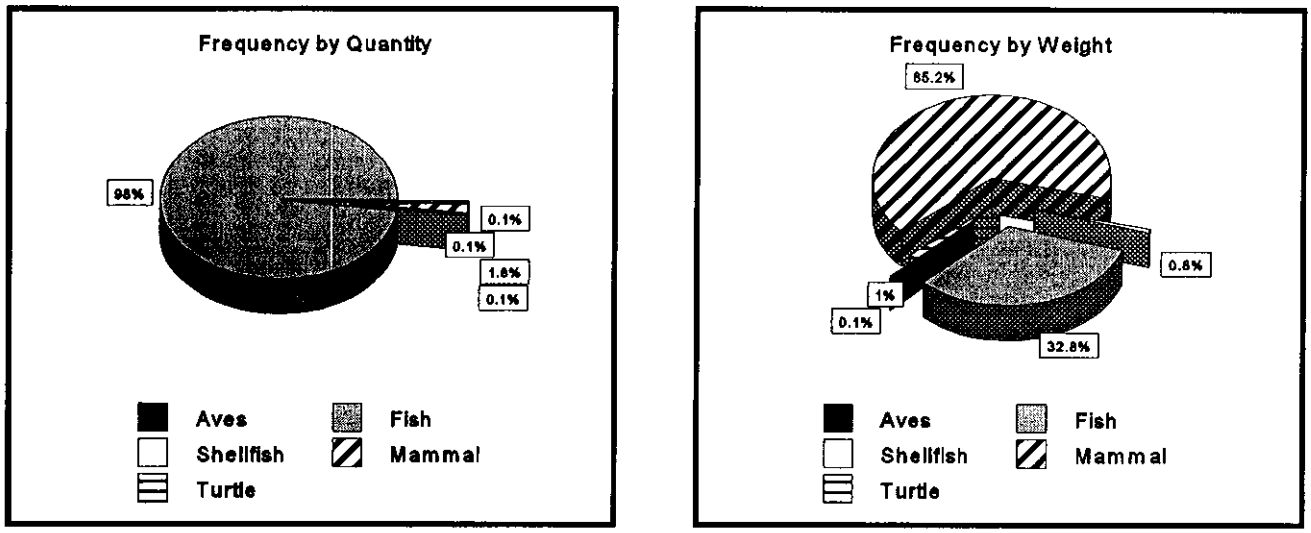


Figure 12: Butchering Remains from Level 2

Within the fish, frequencies are skewed by the presence of large quantities of scale, over 40,000. Among the identified fish taxa, catfish is overwhelmingly dominant (Table 38), providing a similar amount of protein as bison.

Only two large mammal elements are juvenile bone. This minimal presence suggests that this was not a spring occupation site. In addition, the low proportion of bird remains suggests that the occupation did not take place during either the spring or fall migration periods. The elements representing a single turtle were present. Turtle also seems to be a taxon which was harvested when available.

4.2.3.3 Samples

As noted earlier, samples are recovered on a 4, 2, or 1 millimetre screen and contain diverse artifacts, i.e., charcoal fragments, shell fragments, and small fragmented bone elements. Thirty-six samples weighing 580.0 grams were catalogued from Level 2, one from a 4 mm screen (11.7 gms), sixteen from a 2 mm screen (303.4 gms), and nineteen from a 1 mm screen (264.9 gms).

4.2.3.4 Naturally Deposited Fauna

Representations of non-food faunal remains are often incorporated into cultural deposits. These include frogs, small rodents, and aquatic taxa, such as freshwater snails and pea clams. One hundred and eighty-seven specimens were curated (Table 40).

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Amphibia	21	11.2	1.6	16.5
TOTAL AMPHIBIAN	21	11.2	1.6	16.5
Freshwater Snails (Gastropod)				
Ramshorn Snails (Planorbidae)	72	38.5	2.1	21.6
Pond Snails (Lymnaeidae)	53	28.3	1.8	18.6
TOTAL GASTROPODS	125	66.8	3.9	40.2
Freshwater Clam (Eulamellibranchia)				
Pea Clams (Sphaeriidae)	28	15.0	2.1	21.6
TOTAL CLAM	28	15.0	2.1	21.6
Mammal				
Small Rodent (Rodentia)	9	4.8	1.0	10.3
Northern Pocket Gopher (*Thomomys*)	4	2.1	1.1	11.3
TOTAL MAMMAL	13	7.0	2.1	21.6
TOTAL	187	100.0	9.7	99.9

Table 40: Natural Faunal Remains from Level 2

4.2.4 Floral Remains

The 942 floral recoveries encompass charcoal, seeds, nuts, wood, and a leaf (Table 41). The majority, if not all, of the charcoal would derive from locally available trees. These would include oak, maple, willow, poplar, and birch. Many of the charcoal specimens are large enough for species determination at a macro-analysis level.

TYPE	QTY	WT	COMMENTS
Charcoal	802	13.7	minute to moderate size
Seed			
Undetermined	1	0.1	very small
Lithospermum	52	2.2	puccoon
Nut	36	0.8	hazelnut
Wood	50	0.7	-
Leaf	1	0.1	-
TOTAL	942	17.6	

Table 41: Floral Recoveries from Level 2

Fifty-two seeds are definitely puccoon (*Lithospermum* sp.) (Montgomery 1977:59). Densmore (1974:371) notes that the root was used for the manufacture of a red dye. While puccoon tends to be a common plant throughout the prairies, it is possible that the specimens found at this occupation site were brought in as Densmore notes that "whenever a woman sees a plant that she may at some time need in making dye she gathers it, drys it, and stores it for use" (Densmore 1974:369). If the entire plant was harvested during the late flowering stage, the seeds would continue to form while the plant was being dried. DlLg-69/3930 is a very small, ovoid seed which has not been identified.

The nuts are identified as hazelnut. Two species, *Corylus americana* and *Corylus cornuta*, would have occurred along the Red and Assiniboine Rivers (Looman and Best 1979:301).

Fifty small fragments of wood, somewhat weathered, were recovered throughout the level. They generally appear to be small portions of twigs rather than chips from larger branches. Cursory examination indicates that they derive from deciduous trees within the gallery forest. DlLg-69/3723 is a small fragment of a leaf which is badly fragmented.

4.2.5 Soil Samples

Two soil samples were collected. DlLg-69/3557, weighing 4.2 grams, consists of four nodules of clay from Unit C4. These specimens have the imprint of organic material which may be identifiable by a trained botanist. DlLg-69/3428, from Unit B2, is a sample of clay with a heavy degree of ochre staining. The ochre fragments are not large and appear to be the result of an amount of pulverized ochre being dropped onto the soil. This sample weighs 21.3 grams.

4.3 Level 1 & 2

In Unit S1, in the south-central portion of the dugout excavation (Figure 2), the intervening layer of riverine silt is absent and Level 1 lies directly on top of Level 2. There are insufficient differing details of faunal utilization strategies, lithic resource utilization, and/or ceramic manufacture to distinguish between the discrete horizons. Accordingly, the recoveries from this unit are treated separately. Although, on the faunal density maps (Figure 6 and Figure 11), half of the recoveries from this unit were assigned to each of the levels.

A total of 759 artifacts were recovered from this unit. These consist of 29 lithic artifacts, one ceramic sherd, 674 faunal remains, and 55 floral remains.

4.3.1. Lithic Artifacts

The 29 lithic artifacts consist of detritus (9 = 31.0%) and fire-cracked rock (20 = 69.0%).

4.3.1.1 Detritus

Within the 9 flakes, three lithic material types are represented (Table 42). The predominant one is Knife River Flint with the next most frequent material being undifferentiated chert.

MATERIAL	GROUP	QUANTITY	FREQUENCY	WEIGHT	FREQUENCY
Chert	IV	3	33.3	4.1	89.1
Knife River Flint	II	5	55.5	0.4	8.7
Selkirk Chert	V	1	11.1	0.1	2.2
TOTAL		9	99.9	4.6	100.0

Table 42: Flake Recoveries from Level 1 & 2 by Material Type

While the most frequent group, by quantity, is Knife River Flint (Group II), the flakes are quite small and represent only 2.2% of the total weight. The more readily available chert dominates the assemblage by weight. This is indicative of the ease of obtaining this material, while the small flakes of Knife River Flint indicate that this preferred material was used so that minimal wastage occurred.

4.3.1.2 Fire-cracked Rock

DlLg-69/4229 is twenty granite fragments of fire-cracked rock. The weight is 682.3 grams.

4.3.2 Ceramics

A single body sherd (DlLg-69/4225) was recovered. It has evidence of smoothed textile impressions.

4.3.3 Faunal Remains

The 674 faunal recoveries encompass butchering remains and samples. The total weight is 385.1 grams. No representations of non-food faunal remains were recovered.

4.3.3.1 Butchering Remains

A total of 671 artifacts, with a combined weight of 304.7 grams, was recovered from Level 1 & 2. The identified taxa are listed in the following tables—non-mammal classes (Table 43) and mammal (Table 44).

Only the bison femur, DlLg-69/4214, shows cut marks. One small mammal fragment, an unidentifiable bone (DlLg-69/4215), is charred. Carnivore chewing occurs on the beaver innominate, DlLg-69/4210. This element is also root etched.

The frequency of the butchering remains are illustrated by both quantity and weight (Figure 13). In the quantity graph, fish remains are dominant but the proportions are reversed when weight is considered.

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Aves				
Medium/Large Aves	25	3.7	4.3	1.4
TOTAL AVES	25	3.7	4.3	1.4
Undifferentiated Fish	522	77.8	28.1	9.2
Catfish (*Ictalurus* sp.)	56	8.3	47.3	15.5
Drum (*Aplodinotus grunniens*)	1	0.1	0.5	0.2
Perch Family (Percidae)	3	0.4	1.0	0.3
Pike (*Esox lucius*)	1	0.1	0.7	0.2
Sturgeon (*Acipenser fulvescens*)	1	0.1	0.4	0.1
Sucker family (Catostomidae)	26	3.9	6.1	2.0
TOTAL FISH	610	90.9	84.1	27.6

Table 43: Aves and Fish Remains from Level 1 & 2

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Mammal				
Large Mammal	24	3.6	40.0	13.1
Medium/Large Mammal	1	0.1	0.3	0.1
Deer/Cow Family (Artiodactyla)	-	-	-	-
Cow Family (Bovidae)	-	-	-	-
Bison (*Bison bison*)	1	0.1	102.5	33.6
Rodent Family (Rodentia)	-	-	-	-
Beaver (*Castor canadensis*)	10	1.5	73.5	24.1
TOTAL	36	5.4	216.3	71.0

Table 44: Mammal Remains from Level 1 & 2

The proportions, by taxa, are very similar to those which were observed in Level 2 suggesting that the majority of the faunal remains in this collapsed horizon derived from Level 2. Particularly noteworthy is the frequency of catfish, 15.5%, compared with 14.7% in Level 2. This is in contrast to the 51.2% in Level 1. Also in Level 1, mammal bone accounted for only 23.7% of the weight while in Level 2 and this combined level, they are similar (65.2% and 71.0% respectively).

As is the case with small assemblages, single elements such as the bison femur have an overwhelming influence on the taxa frequencies. No new taxa were recorded in this combined level although sturgeon had only previously been recorded in Level 1. The percentage of avian elements was the highest recorded. Although, given the small size of the faunal assemblage, part of the skeleton of a single bird would have a strong influence upon the frequencies.

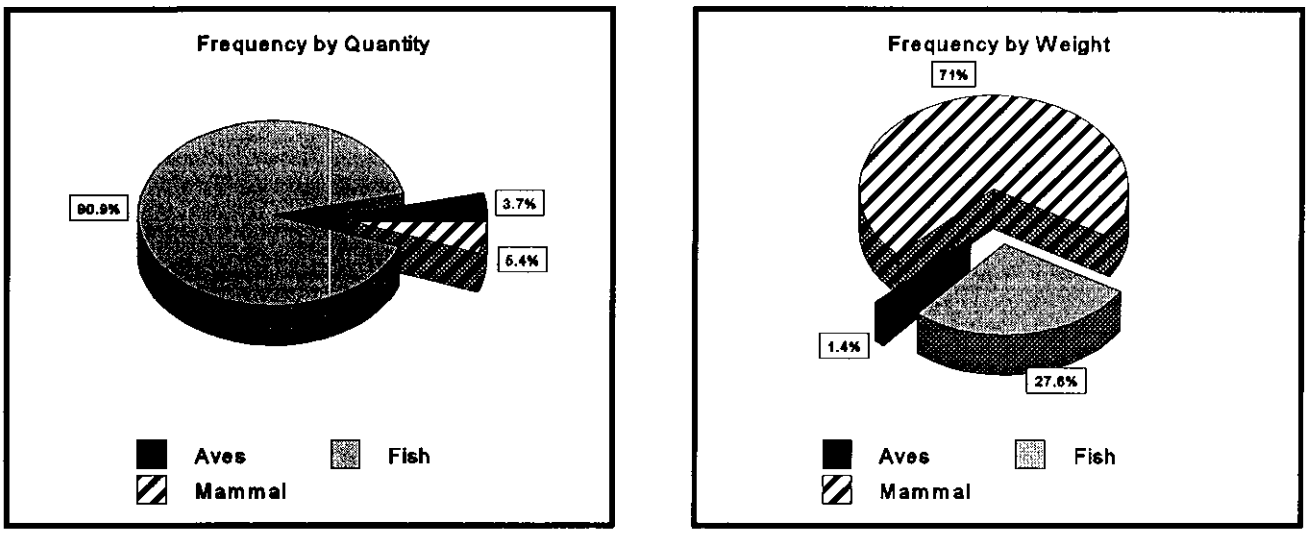


Figure 13: Butchering Remains from Level 1 & 2

4.3.3.2 Samples

Three samples, deriving from a 4, 2, and 1 millimetre screen, were recovered. These contain diverse artifacts such as charcoal fragments, shell fragments, and small fragmented bone elements. The weights are 21.2 grams (4 mm screen), 28.9 grams (2 mm screen), and 30.3 grams (1 mm screen).

4.3.4 Floral Remains

The only floral recoveries were 55 fragments of charcoal weighing 1.9 grams. Some of the fragments are large enough for species determination at a macro-analysis level. Cursory examination of random specimens indicate that the charcoal derives from deciduous trees rather than coniferous.

4.4 Miscellaneous Recovery Locations

During the initial construction phases, the augering of pile seating holes was monitored, as was the excavations of piles for pouring of pile caps. Cultural material was recovered from eleven different locations (Figure 1). A total of 6619 artifacts were recovered. The material from each of the locations is described separately, as any assignment to a specific cultural level would be tenuous.

4.4.1 Hole 19

The augering of Hole 19 for pile seating produced evidence of a cultural level at 198 cm below surface. The auger hole (Figure 1) is located at the southern edge of the superstructure directly south of the centre of the south dugout. The recovered material consists of one unidentifiable fish element, two catfish (*Ictalurus*) parasphenoids, and sixty fragmented elements deriving from large mammal. The total weight is 24.9 grams. No culturally diagnostic artifacts were recovered.

4.4.2 Hole 23

The augering of Hole 23 for pile seating produced evidence of a cultural level at 215 cm below surface. This auger hole is 3 metres north of Hole 19 (Figure 1), directly south of the centre of the south dugout. The recovered material consists of one rib fragment, weighing 8.8 grams, from a large mammal and two fragments of tibia, weighing 62.4 grams, from a bison (*Bison bison*). No culturally diagnostic artifacts were recovered.

4.4.3 Hole 28

The augering of Hole 28 for pile seating produced evidence of a cultural level at 205 cm below surface. This auger hole is 6.5 metres north of Hole 23 (Figure 1), directly south of the centre of the south dugout. Excavations around the cluster of three piles for truncating and pouring of pile caps yielded further evidence of cultural material. The recoveries include one minuscule chalcedony flake (0.1 gms), nineteen charcoal fragments (0.3 gms), and three small wood fragments (0.1 gms). The recovered faunal material consists of 21 fish elements (0.6 gms) and 12 severely fragmented mammalian bone (2.3 gms). One piece is calcined. No culturally diagnostic artifacts were recovered.

4.4.4 Hole 30

The augering of Hole 30 for pile seating produced slight evidence of a cultural level at 230 cm below surface. This auger hole is 8 metres north of Hole 28 (Figure 1) or 6 metres south of the south wall of the south dugout. Excavations around the two piles for truncating and pouring of pile caps were too shallow to produce impact upon the cultural horizon. The only artifact curated, recovered on the auger bit, is a broken rib from a medium/large mammal. It weighs 10.6 grams.

4.4.5 Hole 42

The augering of Hole 42 for pile seating produced slight evidence of a cultural level at 180 cm below surface. This auger hole is located 6 metres north of the south edge of the superstructure (Figure 1) directly in line with the west wall of the south dugout. Recoveries, during the augering, were solely faunal remains consisting of two unidentifiable fish elements (0.3 grams) and 15 mammal bone (95.7 grams). Most of the mammal bone are undiagnostic elements, i.e., vertebra or long bone, from large or medium/large mammals. The only identifiable element is a portion of a bison femur (70.1 gms).

The backhoe excavation around the piles in Holes 41 and 42 produced further evidence of this cultural horizon. The cultural layer occurred on the west side of the excavations and had a downward trending slope towards the north. The horizon began at 170 cm DBS at the south end of the excavation and thinned out considerably towards the north with the last evidence at 185 cm DBS at the north end, by Hole 41. The recoveries consist of two small charcoal fragments (0.1 gms) and 17 large to medium/large mammal elements (32.1 gms), none of which could be identified to species.

4.4.6 Hole 51

The augering of the triad of Holes 50, 51, and 52 for pile seating produced slight evidence of a cultural level at 170 cm below surface. Hole 51 is at the southwest edge of the superstructure (Figure 1). During the augering, traces of charcoal were observed on the auger bit for Holes 50 and 52 while five fish bone were recovered from Hole 51. These consist of three catfish bones (11.9 gms) and two unidentifiable fish elements (0.2 gms). During the backhoe excavating around the triad of piles, the horizon was found to be isolated pockets of charcoal resting on an intermittent clay layer. No further artifacts were recovered during the backhoe excavations suggesting that this location was either on the periphery of a site or that the fish bone recovered during the augering was a result of secondary deposition during a flood episode.

4.4.7 Hole 147

The augering of Hole 147 for pile seating resulted in the excavation of a thin cultural layer by the auger bit. This was from a depth of 229 cm below surface. Hole 147 is 7 metres west of the eastern edge of the superstructure (Figure 1), directly west of home plate. Seven very small pieces of charcoal (0.1 gms) were collected as well as six undiagnostic fish bones (0.4 gms) and ten extremely fragmented mammal bones (1.4 gms). No culturally diagnostic artifacts were recovered.

4.4.8 Hole 269

The augering of Hole 269 for pile seating resulted in the excavation of a cultural layer marked by large quantities of fish scale (Table 45). This was from a depth of 190 cm below surface. Hole 269 is 19 metres northwest of the eastern edge of the superstructure (Figure 1), northwest of home plate.

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Mammal				
Medium Mammal	1	<0.1	0.3	1.4
TOTAL MAMMAL	1	<0.1	0.3	1.4
Undifferentiated Fish	5953	99.9	21.2	97.2
Catfish (*Ictalurus* sp.)	1	<0.1	0.1	0.5
Drum (*Aplodinotus grunniens*)	2	<0.1	0.1	0.5
TOTAL FISH	5956	99.9	21.4	98.2
Freshwater clam (Unionidae)	1	<0.1	0.1	0.5
TOTAL SHELLFISH	1	<0.1	0.1	0.5

Table 45: Butchering Remains from Hole 269

In addition to the 5958 butchering remains, there is one naturally deposited freshwater snail (Planorbidae) and one sample composed of minute fragments of bone, scale, and shell. Sixteen small charcoal fragments (0.6 gms) were also recovered. No culturally diagnostic artifacts were recovered.

4.4.9 Hole 271

The augering of Hole 271 for pile seating resulted in the recovery of cultural material from the same layer as Hole 269 which is 2 metres to the southeast (Figure 1). Hole 271 also had a depth of 190 cm below surface. The faunal material consisted of 409 butchering remains (Table 46). In addition, two small charcoal fragments (0.1 gms) were recovered.

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Mammal Undifferentiated Mammal	1	0.2	0.1	3.4
TOTAL MAMMAL	1	0.2	0.1	3.4
Undifferentiated Fish	400	97.8	1.5	51.8
TOTAL FISH	400	97.8	1.5	51.8
Freshwater Clam (Unionidae) Fat Mucket (*Lampsilis radiata*)	7 1	1.7 0.2	0.9 0.4	31.0 13.8
TOTAL SHELLFISH	8	2.0	1.3	44.8

Table 46: Butchering Remains from Hole 271

As in Hole 269, the proportions of the fish are strongly skewed by the presence of large quantities of scale. For Hole 269, the scales, catalogued separately, represent 97% of the fish recoveries. Further quantities of scale were present in the sample. A similar proportion occurred in Hole 271 suggesting that this area was a fish processing location which may be affiliated with either of the two cultural levels recovered from the south dugout or a separate occupation from a different time period.

4.4.10 Line 4

The backhoe excavations for the battered pile at Line 4 (Figure 1), 9 metres west of the west wall of the south dugout, encountered a cultural layer containing faunal material at a depth of 127 cm below surface. The recovered 38 artifacts are all fish bone, nine of which could be identified to catfish (*Ictalurus*). The total weight of the recoveries is 10.5 grams.

4.4.11 Line 7

The backhoe excavations for the battered pile at Line 7 (Figure 1), at the eastern edge of the superstructure west of home plate, encountered a thin, intermittent cultural horizon at a depth of 153 cm below surface. The cultural deposits were present only in the east wall of the excavation and extended horizontally for a distance of 28 cm. The recovered material consists of one ceramic body sherd with a smoothed textile impressed surface (1.4 gms) and one minuscule charcoal fragment (0.1 gms). The faunal recoveries consist of one fish scale (0.1 gms) and four small charred unidentifiable mammal bone fragments (0.2 gms).

4.5 Watermain Installations

As noted in Section 1.3, the installation of watermains along the north side of Water Avenue resulted in excavation of vertical shafts which impacted cultural resources. The locations of the shafts from which cultural material was recovered are depicted on Figure 1.

A total of 523 artifacts were recovered from four vertical shafts. The artifacts from each vertical shaft are described separately as, without intervening data, it is unclear that the observed horizons would represent the same cultural occupation across a distance of 130 metres.

4.5.1 Watermain - 125E

The cultural level at this location was extremely sparse with a minimal charcoal stain. Only two artifacts were recovered from this level at 110 cm below surface. DlLg-69/1892 is a single valve from a black sand-shell (*Ligumia recta*). It weighs 11.5 grams.

DlLg-69/1891 is a portion of a bone spatula carved from the rib of a large mammal. It measures 116.0 mm in length, 23.5 mm in width, 8.3 mm in thickness and weighs 16.9 grams. The distal end shows considerable wear and rounding. There is moderate wear polish remaining on the ventral face of the shaft, even though the artifact displays considerable evidence of weathering. Spatulas are described as linear bone tools which have a rectangular outline and a rounded end to facilitate use as a marrow extractor, where the utensil was inserted into the central cavity of long bones to scoop out the marrow. These tools could have been used in more than one function. Orchard (1946:80) and Lehmer *et al.* (1978:280) suggest that they were used for softening hides. Alternative functions could be as pottery smoothing or shaping implements or as handles for hafting bifaces or scrapers.

4.5.2 Watermain - 135E and 150E

These vertical shafts encountered traces of a relict horizon at the appropriate depth for the cultural level, however no artifacts were present. At 135E the relict horizon, marked by faint charcoal staining, occurred at 182 cm below surface. No equivalent staining was observed on the similar silty clay soil horizon at 150E, which occurred at a depth of 191 cm below surface.

4.5.3 Watermain - 180E

The vertical shaft at 180E encountered a well defined cultural horizon at 203 cm below surface and a diffuse, charcoal stained, relict soil horizon at 213 cm below surface. The lower horizon contained minute charcoal fragments and decomposed fish bone. A total of 155 artifacts were recovered from the upper horizon which may be equivalent to Level 1 in the dugout area. These include five lithic artifacts, three ceramic sherds, and 147 faunal specimens.

The lithic material consists of two flakes—one quartzite and one Selkirk Chert, both weighing 0.1 grams—and three limestone fire-cracked rock weighing 221.3 grams.

The ceramic recoveries consist of one textile-impressed body sherd (DlLg-69/1827) and two rim sherds (DlLg-69/1826) which fit together. The surface of the lip,neck portion of the rim sherd is smooth with two shallow, oblique, trailed lines and a shallow, circular punctate. This would be part of the *Tail of the Thunderbird* motif found on Red River ware (Quaternary 1999b:120-121).

The majority of the fauna is butchering remains (Table 47). One naturally deposited amphibian vertebra (0.1 gms) was also recovered. In addition, a sample (4.6 gms), recovered from a 2 mm screen and consisting primarily of fragmented bone and scale, was curated.

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Mammal				
Undifferentiated Mammal	8	5.5	0.8	0.8
Large Mammal	21	14.5	58.6	57.9
Medium Mammal	1	0.7	1.6	1.6
Rodent Family (Rodentia)	-	-	-	-
Beaver (*Castor canadensis*)	1	0.7	9.1	9.0
TOTAL MAMMAL	31	21.4	70.1	69.3
Undifferentiated Fish	95	65.5	7.7	7.6
Catfish (*Ictalurus* sp.)	18	12.4	23.3	23.0
Walleye/Sauger (*Stizostedion* sp.)	1	0.7	0.1	0.1
TOTAL FISH	114	78.6	31.1	30.7

Table 47: Butchering Remains from Watermain - 180E

Only three taxa could be identified, two fish species and beaver. The large mammal bone could have derived from moose or, more likely, bison as was the case with the cultural levels from the dugout area and the cultural levels from The Forks Access Project (Quaternary 1999b).

4.5.4 Watermain - 240E

This vertical shaft is twelve metres west of the intersection of Pioneer Boulevard and Water Avenue. Two intervening vertical shafts between this hole and Watermain - 180E were excavated but both encountered recent fill to the base. This shaft was 12 feet long and the standard 2 feet wide. Evidence of a definite hearth was found in the south wall. The cultural level appeared intermittent and sparse at the east wall.

One hundred and sixty-two artifacts, including lithic, ceramic, and faunal specimens, were recovered. The lithics include one granite fire-cracked rock weighing 159.8 gms, three flakes, and a broken projectile point. The flakes consist of one chalcedony (0.1 gms) and two chert (1.3 gms) artifacts. DlLg-69/1797 is the distal portion of a projectile point. The lower portion of the blade and the entire base are missing. The tip appears to have been broken by impact shatter. It is made from Swan River Chert. The dimensions are: 18.0 mm long, 13.7 mm wide, 3.5 mm thick with a weight of 0.8 grams.

Thirty-two ceramic sherds, both body and rim portions, were curated. The body sherds include two different surface finishes: textile impressed (6 sherds) and obliterated textile impressed (19 sherds).

Rim sherds from three different ceramic vessels are present. DlLg-69/1789 is a single neck sherd from a vessel with an obliterated textile impressed surface and decorated with semi-lunate punctates. These punctates are vertically oriented and measure 9 mm in height and 3.5 mm in width. This style of punctate is most generally associated with Bird Lake ware.

DlLg-69/1790 is two neck,shoulder sherds which fit together. The surface finish is obliterated textile impressed and no decorative pattern occurs on the exterior surface. The interior surface is markedly stained with a bright red ochre wash.

DlLg-69/1792 consists of four neck sherds with portions of the *Tail of the Thunderbird* design. The elements present consist of shallow, oblique trailed lines and shallow, oval punctates. As noted earlier, this decoration is indicative of Red River ware. The sherds are heavily encrusted with carbon deposits on the exterior surface.

One hundred and twenty-five faunal remains were catalogued. Of these, one was a sample which consisted primarily of charcoal and bone and was obtained from a 2 mm screen. The remaining 124 specimens are all butchering remains (Table 48).

A more generalized faunal pattern was obtained from this location than the other Watermain excavations suggesting that this was a more central portion of the occupation site. No species could be ascertained for the mammal or bird remains but three different fish species and two freshwater clam species were identified. As is usually the case, the quantities of recoveries are dominated by fish, while when weight is considered, mammal bone, being denser and larger, provides the largest proportion.

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Mammal				
Undifferentiated Mammal	3	2.4	0.8	0.5
Large Mammal	10	8.1	97.4	62.8
Medium Mammal	1	0.8	1.5	1.0
TOTAL MAMMAL	14	11.3	99.7	64.3
Aves				
Medium Aves	1	0.8	1.6	1.0
TOTAL AVES	1	0.8	1.6	1.0
Undifferentiated Fish	75	60.5	9.3	6.0
Catfish (*Ictalurus* sp.)	12	9.7	12.7	8.2
Drum (*Aplodinotus grunniens*)	1	0.8	0.5	0.3
Sturgeon (*Acipenser fulvescens*)	1	0.8	0.3	0.2
TOTAL FISH	89	71.8	22.8	14.7
Freshwater Clam (Unionidae)	17	13.7	18.9	12.2
Black Sand-shell (*Ligumia recta*)	2	1.6	10.1	6.5
Pink Heel-splitter (*Proptera alata*)	1	0.8	2.0	1.3
TOTAL SHELLFISH	20	16.1	31.0	20.0

Table 48: Butchering Remains from Watermain - 240E

4.5.5 Watermain - Intersection

A vertical shaft was excavated in the centre of Pioneer Boulevard on the north edge of Water Avenue. Cultural material was observed at a depth of 262 cm below surface which corresponds with the depth of Horizon B at the south side of Water Avenue (Quaternary 1999b:8, 10, 103). Only ceramic and faunal material was recovered.

DlLg-69/1856 is a neck sherd with a textile impressed surface and semi-lunate, vertically-oriented punctates. These punctates are smaller than those observed on the rim sherd from Watermain - 240E (DlLg-69/1789), measuring 7 mm high and 2.5 mm wide. The style, however, is the same and would indicate that this vessel is Bird Lake ware. DlLg-69/1857 and 1858 are three textile impressed and nine obliterated textile impressed body sherds respectively.

One hundred and ninety one faunal specimens were catalogued. Of these, one is a sample from a 2 mm screen, weighing 4.1 grams. The remaining 190 are all butchering remains (Table 49). Probably all the large mammal remains derive from bison which was identified by the presence of a scapula.

The fish remains derive from catfish and walleye. Other fish taxa may be present but could not be identified within the undifferentiated fish remains due to the fragmented or non-diagnostic nature of the recoveries.

TAXON	QTY	FREQUENCY	WT	FREQUENCY
Mammal				
Large Mammal	4	2.1	13.6	4.1
Bison *(Bison bison)*	2	1.1	299.8	90.4
TOTAL MAMMAL	6	3.2	313.4	94.5
Undifferentiated Fish	175	92.1	8.6	2.6
Catfish (*Ictalurus* sp.)	8	4.2	9.4	2.8
Walleye/Sauger (*Stizostedion* sp.)	1	0.5	0.1	<0.1
TOTAL FISH	184	96.8	18.1	5.5

Table 49: Butchering Remains from Watermain - Intersection

5.0 DISCUSSION

This section will detail historical and archaeological data concerning the past activities at this location. The following information recapitulates the data that was published in the previous report (Quaternary 1996:104-118). The data was compiled for the previous project—the Spirit of Manitoba Arena—and bears reiterating as this is a different project for new clients. The archival data for the location are sparse until the latter part of the 19th century. Archaeological data tends to be site specific, although generalized statements about cultural activities can be derived by comparison of information obtained from nearby archaeological sites. The knowledge, compiled as of 1996, will be augmented by the information recovered from the archaeological monitoring and mitigation activities undertaken under the aegis of the CanWest Global Park project.

5.1 Archival Data

This section summarizes information found during a literature search of published documents which mention the area. Maps from the Provincial Archives of Manitoba were consulted, as were the Henderson Directories at the Winnipeg Public Library. These were able to provide direct data. Many published documents refer to the Portage East area peripherally as their primary focus is The Forks.

5.1.1 Current Land Use

Immediately prior to the implementation of the impact assessment for the arena project in 1995, three types of land use occurred in the area. The southern portion of the area, between Pioneer Avenue and Thistle Lane, was a surface parking area. The northeastern portion of the area, east of the Hydro compound, was unoccupied and was unused save for a Hydro transmission line corridor. During 1997 and 1998, land drainage sewer installations including a control unit were installed preparatory to the extension of Pioneer Boulevard from Water Avenue to Lombard Avenue. These construction activities were archaeologically monitored and the project data was published (Quaternary 1999a).

The northwestern portion of the area was occupied by Winnipeg Hydro. Their fenced compound contained two large brick buildings and several smaller temporary structures. The main Hydro building was initially constructed in 1905 and had undergone several modifications over ninety years, including the construction and subsequent removal of a large smokestack, a concrete transformer pad, and different extensions of the main building. The second building (the Hydro Annex) appears to have retained its original configuration. These structures were demolished in 1995.

5.1.2 Former Land Use

5.1.2.1 Pre-Contact Period (4000 B.C. - A.D. 1737)

Extensive evidence of Aboriginal occupation at The Forks area has been documented through numerous projects (Kroker 1989; Adams *et al.* 1990; Kroker and Goundry 1990, 1993; Quaternary

1988, 1989, 1990a, 1990b, 1990c, 1999b). The preponderance of Pre-Contact sites appear to be immediately adjacent to the north bank of the Assiniboine River or inland of the west bank of the Red River. Heritage resource impact assessments conducted south of Water Avenue observed that the number and density of archaeological horizons diminished toward the east, as the Red River was approached (Quaternary 1989). Archaeological locations have been recorded on the periphery of the Portage East location:

- a localized Late Woodland occupation at the cross-road between Pioneer and Water Avenues at the intersection of Pioneer Boulevard (Quaternary 1988);
- an extensive Late Woodland occupation along the south side of Water Avenue, due south of the ballpark location (Quaternary 1990a, 1990b, 1990c);
- numerous cultural horizons in the vicinity of Pioneer Boulevard between York Avenue intersection and Water Avenue intersection (Quaternary 1999b); and,
- most importantly, within the project footprint itself in the vicinity of the south dugout (Quaternary 1996).

Archaeological horizons were encountered during the construction phase of the ballpark and mitigative recovery was undertaken. The interpretation of these recoveries, in context of the wider Pre-Contact utilization strategies at The Forks, will be discussed in Section 5.3.

5.1.2.2 Fur Trade Period (A.D. 1737-1860)

A compilation of the available historic literature about The Forks was reviewed (FRC 1988; Guinn 1980a). For many of the earlier events that occurred in the vicinity of The Forks, there is a dearth of specific information which would permit exact placement of the event. Some of these early events may have occurred near the Portage East location. Others, dating into the middle and late Fur Trade era, are indicated upon maps of that era as occurring at a distance from the location. A brief summary of known and suspected events that occurred in the vicinity is detailed below.

The first European to visit the Winnipeg region was Pierre Gaultier de Varennes de la Vérendrye. Arriving in 1737 at the invitation of the Assiniboine Nation, he reported two villages of Assiniboine at The Forks and, in 1738, he noted that ten cabins of Cree were at the site (FRC 1988:41). The exact locations are not known and may be anywhere within the general vicinity of The Forks. In 1738, Fort Rouge was established by M. de Louviere, a compatriot of La Vérendrye (Guinn 1980a:33). No descriptions of the fort, which was abandoned in 1749, occur in the literature. In addition, even the location of the structure is disputed: Bell (1927) suggests that it was located on the north side of the Assiniboine River while Guinn (1980b:6-11) vigorously argues that it had been built on South Point.

Winter camps were established at The Forks by St. Pierre (1752) and Bruce and Boyer (1781) (FRC 1988:41). In 1793, McKay recorded a camp of Nor'Westers on the south side of the Assiniboine (Guinn 1980a:37), while McDonnell noted two Indian lodges at The Forks (FRC 1988:41). Other Native encampments, at The Forks, included Ojibwa and Ottawa prior to 1800 (Tanner 1956) and Saulteaux in 1800 (Tanner 1956; Coues 1965). Between 1800 and 1808, Alexander Henry of the

Hudson's Bay Company passed The Forks twenty times, frequently meeting with groups of Nor'Westers (Coues 1965). In 1803, Louis Dorion wintered at The Forks (Guinn 1980b:11). Again, the locations of these events remain unknown.

The Portage East location appears to have been peripheral to the fur trade occupations and activities which tended to focus on the junction of the Red and Assiniboine Rivers to the south as well as Point Douglas to the north. La Vérendrye's Fort Rouge (1738-1749), the Northwest Company's Fort Gibraltar I and Fort Gibraltar II (1810-1816, 1817-1821), and the Hudson's Bay Company Fort Garry I and Upper Fort Garry (1821-1830s, 1835-1885) were all situated adjacent to the junction (Guinn 1980a; Kroker *et al.* 1992). Initially, in 1813, the Hudson's Bay Company built their first post on the east side of the Red River (Coutts 1988:82). Later, in conjunction with the Selkirk Settlers, the company established Fort Douglas (1813-1815, 1816-1820s) (Coutts 1988:82-85). Movement between these establishments would have passed through the Portage East site.

There is minimal documentation of a possible Hudson's Bay Company fort/trading post near the corner of McDermot and Westbrook. This post was supposedly built by Peter Fidler in 1817 (Bell 1927). The construction would have occurred at the same time as reconstruction was occurring at Fort Douglas and while Fidler was surveying river lots for the Selkirk Settlers. Bell's evidence consists of an interview (in 1887) with Donald Murray, who had arrived in the Red River Colony at the age of 14 in 1815. Murray's recollection was that

> *This fort was built by Peter Fidler about 1817-18, but he went to Brandon House in the latter year, and it was first occupied by one James Sutherland, who finished it in 1819. As nearly as I can now locate its position, it was situated between what is at present McDermot Ave. and Notre Dame St. East, but perhaps nearer Notre Dame than the other. It was near the rise in the ground, and a few hundred yards from the Red River. It was about square, the principal entrance facing exactly to the point between the two rivers. ... I do not recall that it had any particular name other than 'the Company's Fort'. It was quite distinct from the later Fort Garry, and stood at the same time as Forts Douglas and Gibraltar. I forget just when it disappeared, but it probably stood until the flood of 1826, and was then swept away, like the remains of Fort Douglas* (Bell 1927:29-30).

No mention of this post or its construction occurs in Fidler's journal (MacGregor 1966) nor does there appear to be any reference to the administration or supply of this post in the Hudson's Bay Company records. A second reference to this possible post occurs in an 1818 letter by the newly arrived Father J. N. Provencher who describes the location of his new chapel as "situated across [the Red River] from the Forts of the North West Company and the Hudson's Bay Company, which are eight or ten arpents apart and just about fifteen arpents from Fort Douglas." (Coutts 1988:86). A problem arises with this description as an *arpent* is defined as "an old French unit of area equal to about one acre. It is still used in the province of Quebec and parts of Louisiana" (Stein and Urdang 1967:83). However, the verb *arpenter* is translated as 'to pace' (Stein and Urdang 1967:1698) and it may be that *arpent* may have had a local or colloquial use as a linear measurement. If so, Provencher's use of the term for a distance would translate into an *arpent* being approximately 200 to 250 metres.

To date, no additional archival evidence or any archaeological evidence of the presence of this post, called Fidler's Fort by Bell, has been obtained. Fidler's map of the Red River Settlement, compiled in 1817, shows no indication of any posts other than Fort Gibraltar II and Fort Douglas (Warkentin and Ruggles 1970:186). Neither does Arrowsmith's map of 1819 (Warkentin and Ruggles 1970:188), which is an updated version of Fidler's map of two years earlier.

Murray describes this as a major facility with a master's house, eight other buildings, and palisades. It seems surprising that this fort would be built at the same time as the reconstruction of Fort Douglas and that there are no other references to its presence and operation other than Murray's and Provencher's.

5.1.2.3 Immigration and Industrial Period (1860-1900)

During the 1870s through the 1890s, a massive influx of immigrants passed through Winnipeg. During this period, shanty towns sprang up on the west bank of the Red River and in the area immediately north of the Hudson's Bay Company Preserve. Some of the buildings of the northern shanty town could have occurred in the vicinity of the Portage East site. The 1874 Parr map of Winnipeg (Warkentin and Ruggles 1970:382) depicts surveyed lots on the south side of Notre Dame Street East (now Pioneer Avenue), reflecting the fact that, by 1872, some permanent residences had been built. Several businesses were established along the Red River between Matilda Street (now Thistle Lane) and Post Office Street (now Lombard Street). These, noted on the Parr map, included the Macauley 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) was directly at the foot of Post Office Street. The buildings are depicted and identified on a bird's-eye view map of 1880 (Warkentin and Ruggles 1970:386). A denser concentration of buildings in the area is shown on an 1884 bird's-eye view map of the burgeoning city (Warkentin and Ruggles 1970:388). Due to the use of river steamboats to transport materials (emphasized on both bird's-eye view maps), many industries chose to locate adjacent to the Red River, while still remaining close to the centre of Winnipeg. Accordingly, this riverbank location became Winnipeg's first industrial area.

During the 1880s and 1890s, residences and rooming houses were constructed along the north side of Pioneer Avenue. Some small businesses were established along Pioneer, while larger commercial operations, such as stables and feed grain suppliers, were started on Mill Street. In addition, a solitary residential dwelling existed at the site of the future Winnipeg Hydro Annex building (47 Mill Street). This reflected the rapid growth of the city. Annotations at the side of the 1884 map show an extremely rapid increase in population: 1872 - 1000; 1874 - 8000; and 1883 - 30,000 people (Warkentin and Ruggles 1970:389).

A major event occurred with the arrival of the rail lines—the Canadian Pacific, which arrived at the east side of the Red River in 1885, and the Northern Pacific and Manitoba Railroad, which crossed the Assiniboine River in 1888. The arrival of the rail signalled the death knell for the river steamboats and contributed to the demise of the industrial area along the west bank of the Red River.

Many businesses switched to this new mode of transport and spur rail lines were constructed from the switching yard at The Forks throughout downtown Winnipeg. While no firm date for the placement of track along the river is recorded, it would appear that this must have happened shortly after 1890. The riverbank businesses all appear to terminate around 1890 as they are recorded in the earlier City of Winnipeg Henderson Directories but do not appear after 1890. The right-of-way for the Winnipeg Transfer Railway first occurs on a survey plan dated May 1, 1892 (Quaternary 1999a:Figure 6).

This initial spur line is also depicted on the 1905 Fire Insurance Atlas as running parallel to the Red River through the area formerly occupied by the saw mills and other allied industries (Provincial Archives of Manitoba). On the 1905 Fire Atlas, two company names are recorded adjacent to the track—the Winnipeg Transfer Railway and the Northern Pacific and Manitoba Railway. This suggests that a separate corporate entity had been created to undertake intra-city shipments. Also portrayed on this atlas is the footprint of the soon-to-be constructed Winnipeg Hydro facility at the corner of Mill Street and Thistle Lane.

Examination of the Fowler bird's-eye map (Warkentin and Ruggles 1970:386) shows an extensive, flat, low-lying terrace on the west bank of the Red River. The McPhillips map (Quaternary 1999a:Figure 4) shows both upper and lower banks closer together, but the upper bank is still considerably inland from the river's edge. With the construction of the rail line, the engineer responsible for designing it would not have wanted the track to go downhill from the switching at The Forks and then back uphill at Lombard Avenue. Additionally, the potential for disruption of rail traffic by high water episodes would have induced the construction at a higher elevation, equivalent to that within The Forks area. Accordingly, large quantities of fill would have been placed on the low-lying terrace to build the land up to the level of the upper bank. Evidence of the depth of this fill (averaging 5 metres or more) was observed during the drilling of the vertical shafts for the installation of the land drainage system (Quaternary 1999a:76), as well as during the 1995 Hydro pylon caisson drilling (Quaternary 1995b).

5.1.2.4 Urban Period (1900-1970)

This period saw a continuation of the developments in the area. Some larger business, such as J. I. Case, were established at the east end of Notre Dame East (Pioneer) Avenue. The Winnipeg Electric Railway Company Powerhouse was built in 1905. This large brick building (later known as the Winnipeg Hydro Powerhouse) has experienced many modifications in the past ninety years with the addition and demolition of extensions. One of these was a concrete smokestack at the northeast corner of the building. The extent of some of the former dimensions was obtained from city maps and is plotted on Figure 14.

By 1911, the elevated Main Line had been constructed. This feature, as well as the Winnipeg Transfer Railway Line tracks, are depicted on a large-scale, sepia-toned panorama produced by Wiseman in 1911 (Quaternary 1999a:Figure 7). On the full-scale panorama, many of the buildings are identified. It is interesting to note the presence of Crescent Creamery at the end of Lombard

Avenue. The smokestack adjacent to the Winnipeg Hydro facility (erroneously labeled the Winnipeg Electric Ry.) is depicted, along with a massive tower.

By 1918, the area had seen a proliferation of spur lines with a new name—Winnipeg Joint Terminals—located at the main nexus. This switchyard complex is portrayed on the 1918 Fire Insurance Atlas (Provincial Archives of Manitoba). This arrangement of rail track remained relatively constant until 1956.

Steady infill of buildings, primarily rooming houses, occurred along Pioneer. The Avalon Apartment block was constructed in 1902 (Henderson Directories). By 1905, most of the lots on the north side of Notre Dame East were occupied by buildings (Figure 14). These structures remained constant (Fire Insurance Atlases) with the greatest residential density circa 1955. Between 1972 and 1975, the structures along Pioneer were demolished and the entire area, between the CNR Main Line and the intersection with Pioneer Boulevard, became a surface parking lot.

The establishment of these structures would have resulted in impact through the excavation of basements. The larger structures, such as the Avalon Apartments and the Winnipeg Hydro Powerhouse, have the presence of basements recorded on the Winnipeg Fire Insurance Underwriters Atlases (Provincial Archives of Manitoba 1905, 1917, 1955). In addition, many of the smaller rooming houses and residential dwellings probably had basements which, as they were not governed by the commercial fire code, were not recorded on the Fire Atlases.

A warehouse, located alongside the Thistle Lane railroad spur line, is depicted on the 1917 map. This structure appears to have been replaced by a long building, parallel to the track, by the time of the drawing of the 1955 map. It would have been demolished by 1975. The presence of this building would have defined the northern extent of the land use areas of the residences which fronted on Pioneer Avenue.

An additional component of impact would have occurred along both Pioneer Avenue and Mill Street with the installation of sub-surface services (i.e., water mains, land drainage lines, sewer lines, etc.). These services are currently located within the road right-of-ways but extensions to each of the buildings along the street would have caused impact.

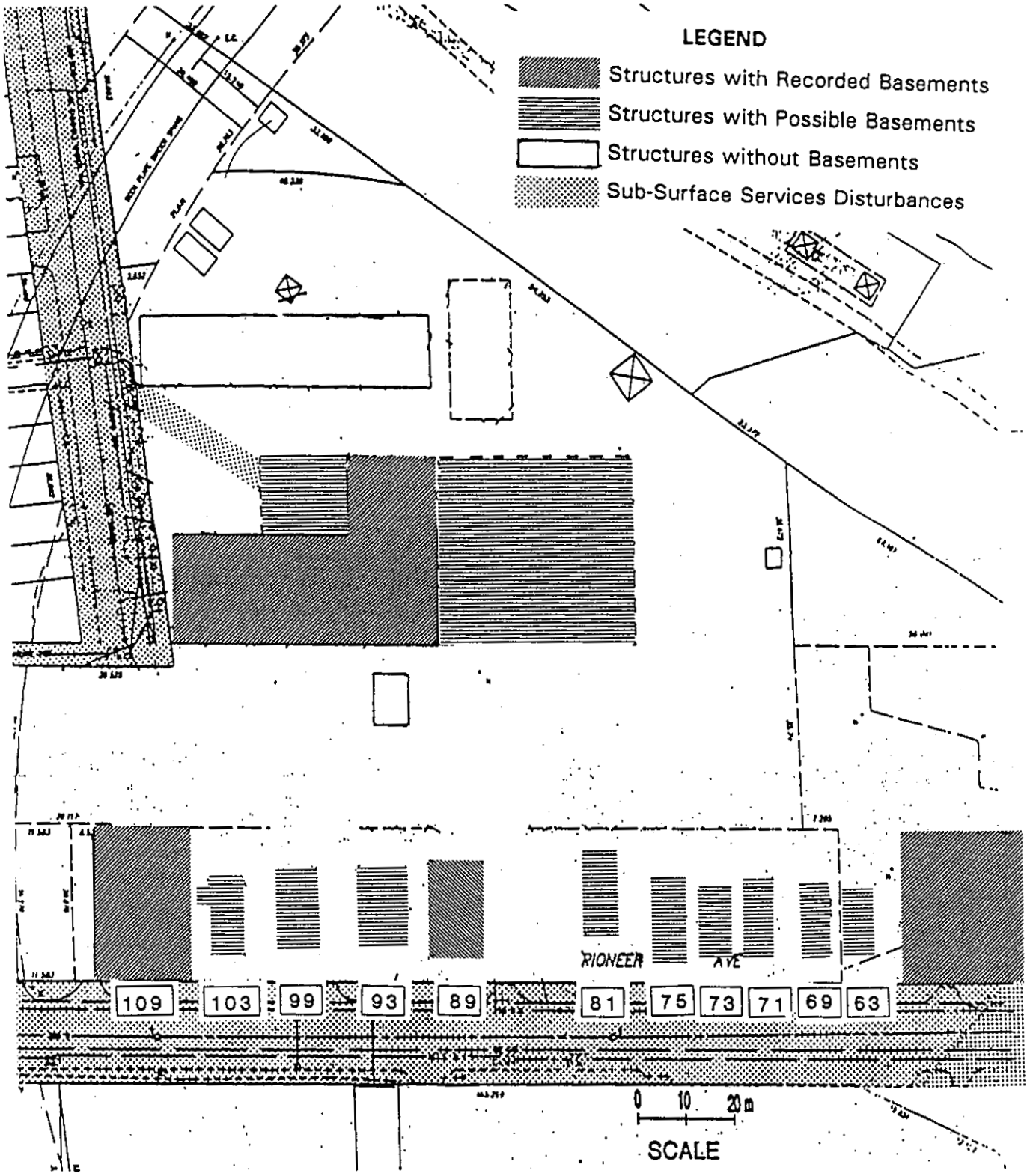


Figure 14: Map of Recorded Structures at the Portage East Site (Quaternary 1996: 109)

5.2 Historic Data from the 1995 Archaeological Assessment

Archaeological data is derived from artifacts, *per se*, from the contextual relationships between artifacts, and from archaeological features. Due to prior land modification activities, much of the contextual information has been lost as artifacts were relocated from their original place of deposition through land levelling, basement infilling, and site grading.

More than 3000 artifacts were recovered from the upper horizon and they were indicative of a mixture of activities (Quaternary 1996). Storage containers (bottles, jars, crocks, etc.) and dinnerware (plates, cups, etc.) dominated the assemblage. The next highest frequency was faunal remains of domestic animals—the residue of meals. The last major grouping of artifacts was architectural objects. The remaining fourteen categories had considerably fewer specimens.

Most of the artifacts represent shelter and subsistence activities. The architectural objects would mainly derive from the buildings in the area and would have become incorporated in the fill horizons when they were demolished. The food remains, storage containers, and broken dinnerware would have been discarded by the residents of the buildings into garbage dumps which probably were between the rear of the residences and the north end of the lots. The faunal remains and dinnerware clustered at two locations within the impact assessment area. As animal bone residue from meal production is usually discarded into a midden or garbage disposal area, these clusters suggest that two discrete garbage dumps were maintained in the area of investigation. The disposal of empty storage containers, especially beverage bottles, does not follow the same pattern displayed by disposal of food remains or fragmented dinnerware. People tend to discard a beverage bottle when it is empty, regardless of where they are (check any curb, park, or public area for confirmation).

Many artifacts, particularly bottles and ceramic dinnerware, provide time ranges for their manufacture. These derived dates can provide information relating to the period of deposition at an historic archaeological site. As some artifacts (nails, railroad spikes) have a similar form for several decades, it is impossible to ascertain when they were manufactured. However, other specimens (e.g., Drewry or Dominion Glass bottles) can be dated to the specific year of manufacture. Deposition of bottles usually occurs soon after the container is emptied, whereas deposition of dinnerware specimens usually occurs a considerable time after the object was manufactured. After manufacture, the plate, for example, is shipped to a wholesaler who ships it to a retail outlet where it is purchased by an individual who uses it until an accident results in damage, at which time it is usually discarded. This time span can range from less than a year to several decades.

An examination of the time ranges and specific dates derived from glassware and dinnerware, recovered during the 1995 impact assessment, indicated two temporal clusters, around 1890 and during the 1910s, within an 80 year continuum. The ability to derive specific dates is limited to certain glassware artifacts, especially Drewry products where the date of manufacture is embossed on the base of the bottle. However, several firms existed for such a short duration that their products can be considered almost pin-point temporal markers, i.e., Munroe Pure Milk Company (1907),

North West Aerated Water Company (1889-1894), O'Kelly Bros. & Co. (1893-1902), Pelissier & Sons (1911-1914). With regard to ceramic dinnerware recoveries, the time ranges of the identified company marks are generally several decades, with the exception of Powell & Bishop (1876-1878) and Bates, Gildea & Walker (1878-1881). The firm of Charles Meigh only existed for a decade (1851-1861) and the W. H. Grindley trademark was only used for eleven years (1914-1925) (Quaternary 1996:115).

The artifacts appeared to be temporally scattered with two minor clusters. This would be the result of continuous deposition of household debris adjacent to the rear of the building lots. It was noted that few of the artifacts dated after WWII, suggesting increased reliance upon a city garbage pick-up system.

5.3 Historic Data Recovered from the Current Project

The caveats noted in the previous section apply to the historic data recovered during the construction phase of the baseball facility. As rigorous provenience controls of the impact assessment resulted in minimal data that was directly ascribable to the original location of use, it was deemed unnecessary to implement a system of locational recording for all historic artifacts. Thus, the artifacts, regardless of location of recovery, are treated as a single assemblage. Evidence of the 'smearing' of context was observed during excavations for grade beams where buried structural debris from a demolished building continued for a distance from its footprint. This relocation of artifacts severely limits the potential of determining the exact location of use or primary deposition of a specific artifact. In addition, some of the fill would have been transported in from other locations and any artifacts within that fill would have no connection with the activities of the people who occupied the residences between 1870 and 1970.

As in the earlier impact assessment, the majority of the artifacts are storage containers and dinnerware with strong representation of faunal remains and architectural objects. Using the temporally diagnostic specimens, one is able to see that there is a concentration of dates around the beginning of the 20th century (Figure 15). The specific dates, deriving from artifacts recovered during the construction monitoring, are 1901 (Drewry Golden Key), 1902, 1904, and 1911 (Drewry). The broader range logos and patterns also fit this general period with North West Aerated Water Company (1889 -1894) and Pelissier & Sons (1911 - 1914) being present. The ceramic dinnerware appear to represent two time periods—pre-1900 (Cochran, Corn, Edwards, Furnival, Powell & Bishop, and St. Johns Stoneware) and post-1910 (Globe Pottery and J. & G. Meakin).

The temporal pattern displayed by these artifacts is virtually identical to that obtained during the 1995 impact assessment (Quaternary 1996:115). The only anomalous artifacts are the two Coca Cola specimens with dates of 1950 and 1955.

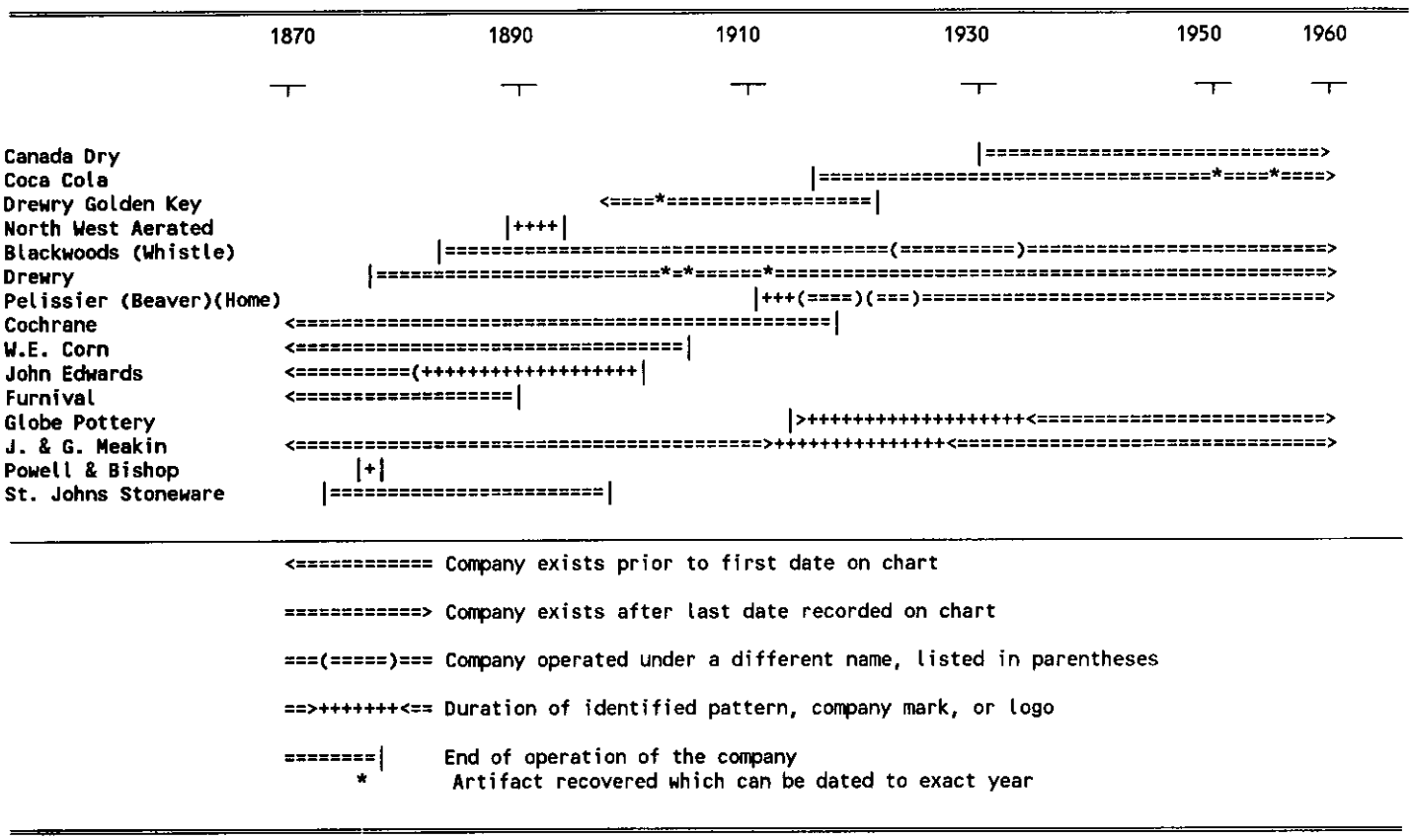


Figure 15: Temporal Chart of Recovered Historic Artifacts

5.4 Pre-Contact Archaeological Data from the 1995 Assessment

The Pre-Contact horizon was identified in the investigation trenches during the 1995 project in the southern portion of the ballpark stadium impact zone. The eastern and northern limits, of the horizon, had been determined (Quaternary 1996:2, 85) but the western and southern limits of the occupation site had not been located. The location of the south dugout was adjacent to the 1995 Trench 4. The outline of the trench was identified in the north wall of the dugout excavations (Figure 2).

The 1995 archaeological recoveries from the Pre-Contact horizon totalled 4991 artifacts: 966 lithics, 34 ceramics, one copper fragment, 73 floral artifacts, and 3917 faunal artifacts. Based on the presence of copper, the horizon was tentatively dated between A.D. 1650 and A.D. 1735 (Quaternary 1996:118). The ceramic styles portrayed on the three identified vessels from the 1995 assessment have a time range extending into the early historic period, i.e., A.D. 1750.

The faunal recoveries indicated a broad based subsistence strategy with reliance on large mammals (probably bison) and fish, with catfish (Ictalurus) predominating. Minimal bird and shellfish were

present. Traces of beaver and rabbit occurred and six species of fish, other than catfish, were also represented suggesting netting or some other non-specific harvesting method.

5.5 Interpretation of Pre-Contact Recoveries from this Project

The first data set which requires interpretation is the configuration of the cultural deposits, as identified during the dugout excavations and mitigation. The gap in deposits between the western excavation block and the central block, as well as the oval shape of the deposits in the central block (Figure 2), suggest erosion. The recorded configuration of the two cultural layers are almost identical, albeit the limits of Level 1 in the central excavation block are smaller than those of Level 2. In most archaeologically recovered occupation horizons, the cultural material, i.e., faunal remains, charcoal, lithics, and ceramics, tends to be more or less uniformly deposited throughout the occupation area. Clusters of denser deposits of specific types of artifacts denote certain activities which occurred at those loci such as numerous small lithic flakes indicating a tool manufacturing station. Rarely are the deposits as discontinuous as was evident in the dugout excavation, especially as many sites cover several hundred square metres.

It would seem that a high water episode removed the cultural deposits between the two excavation areas and on the west side of the west excavation block. Originally, these deposits may have been on slightly higher ground and running water eroded the soil and accompanying artifacts between the high spots. The stratigraphy in the dugout wall provides ambivalent data. If erosion had occurred, the subsequent sediments deposited into the erosion channel were the same texture and colour as those which had been replaced. No sharp discontinuities could be seen at the location of the cultural layers or in the areas of their absence. While the stratigraphic data neither confirms nor denies the possibility of erosion, the configuration of the cultural deposits strongly suggests that this is the only mechanism which would account for the observed pattern of deposition.

The presence of Trench 4 in the north wall showed that it had intersected solely Level 1 as the northern limit of Level 2 was slightly south (Figure 2). Thus, all of the artifacts recovered from 1995 would correlate with those from Level 1. The projectile point styles from both projects are similar and the types of material identified in the lithic detritus are similar (cf. Table 27 with Quaternary 1996:91).

The ceramic recoveries are the most diagnostic in terms of temporal ranges. The types can be used to correlate the 1995 recoveries and the current recoveries with other locations in the general vicinity. Vessel 1, from Level 1, appears to be very similar to Vessel B, from the 1995 project. There also appears to be some similarity between Vessel 6, from Level 1, and Vessel A, from the 1995 project, further indicating that the 1995 recoveries were from Level 1. Based upon the expanded number of types of vessels encountered in Level 1, a tentative correlation can be made with recoveries from The Forks Access Project (Quaternary 1999b). The presence of Rainy River, Bird Lake, Plains Woodland, and Oneota-like ceramics indicate that several cultural groups were present at the same time. This pattern of multi-group diagnostic ceramic wares replicates that which was recorded for

Horizon B in The Forks Access Project (Quaternary 1999b:112-122). This same horizon was also encountered during the watermain excavations which also added another ceramic type—Red River Ware—that had been recorded in Horizon B.

Given the comparative similarity of the ceramic, lithic, and faunal assemblages from Level 1, the watermain excavations, and the 1995 recoveries with those from the Horizon B recoveries of The Forks Access Project, it is highly probable that the archaeological deposits in the baseball stadium area are a northern extension of the very extensive Horizon B cultural occupation. Radiocarbon dates obtained on faunal material from this level during The Forks Access Project provided dates of 675± 60 and 655±55 provide an average date of A.D. 1285±60 for this occupation (Quaternary 1999b:12, 14). Thus, the initial assessment of a later age for the occupation, i.e., A.D. 1650 to A.D. 1735 (Quaternary 1996:118), was erroneous and relied too heavily upon the identification of the copper fragment as being sheet copper. Also, the spectrographic analysis of the red lithic material, which identified it as naturally occurring ochre rather than trade-obtained vermillion (Quaternary 1996:92), should have been seen as an indication that the occupation may not have occurred just prior to European arrival at The Forks.

The temporal and cultural affiliations of Level 2 are more tenuous. The occupation which deposited the material, recovered from Level 2, would have occurred earlier as there is a separating layer of riverine silt between the two horizons. Minimal diagnostic artifacts were recovered from Level 2. The projectile point fragment is from a Plains Side-notched point and, as such, has an extensive temporal range. The single ceramic vessel, Vessel 8, is either Bird Lake or Rainy River. The separation of the two horizons indicate that at least one flood episode occurred after the Level 2 occupation and before the Level 1 occupation. In The Forks Access Project, at least five discrete cultural occupations occurred between A.D. 1225 and A.D. 1285, with flood-deposited layers of silt between these cultural horizons. As riverine sedimentation is extremely variable, some of the floods which deposited sediment at The Forks Access Project may not have deposited sediment at the dugout location. Thus, Level 2 could be correlated with any of the four cultural occupations pre-dating Horizon B (Quaternary 1999b:14), but probably occurred after A.D. 1200.

6.0 RECOMMENDATIONS

The CanWest Global Park ballpark stadium construction has been completed and no further impact is envisioned within the current footprint. Some minor landscaping and peripheral modifications may occur but it is not expected that these would extend deeply into the ground. The residential and industrial period artifacts appear to have been relocated more than once during prior land modification activities and, as such, have lost most of their original context. Thus, no mitigative recommendations are proposed for impact that would be limited to the upper metre of the site.

There is a potential that the southern wing of the bleachers could be extended to the east, provided that Pioneer Avenue is relocated. If these two events occur, there will be ramifications which will impact upon archaeological resources. It is in light of this potential that the following recommendations are proposed.

It is recommended that any future construction for the stadium extension, i.e., pile augering, pile cap excavation, and grade beam excavations, be monitored by an archaeologist to record presence and location of all Pre-Contact cultural resources and to recover any artifacts which are encountered during the construction phase.

It is recommended that any sub-surface services installations, which would be concomitant with the road relocation, be archaeologically monitored to provide mitigative action when cultural resources are impacted.

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APPENDIX A

HERITAGE PERMIT

The Heritage Resources Act (Subsection 14(2) and Sections 52 and 53)

Manitoba
Culture, Heritage
And Citizenship

Heritage Permit No. A16-98

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 all surface excavations below 228.5 m as part of the baseball stadium construction north of Pioneer Avenue (with special emphasis on sewer excavations)

during the period:

May 14, 1998 to Septemer 30, 1998

This permit is issued subject to the following conditions:

(1) That the information provided in the application for this permit dated the 1st day of May 1998, 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:
March 31, 1999

(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 March 31, 1999, for permanent curation and storage, unless appropriate loan requirements are arranged with the Curatory 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. Appropriate arrangements and funds should be made available for the conservation of perishable heritage objects collected from these sites;
d. In the event t hat 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;
e. The Permittee will be on-site supervising all aspects of the field work;
f. 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;
g. The report identified in #3 above shall conform at a minimum to "The Contents and Format of a Heritage Resource Impact Assessment";
h. 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 7th day of May 1998.

for Neil Ferguson
Minister of Culture, Heritage and Citizenship