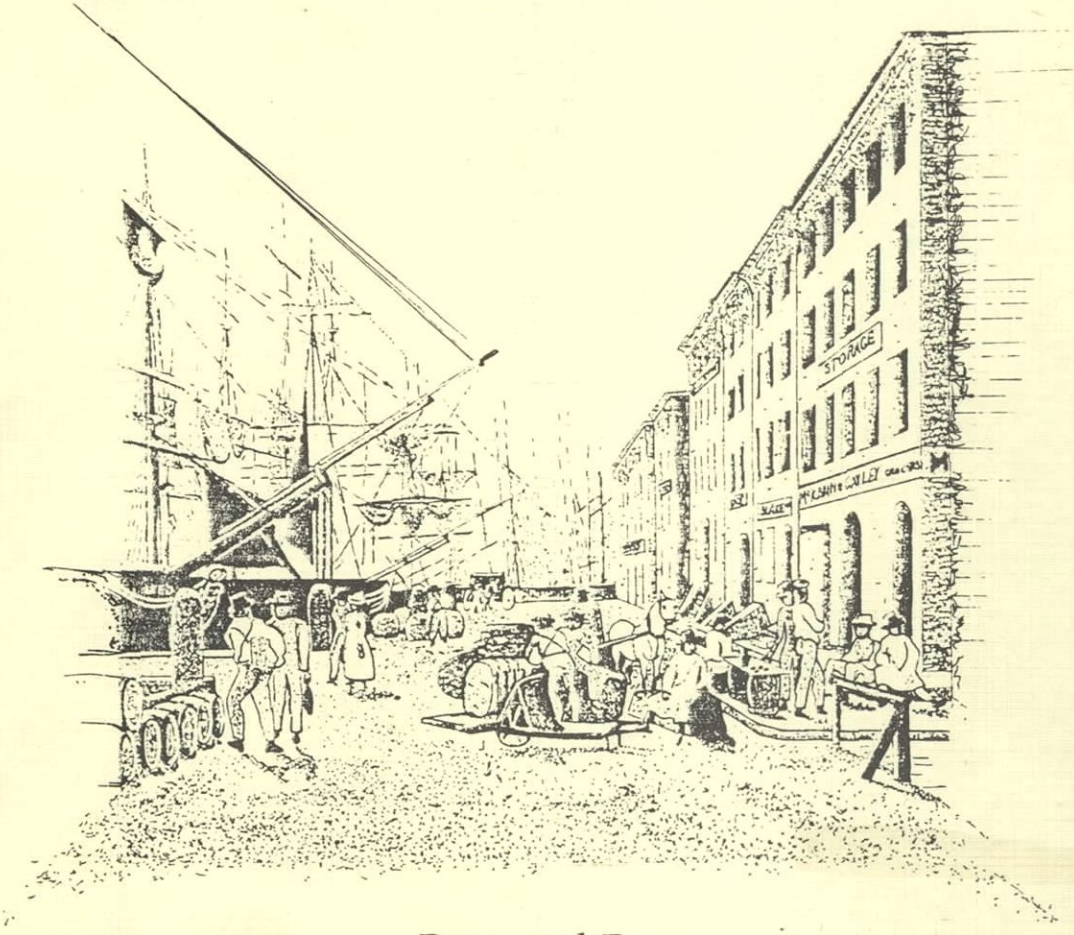
THE ASSAY SITE

Historic and Archaeological Investigations of the New York City Waterfront



Prepared For:
HRO International, Ltd.
New York, New York

Prepared By:
The Cultural Resource Group
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East Orange, New Jersey

1990

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FINAL REPORT
ARCHAEOLOGICAL AND HISTORICAL INVESTIGATIONS AT THE ASSAY SITE BLOCK 35 NEW YORK, NEW YORK

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Prepared For:

HRO INTERNATIONAL, LTD.
NEW YORK, NEW YORK

Prepared By:

THE CULTURAL RESOURCE GROUP
LOUIS BERGER & ASSOCIATES, INC.
EAST ORANGE, NEW JERSEY

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ABSTRACT

The Financial Square Project is located on New York City's Block 35, formerly the site of the United States Assay Office Building (Figure 1.1). In order to comply with the City's environmental quality review procedures, the Howard Ronson Organization, Ltd. (HRO), the developer of the Financial Square Project, sponsored a series of historical investigations and archaeological excavations in consultation with the New York City Landmarks Preservation Commission (LPC). This historical research and archaeological fieldwork were completed by Greenhouse Consultants, Inc. (GCI). Diana DiZegera and Roselle Henn served as Co-Principal Investigators for GCI.

The Cultural Resource Group of Louis Berger & Associates, Inc. (LBA), was retained by HRO to prepare a research design and to complete all further work on the project.

LBA's research focused on the landfill deposits and waterfront structures of the site. Employing a comparative analysis of published data on landfill and waterfront structures from sites in New York City and other cities along the eastern seaboard, this research, in part, addressed the question, "What have we learned from excavations of landfill deposits and waterfront structures?" This question was answered by considering several specific research questions about the configuration and distribution of these waterfront structures in the Northeast and Middle Atlantic states.

LBA also prepared the Assay Site artifact collection for future researchers, providing specific guides suggesting how the artifact collection can be used in the context of several different research topics, with a discussion of the theoretical and methodological problems that are involved with each of these areas.

ACKNOWLEDGEMENTS

Many individuals contributed to the successful completion of the Assay Site Archaeological Project. Joel Grossman served as Greenhouse Consultants, Inc.'s (GCI) Principal Investigator for the deep testing stage of the study. Co-Principal Investigators for GCI's data recovery effort were Diana Wall and Roselle Henn. The project Field Director was Valerie DeCarlo; and Laurie Boros, Elizabeth Burt, Joe Diamond, and George Myers served as Crew Chiefs. Leo Herskovits conducted the Phase I historical research for GCI, and Susan Dublin was GCI's draftsperson.

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GCI laboratory analyses were conducted under the supervision of Jed Levin and Nancy Stehling, and Melba Myers was the project Conservator. Barbara Mehrhof was Assistant Laboratory Director. The GCI laboratory crew included Donna Badome, Nicky Dallal, Jackie Elgar, Edwina Gluck, James Lee, Vince McBride, Nina Pantel, Shlomo Pestcoe, and Caroline Roland-Levy.

Terry Klein and Charles LeeDecker served as Louis Berger & Associates, Inc.'s (LBA) Co-Principal Investigators. LBA's laboratory analyses were conducted under the supervision of Suzanne Rimmler Kahn, Laboratory Supervisor, and Marian Craig, Assistant Laboratory Supervisor, and were performed by Mallory Gordon, Meta

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The senior author and editor of the Assay Site report was Terry Klein. Other report authors included Jay Cohen, Amy Friedlander, Mallory Gordon, Meta Janowitz, Charles LeeDecker, Marie-Lorraine Pipes, and Edward Morin. LBA report production was overseen by Lee Nicoletti. Suzanne Szanto provided editorial assistance. Report graphics were drawn by Evelyn Knecht. Photographers for the report were Anthony Masso and Rob Tucher.

Special acknowledgements go to Mr. Larry Wyman of HRO International and Dr. Sherene Baugher, Urban Archaeologist for the New York City Landmarks Preservation Commission.

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I. INTRODUCTION

The Financial Square Project is located on New York City's Block 35, formerly the site of the United States Assay Office Building (Figure 1.1). In order to comply with the City's environmental quality review procedures, the Howard Ronson Organization, Ltd. (HRO), the developer of the Financial Square Project, sponsored a series of historical investigations and archaeological excavations in consultation with the New York City Landmarks Preservation Commission (LPC). This historical research and archaeological fieldwork were completed by Greenhouse Consultants, Inc. (GCI). Diana DiZegera Wall and Roselle Henn served as Co-Principal Investigators for GCI. Because the LPC determined that the southern portion of Block 35 had been disturbed by construction of the Assay Office Building, the archaeological investigations were limited to the northern portion of the block, an area encompassing eight of the block's original 21 lots (Figure 1.2). Greenhouse Consultants completed the fieldwork segment of the Assay Site project in August 1984.

The project was initiated by GCI with a historical overview of Block 35 based on deeds, tax records, buildings department records, maps, plats, and city directories (GCI 1983a). The historical overview was augmented by a discussion of relevant archaeological literature and an assessment of the archaeological potential of the block.

The overview concluded that landfill within Block 35 had been accomplished in a sequence of fill episodes which occurred before 1804. The first of these episodes had occurred by 1790: Six structures, including two blacksmith's shops, two cooperages, and two unspecified houses (not necessarily dwellings), defined the Front Street frontage, and three wharves (Roosevelt's, Bache's, and Gouverneur's) extended into the East River. Between 1804 and 1835, the area was dominated by warehouses, commercial facilities, and residences. There were also small industrial sites, such as the cooperages at 40 and 41 South Street and a block-and-pumpmaker at 46 South Street (GCI 1983a:Table 2). The site was wholly destroyed in the 1835 fire, and a series of four- and five-story brick rowhouses replaced the earlier structures. GCI concluded that between 1835 and 1930, the block consisted of "commercial and residential structures serving workers and merchants of the port" (GCI 1983a:21), although the East River docks were overshadowed by the Hudson River facilities after the mid-nineteenth century. The block's rowhouses were demolished in 1930 to allow the construction of the United States Assay Office Building and adjacent parking lot.

Based on historical documentation collected by GCI, it was concluded that the block had the potential to contain archaeological resources relating to its use as a waterfront area.

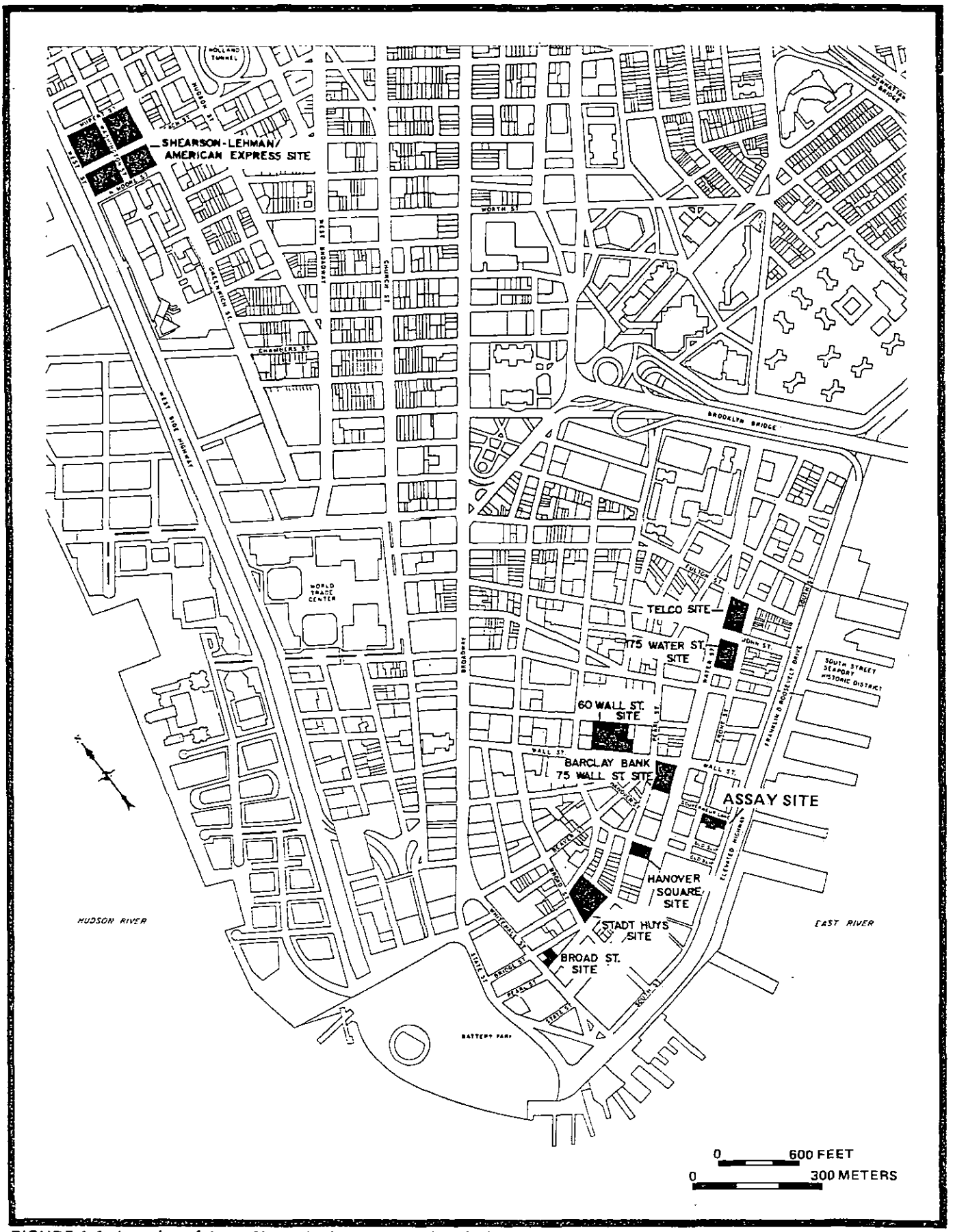


FIGURE 1.1: Location of Assay Site and other Major Archaeological Sites.

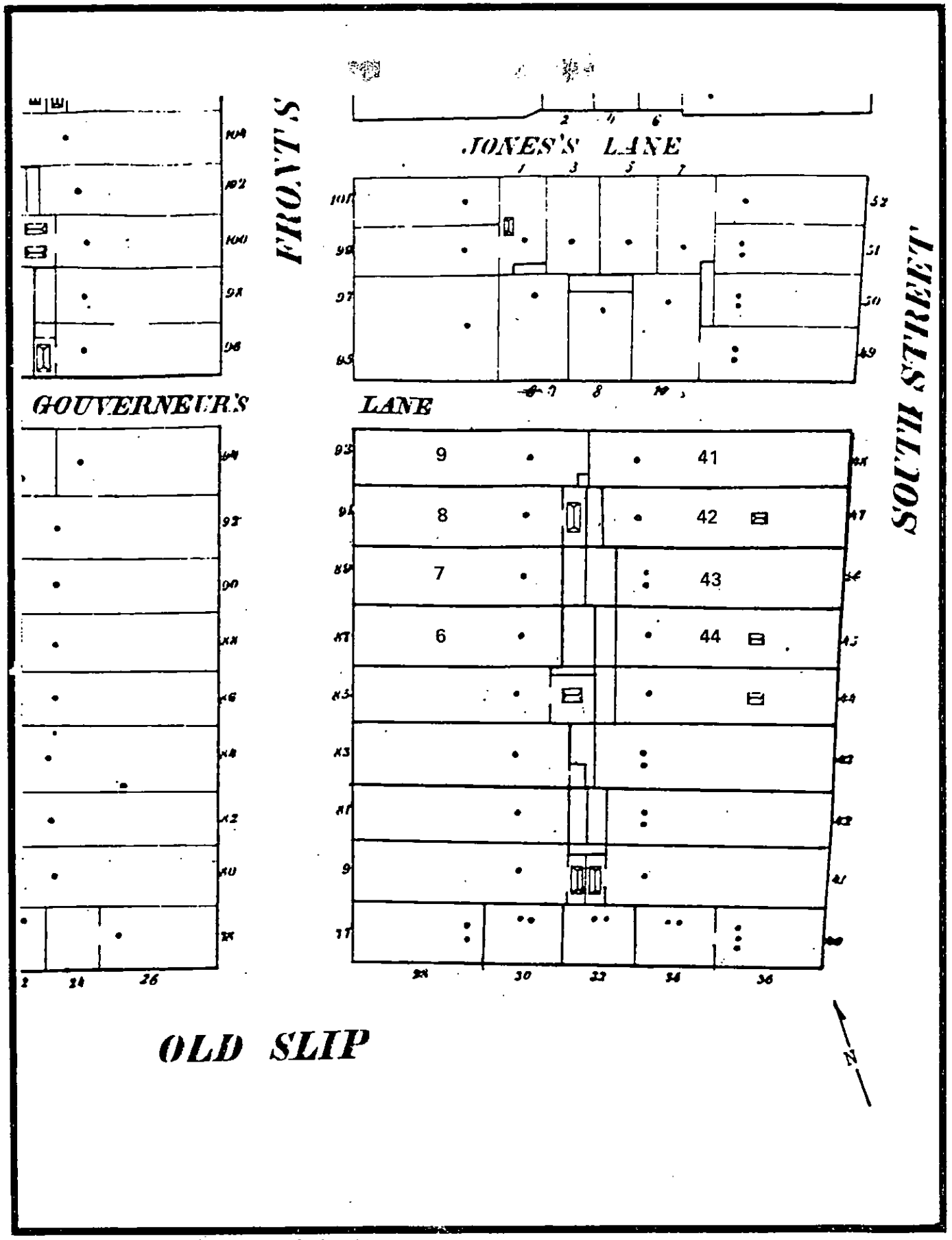


FIGURE 1.2: Location of Lots Within Project Area.

SOURCE: 1852-53 INSURANCE ATLAS OF THE CITY OF NEW YORK, William Perris, From GCI, 1983..

As a result, two complementary archaeological testing programs, known as the deep testing phase and the backyard testing phase, were carried out. The deep testing phase was designed to examine the features and deposits related to the landfilling process and the use of the area as a waterfront, while the backyard testing phase was designed to identify features and deposits related to the occupation of the block that occurred after landfilling had been completed. The deep testing program involved the excavation of two large machine-excavated trenches, together with a few hand-excavated test cuts. The two deep test trenches, known as Test Trench West (TTW) and Test Trench East (TTE), were placed so as to cross-cut the middle portions of the lots. The backyard testing was limited to a relatively narrow strip of the block comprising the extreme rear portions of the lots. Both machine excavations and hand-excavated units were employed during the backyard testing. While the two testing programs had separate goals and were implemented in different areas of the site, the results were, in a sense, mixed. That is, archaeological resources related both to the landfilling of the block and to the occupation of the block were identified throughout the areas tested.

Archaeological data recovery was subsequently carried out, as a result of the identification of a number of archaeological features and deposits during the testing program. The principal foci of the data recovery excavations were three stone-lined privies (Lots 6, 7, and 8), two wooden box-like structures (Lot 7 and Lots 6/44), two barrel cisterns (Lots 42 and 43), warehouse floor deposits (Lots 8 and 9), and a number of wharves, bulkheads, pilings, and spread-footer complexes. Extensive excavations were carried out in the rear yard of Lot 7. This lot seemed to have the best-preserved yard deposits and contained two features (a privy and a stone wall). A large trash pit was also excavated in the rear of Lot 9. In addition, excavations were carried out at selected locations within the landfill in order to obtain information on the sequence of filling and the content of the fill itself. Fieldwork was completed in August 1984.

Concurrent with the archaeological excavations, GCI carried out preliminary laboratory processing tasks. These laboratory activities included conservation of fragile materials, flotation processing, washing of artifacts, sorting of the collections into "rough sort" categories (i.e., curved glass, ceramics, other diagnostics, non-diagnostics, pipes, faunal, and macrofloral/ shell), some artifact labeling, and tabulation.

GCI also initiated some tasks related to preparation of the project report. These included drafting of composite base maps of the excavated areas and features, developing stratigraphic interpretation, and preparing summaries on selected aspects of the fieldwork.

Greenhouse Consultants was unable to prepare a research design for the analysis and report segment of the project that was acceptable to HRO and the LPC. For this reason, the Cultural Resource Group of Louis Berger & Associates, Inc. (LBA), was retained by HRO to complete the project. All material pertinent to the project (artifacts, field records, research notes, proposals, reports, etc.) were turned over to LBA in mid-January 1986. Terry H. Klein and Charles LeeDecker supervised LBA's laboratory analyses and report preparation efforts.

LBA's first task was to determine the exact number of artifacts among the site's various contexts. This task involved conducting a preliminary artifact analysis of all contexts within the site. This analysis placed artifacts into "rough sort" classes such as curved glass, ceramics, pipes, faunal, etc. The majority of the classes employed were the same as those used by GCI in their rough-sort cataloging. Features, such as privies, cisterns, and the box-like structures, were subjected to a more detailed artifact analysis at this time. This "intermediate" stage of analysis involved tabulation of ceramic sherds by general ware type and descriptive subtypes. Glass artifacts were placed into functionally distinct groups. These preliminary and intermediate stages of analysis were completed in July 1987.

Based on the results of these preliminary and intermediate analyses, and the results of GCI's fieldwork, LBA was to develop a proposal to complete the project. This proposal was submitted and approved by HRO and the LPC in September 1987. A major component of the proposal was a new research design for the analysis and interpretation of the site's deposits, features, and structural elements.

The research design, described fully in Chapter II, focuses on the landfill deposits and waterfront structures of the site. Employing a comparative analysis of published data on landfill and waterfront structures from sites in New York City and other cities along the eastern seaboard, this research design was structured, in part, to answer the question, "What have we learned from excavations of landfill deposits and waterfront structures?" This larger question is addressed by considering several specific research questions about the configuration and distribution of these waterfront structures in the Northeast and Middle Atlantic states.

GCI staff had developed a series of research topics for the analysis of non-landfill artifact assemblages from the site. These topics pertained to the emergence of the family consumer economy, the separation of home and workplace, and the emergence of the "cult of domesticity" among New York City households. HRO, LBA, and the LPC discussed whether these and other related research topics should be explored as part of the completion of the Assay Site study. One concern raised by all was whether these topics

could be addressed in the context of the project. Several of the major archaeological excavations in New York City (e.g., Geismar 1983; Louis Berger & Associates, Inc. 1987; Rockman, Harris, and Levin 1983), which were conducted pursuant to the stipulations of the City Environmental Quality Review Act, were unsuccessful in addressing similar, large-scale research topics. In retrospect, the research designs that guided excavations were not suited to a contract-archaeology endeavor, but were more applicable to long-term research in an academic context. In addition, there were several methodological problems with major components of these research designs, problems which are not unique to the New York City excavations.

Researchers have recognized that there are many theoretical and methodological difficulties with the research domains in use by historical archaeologists, particularly in terms of urban sites (cf. Beaudry 1987; Brown 1987; Henry and Klein 1987; LeeDecker et al. 1987; Leone and Crosby 1988). The major problem is that few if any historical archaeological investigations have been able to "build the bridge" between the artifacts recovered from sites and the broad, sweeping historical events and processes that characterized America in the eighteenth and nineteenth centuries (cf. Beaudry 1987; Brown 1987; Henry and Klein 1987). A primary reason for the failure to make this connection may be that researchers generally do not understand the "historical context" of the artifacts they are using to examine these processes and are therefore unable to correctly interpret the results of their artifact analyses (cf. Henry and Klein 1987). Another reason is that certain classes of artifacts are not the correct "tools" to be used in attempting to describe and explain these social and economic processes.

Given (a) the problems with the research issues posed by GCI, (b) the unsuccessful research endeavors of other urban archaeological projects in New York and other eastern cities, (c) the expense and the level of effort required to conduct studies of the large-scale processes that were the focus of these urban archaeological projects, and (d) the concerns raised by researchers on current approaches used in historical archaeological studies, LBA and the LPC decided not to include the research domains posed by GCI as part of the Assay Site project's research component. However, LBA prepared the artifact collection for the use of future researchers, providing specific guides to suggest how the artifact collection can be used in the context of various research topics.

To address the final project research design (which focused on the landfill deposits and waterfront structures) and complete the Assay Site study, LBA performed further historical research, organized all field data, and conducted additional, detailed artifact analyses on selected features and deposits. The goal of the historical research was to provide an introduction to the collection and assemble material collected by GCI in a way that

would make it accessible to future researchers. Thus, LBA's efforts addressed the overall development of the block and then provided information on the uses of each of the lots. These lot histories will be important to future interpretations of historically assignable deposits and features. Additional historical research involved, primarily, research into deeds and federal census records as well as verification of some of the information contained in GCI's notes on their historical research and the data they collected from the tax lists.

The additional artifact analyses focused on two major features, and on the landfill deposits within the block. One of the two features included a box-like structure (Feature 18) in Lot 6/44, containing a huge quantity of ceramics, glass, and bone. Analyses of the feature's assemblages consisted of ceramic cross-mending, minimum number of vessel counts for glass and ceramics, and compilation of a detailed ceramic and glass catalog. Faunal and floral materials were analyzed in terms of species and element.

Additional analyses were performed on the floral and faunal materials within Feature 26, the burnt warehouse floor in Lot 9. These analyses involved identification of faunal and floral species and elements, and a distribution study of these materials within the floor area.

Analyses of landfill deposits involved examination of artifact class frequencies among the various landfill contexts within the block. The artifact classes used were comparable to those employed in other investigations of landfill sites in New York City (e.g., Geismar 1986), thus, it is hoped, facilitating future comparisons among these sites.

During the construction of the slurry wall into landfill and riverbottom soils, the building contractors encountered and removed five complete and partial cannons. The cannons were from the southwest portion of the site, along Front Street. Archaeological monitoring was implemented for the balance of the slurry wall construction, but no additional cannons or associated materials were recovered. The cannons were shipped to the Underwater Archaeological Research Section of the Florida State Museum, in Tallahassee, for conservation.

During GCI's preliminary laboratory processing, a number of items were pulled from the collection for conservation. Conservation had been completed for the majority of these items, but some still required treatment when LBA obtained the collection. LBA treated these latter materials in a manner comparable to that used for the items already stabilized.

LBA's other laboratory tasks included preparing the entire artifact collection for final disposition at the South Street Seaport Museum in Manhattan and developing two type collections from non-

provenienced contexts within the site. These collections were sent to the LPC and the Seaport Museum.

The following chapters of this report describe in detail the results of GCI's and LBA's historical, field, and analytical efforts. Chapter II presents the project research design. As noted earlier, this discussion reviews the research approaches recommended by GCI and explains why these and related research concerns were not addressed in this report. The subject of Chapter III is the historical background of the block, and Chapter IV provides an overview of the excavations. The latter chapter presents the results of the more detailed artifact analyses of the assemblages from the box-like structure in Lot 6/44 and the burnt warehouse floor in Lot 9. Chapter V discusses waterfront technology in the context of wharf, pier, bulkhead, and piling constructions within the block and other waterfront sites along the eastern seaboard. Chapter VI examines the question, "What have we learned from archaeological research of landfill sites?" and Chapter VII discusses the additional research potential of the Assay Site's features, structures, and artifact assemblages.

II. RESEARCH DESIGN

A. INTRODUCTION

At this juncture, it is appropriate to review GCI's research design, which provides a framework for the background research and field program conducted by GCI. Their research approach was presented in various proposals and reports, but was synthesized in a 1985 proposal for completion of the laboratory work and report preparation. In that document (B. Greenhouse to L. Wyman, December 11, 1985), five research questions were proposed. These five questions addressed two principal areas of inquiry: the filling of the block and the occupation of the block. GCI acknowledged that it was unlikely that all of these questions could be answered by the analysis of the Assay Site data (B. Greenhouse to L. Wyman, December 11, 1985).

Two research questions related to the filling of the block were proposed. Question 1 concerned the content of the landfill and the riverbottom deposits. Block 35 was considered unique

> ...in that it is the first late 18th century-early 19th century landfill site in New York to be subjected to large-scale excavation. The information retrieved regarding the fill itself and potential landfill retention structures will relate to an as yet unstudied period, the study of the landfill process in New York City [Henn and Wall to Baugher, April 6, 1984].

The specific research issues to be examined with respect to landfill archaeological resources were set forth as follows:

> Artifacts from the fill samples may be considered to be representative of general New York City material culture at or before the time of the filling episodes. . . . The different archaeological deposits from each of the fill episodes will therefore permit comparisons of New York City material through time. We intend to evaluate changes in consumption patterns in terms of [the] economic trend leading to the transition to capitalism in the United States during the late Colonial and Federal periods. The diversification of mass production industries in Europe, primarily England, and to a lesser degree New York, created new categories of consumer goods. Historians have documented this process from the perspective of production and industrial workplace relations. Archaeological information complements historical data, providing insight into how and which of these goods were consumed in New York City. Samples from the fill may indicate the acceptance of new kinds of items in the New York market and should enable us to make statements about

> their impact on daily life through time [Henn and Wall to Baugher, April 6, 1984].

Question 2 concerned the technology of the landfilling process, as manifested in the construction of the various fill retention structures, wharves, bulkheads, etc., with comparisons to other landfill sites in New York City (Henn and Wall to Baugher, April 6, 1984). This question was to have been addressed by preparation of measured drawings of the various fill retention structures, together with dating of the various features through artifact analysis. Question 2 appears to have been considered by GCI as the most readily answerable of the five questions, if not the most important as well.

The research goals associated with these landfill structures are discussed further in GCI's Interim Report (GCI 1984):

> Block 35 is unique in that four different kinds of wharves and bulkheads have been found on the site. In addition, as the mitigation phase of the archaeological program will be implemented only after the installation of the slurry wall around the perimeter of the block (thus reducing the problem of water control), it will be possible to record these structures and to document the landfilling sequences in a way that has not been possible on any other sites excavated in lower Manhattan. . . . The presence of these wharves on the site provides the opportunity to record the construction of two examples of this kind of wharf. Although similar wharves were found on the Telco Block and 175 Water Street sites, their location (extending beyond the site perimeter on the Telco Block and under the backyard area of the 175 Water Street site) precluded the possibility of adequately recording their construction. These wharves were made in a vernacular tradition that has not been fully described in the literature. Therefore, the only way to learn about the constructing techniques used in building these structures is to record them in an archaeological context. . . . In addition, the recording of these construction techniques may also provide insight into the craft traditions being practiced in New York City in the 1700s and 1780s [GCI 1984].

The three research questions proposed by GCI pertaining to the occupation of the block concerned the following: the emergence of the family consumer economy, separation of home and workplace, and emergence of the "woman's sphere" or the "cult of domesticity" (Question 3); the organization of labor and workplace behavior (Question 4); and warehousing practices (Question 5). Question 3 was to have been dealt with by an analysis of a series of domestic deposits, focusing on changes in the representation of artifacts associated with the "cult of domesticity" and the emergence of the

"woman's sphere." Specifically, GCI was posing the following question:

> . . . can we see the emergence of the family consumer economy, as denoted by a change in the quality of domestic life (using, for example, Miller's economic scaling of ceramics and the increase of certain kinds of artifacts associated with the "cult of domesticity") reflected in the domestic materials from these deposits, or must we assume that this change occurred after the separation of the home and workplace [GCI 1984].

Intensive artifact analysis was proposed to address this question, and the possibility was acknowledged by GCI that considerable analytical effort would be expended only to conclude that the collection was not suitable for addressing this question (Greenhouse to Wyman, December 11, 1985).

GCI's Question 4 concerned the organization of labor in the workplace, and it was to have been addressed by examination of the relative frequencies of alcohol, medicine, and food bottles within commercial deposits, as a reflection of capitalist work discipline, following research that had been done at the Telco Block Site (Rockman, Harris, and Levin 1983). Again, GCI acknowledged that extensive analysis would be required to approach this question, with the possible finding that the deposits might not be suitable to answer the question.

Finally, GCI's Question 5 was developed after the discovery of a well-preserved merchant's floor and burnt deposits relating to the Great Fire of 1835. In order to provide information regarding early nineteenth-century merchandise handling practices and to record the variability and spatial distribution of the materials in the warehouse at the time of the fire, a 50 percent sample of the floor deposits was excavated in a checkerboard pattern (Henn and Wall to Baugher, April 4, 1984; Wall and Henn 1984a). Answering this question was considered a relatively straightforward proposition involving identification of the materials represented in the floor deposits and preparation of a distribution map (Greenhouse to Wyman, December 11, 1985).

There are three primary reasons why HRO and the LPC, in consultation with LBA, did not pursue all of these research topics as part of the completion of the Assay study. First, the types of artifact assemblages present within the site may not be suitable to examine some of these research topics. Second, as has been shown on many other urban archaeological studies, it is very difficult to address these research concerns in the context of a "contract archaeology" effort. Third, current historical archaeological research has identified numerous problems in using historical archaeological data to describe and explain large-scale social and economic processes. The validity of GCI's research design was also

questioned, based on GCI's own statement acknowledging the possibility that at the end of their artifact analyses it might not be possible to answer some of the questions presented in the research design.

GCI proposed to examine the emergence of the family consumer economy by analysis of landfill deposits (part of GCI's Question 3). The landfill recovered from the Assay Site clearly represents a mixture of domestic, commercial, and industrial refuse of unknown historical association. Thus, it is not possible to state confidently that the artifacts in the landfill soils indicate household consumption patterns; nor can one assume that the materials in the landfill constitute a representative sample of all households in the city. It has not been demonstrated that the full range of household types that existed in New York City at the time of the filling of Block 35 is represented in the trash disposed of within the block. Ignoring these systemic/archaeological context issues (cf. Schiffer 1972, 1983, 1988) results in conclusions with no solid foundation. Further, for a researcher interested in examining city-wide consumer behavior, analysis of materials from archaeological contexts is an inefficient approach. Documentary sources such as custom records and advertisements lend themselves better to the examination of this issue. These sources provide a more complete description of the types of materials that were consumed by New Yorkers. Such records document the availability of both durable and non-durable goods (the latter of which made up the bulk of what was imported through the city's waterfront).

As noted in Chapter I, major archaeological excavations undertaken in New York City (e.g., Geismar 1983; Louis Berger & Associates, Inc. 1987; Rockman, Harris, and Levin 1983) and other eastern cities were not successful in answering research questions similar to those posed by GCI for the Assay Site project. The absence of appropriate deposits and features was often cited as the reason why these topics could not be addressed (cf. Beidleman, Catts, and Custer 1986; Honerkamp, Council, and Fairbanks 1989; Louis Berger & Associates, Inc. 1987). In some cases, problems in answering a research question were linked to the inadequacy of the standard analytical methods used by all historical archaeologists (cf. Louis Berger & Associates, Inc. 1985; Zierden and Hacker 1987).

In retrospect, it appears that some of the research issues that these projects have attempted to address fall more within the purview of academic institutions, where the institutional framework allows researchers the time and resources to grapple with complex methodological and theoretical concerns. Recent doctoral work by Wall (1987) demonstrates this point. In order for Wall to investigate how historical archaeological materials could be used to measure the changing role of women in late eighteenth- and early nineteenth-century New York City households, she had to re-examine the ceramics assemblages from several sites in New York, sites that had already been reported on by archaeological contracting firms.

Her research resulted in a synthesis of ceramic data from these projects. In addition to her re-analysis of the ceramic assemblages, Wall conducted extensive, detailed historical research on the households associated with the ceramic assemblages (Wall 1987). She also analyzed primary historical data on the city as a whole in order to place these households in some sort of social and economic context. Wall's dissertation topic required this type of in-depth, focused research. Such work is not possible in the context of a contract archaeological investigation, given time and cost constraints. Rather, mandated archaeological work provides a beginning point for the more in-depth research conducted by scholars such as Wall. This is not to say that in carrying out contract archaeology projects no attempt should be made to conduct research on the social and economic processes that characterized American society. However, these projects should not attempt to examine topics that are beyond the reach of the artifacts and features contained within a site and the methods readily available to analyze these artifact and features.

The use of inappropriate research goals occurs not only in contract work, but also in historical archaeological research in general. As observed in Chapter I, researchers have identified problems with the research domains currently used by historical archaeologists (cf. Beaudry 1987; Brown 1987; Henry and Klein 1987, LeeDecker et al. 1987; Leone and Crosby 1988). Historical archaeological studies have generally failed in their attempt to describe and explain the broad historical events and processes that characterized America in the eighteenth and nineteenth centuries. This failure is due to the inability of these studies to construct a "solid methodological bridge" between the artifacts recovered from sites and these historical processes (cf. Beaudry 1987; Brown 1987; Henry and Klein 1987).

One way to solve these problems in historical archaeological research is to reduce the scale of analyses that are used. That is, instead of attempting to study large-scale social and economic processes, historical archaeologists should focus their efforts on variables that are more easily linked to the artifacts recovered from sites. For example, some researchers recommend that the household unit is the most appropriate scale to use when one is dealing with domestic-related artifact assemblages (cf. Beaudry 1987). That is, each household "site" is studied to the fullest extent possible, using current, standard types of artifact analyses (e.g., Miller ceramic scaling, vessel counts, pattern analysis, form/function analysis) and placing the archaeological materials associated with the household in the social and economic "context" of that particular household. Each household study, then, becomes a building block to enable historical archaeologists to move to a higher level of abstraction (e.g., a neighborhood, or an entire social group) and to examine various social and economic processes at these higher levels.

Given the problems with GCI's research approach and the problems that researchers have identified within the discipline as a whole, LBA was asked by the LPC and HRO to develop research topics that could be more readily addressed with the materials and structures within the Block 35 site.

B. LBA'S RESEARCH DESIGN

The Assay Site is one of a handful of sites in lower Manhattan (Geismar 1983; Huey 1984; Louis Berger & Associates, Inc. 1987; Rockman et al. 1983) where research has been focused on the processes of landfilling; and it is the only project in lower Manhattan in which intensive archaeological work was undertaken for an area that was filled during the late eighteenth- to early nineteenth-century period. Not only does the site represent a little-known period in the expansion of lower Manhattan's landmass, but fieldwork at the Assay Site was carried out in a way that allowed extremely detailed archaeological recordation of the landfill retention structures. This detailed recordation was made possible by the installation of steel sheet piling in Test Trenches East and West and by the construction contractor's installation of a slurry wall around the perimeter of the block; both of these measures allowed archaeological excavations to reach depths at which flooding would have prevented work under normal circumstances. Thus, LBA's research design focuses on the detailed information collected by GCI on the site's waterfront structures and landfill soils.

Research Question 1: Simply stated, the first research question, as designed by LBA, asks:

> How was the process of landfilling accomplished in the Assay Site block? Specifically, what is the technology represented in the various fill retention structures, bulkheads, and wharves, and how does it compare to the techniques used in other American seaports?

While the sequence and bracket dates of filling are known from historical sources, the field investigations have provided important information on the technological processes that were used to extend the shoreline of lower Manhattan. A number of structural elements were recorded during the excavations, including pilings, wharves, and bulkheads. The technology and craftsmanship represented in these structures were examined, with particular reference to comparable structures found at other sites excavated in New York and other cities.

The archaeological investigations at the Assay Site resulted in important findings regarding landfill technology that have not been fully evident at other sites in New York City. A type of wharf construction known as "block and bridge" appears to have been utilized in the construction of Bache's Wharf, the principal wharf

built on Block 35. This type of wharf consists of a series of small cobb-wharf "blocks" which are set at intervals and connected by heavy timber spans or "bridges" that are placed above the waterline. This type of structure is relatively unknown in the United States (cf. Heintzelman-Muego 1983).

The addressing of the above research question is basically a descriptive process. Descriptions of the waterfront structures within the Assay Site are presented in Chapter IV. Comparisons to waterfront structures uncovered in other New York City sites and sites in other eastern seaboard cities and towns are made in Chapter V.

Using data from the Assay Site, Henn et al. (1986) examined standardization of wharf construction. They state that in the late eighteenth and early nineteenth centuries, the artisan system changes as a result of the transformation of the social relations of production. There is an increasing standardization of the work process and a deskilling of labor. Henn et al. (1986) examine how this process is manifested in dockbuilding, a trade not previously studied. In their comparisons of several excavated wharves in lower Manhattan, they observe that there was a great diversity in the details of the solid log or platform kind of wharf construction prevalent prior to the third quarter of the eighteenth century (Henn et al. 1986). However, during the late eighteenth and early nineteenth centuries, the prominent construction type is a more open, cell-like structure characterized by greater uniformity. These observations suggest to them that, in the context of dockbuilding, there is an increase in the standardization in wharf construction in New York City.

> The trade began to lose the characteristics of an artisan craft as general carpenters began to specialize in wharf production. The standardization of production, as indicated by the analysis of the wharves themselves, suggests that these master craftsmen may have become entrepreneurs who no longer worked along side their journeymen and apprentices, but rather began to supervise large crews of relatively unskilled laborers [Henn et al. 1986:11].

This research by Henn et al. moves through many different analytical levels, often not making a clear linkage from one to another. For example, they do not make the connection between what appears to be a standardization in wharf construction and their next level of abstraction: standardization of the work process and the deskilling of labor, which in turn are linked to the higher level process of changes in the social relations of production. LBA proposes to test the initial observations made by Henn et al. with data from sites along the eastern seaboard, thus demonstrating that this standardization is not particular to the social and/or natural

environment of the New York waterfront, but in fact may be associated with an even higher level variable such as the deskilling of labor during the initial phase of the American industrial era.

Thus, LBA's Research Question 2 is as follows:

> Is there a decrease in the diversity of methods of wharf construction in the late eighteenth and early nineteenth centuries along the United States' eastern seaboard?

For addressing this question, diversity will be defined by the overall form of the wharves and the waterfront structures associated with the wharves (e.g., bulkheads and pilings), the types of joinings that were used within the wharves, and the materials used to construct the wharves.

In recent years, a number of the archaeological projects in lower Manhattan have occurred within areas of made land. These include the 64 Pearl Street, 175 Water Street, 209 Water Street, Cruger's Wharf, 7 Hanover Square, Telco Block, Barclays Bank, and Schermerhorn Row sites. Despite the number of separate studies of landfill sites, a consensus has yet to be achieved concerning the analytical utility of landfill material itself. Archaeologists in many cities have given only scant attention to landfill contexts; however, a number of archaeologists who have worked in New York have emphasized the importance of landfill as a scientific resource (cf. Salwen 1973, 1978). Geismar (1986), for example, has stated that landfill content may provide information about public attitudes toward sanitation. Huey (1984) has attempted to reconstruct patterns of early trade, based on material recovered from the vicinity of Cruger's Wharf. All of these studies are problematical, however, given the inherent nature of these landfill deposits.

Since a number of projects have been completed at landfill sites, it is possible to study the landfill soils from the Assay Site in the context of these other investigations, identifying patterns in the content and distribution of landfill soils found among the various sites. A recent study of several landfill sites, conducted in the context of LBA's Barclays Bank Site investigation (Louis Berger & Associates, Inc. 1987), suggests that the pattern exhibited by New York City landfill sites is diversity; that is, every site examined to date seems to exhibit somewhat different soil types and contents. Also, it appears that these differences are associated with the local waterfront environment, the time and sequence of the filling, and the nature of commercial and residential activities near the landfill site. Is this diversity unique to New York City? LBA thus poses a third question dealing with landfill and waterfront technology:

Research Question 3

Is the content and configuration of each eighteenth- and nineteenth-century landfill site, along the U.S. eastern seaboard, different; and is this diversity linked to site-specific circumstances?

This question is addressed by comparing the content and soil types of the landfill deposits within and among the various landfill sites excavated to date, focusing on the Assay Site. Examination of these landfill sites, and a consideration of the value of continued archaeological investigation of these sites will be presented in Chapter VII.

C. OTHER RESEARCH ISSUES

Not only did the Assay Site contain extensive landfill deposits and well-preserved waterfront structures, but the site had the *in situ* remains of the floor of a warehouse that burned in December 1835. The research question to be applied to the deposits associated with the warehouse is similar to the question suggested by GCI.

Research Question 4

What were the early nineteenth-century merchandise handling practices along New York City's East River waterfront?

This research question is addressed by simply describing the content, frequency, and distribution of materials recovered from the warehouse floor. These findings are discussed and graphically portrayed in Chapter IV.

As noted above, researchers have recommended reducing the analytical scales used in historical archaeology. Appropriate scales would include individual households and businesses. Chapter VII presents research topics, for the Assay Site collection, that are at these and comparable scales of analysis. These topics are not addressed in this report but left for future researchers.

D. LBA'S ANALYTICAL METHODS

LBA was tasked to complete the analysis of artifacts recovered from the Assay Site. The purpose of this analysis was to (a) determine the overall content and frequency of materials present, (b) address the research questions outlined above, and (c) combine the field data with artifactual data in order to reconstruct the depositional history of the site. Also, the artifact collection was to be prepared for curation and for use by future researchers. The following sections detail the analytical methods used by LBA.

1. Previous Work Completed by GCI

Prior to assignment of the project to LBA, Greenhouse Consultants, Inc. (GCI) had already undertaken and partially completed the preliminary processing of the collections. These tasks included washing, sorting, marking, conservation, and flotation.

After washing the artifacts from each context, GCI sorted them into seven major classes:

Class	Contents
Curved Glass:	bottle, jar, and table glass
Ceramics:	table, kitchen, and household wares
Pipes:	white clay tobacco pipes
Other Diagnostics:	coins, buttons, beads, table utensils, etc.
Non-diagnostics:	coal, slag, architectural materials
Faunal:	dietary bone, teeth, turtle carapace
Macrofloral:	seeds, nuts, crustacean shell

The washing, sorting, and conservation had been nearly finished by GCI, but only a small portion of the collection was marked. Artifacts were marked using a bipartite number, consisting of the site number (1284) and the context number, which indicated a specific provenience within the site.

2. General Characteristics of the Collection

Prior to interruption of the project, an effort was made by GCI to estimate the total number of artifacts in the collection, based on the inspection of a 10 percent sample of the collection. In conjunction with this exercise, excavation contexts were grouped into 27 categories, which were representative of the major foci of the excavations (Table 2.1). A 10 percent sample of the contexts in each category was selected and rough-sort counts were made. Subtotals for each category were computed from the rough-sort counts, and these sums were multiplied by 10 to arrive at an estimate for the total number of artifacts in each category.

Alternate methods of estimating the number of artifacts were devised by GCI, apparently because of doubts that the 10 percent sample of contexts would yield an accurate estimate of the total collection size. In an attempt to assess the validity of the 10 percent sample, a larger sample was drawn from one category. First, a 25 percent sample, and later, a 35 percent sample of the Category 18 contexts was tabulated; then, based on the results of the larger sample of Category 18 contexts, a "correction factor" was computed and applied to the remainder of the contexts. Also, whereas the initial estimation method was based on the average number of artifacts per context, another set of estimates was based on an average number of artifacts per bag.

TABLE 2.1

CATEGORIES OF GCI'S EXCAVATION CONTEXTS

Category	Description
1	landfill bulk samples--various lots
2	stratigraphically excavated units in landfill--Lot 9
3	stratigraphically excavated units in landfill--Lot 41
4	test cut in back yard of Lot 43
5	stratigraphically excavated units in landfill-Lot 42
6	stratigraphically excavated units in landfill--Lot 8
7	test cut in backyard of Lot 44
8	stratigraphically excavated units in landfill--wharves
9	stratigraphically excavated unit in Test Trench West
10	stratigraphically excavated units in Test Trench East
11	test cut in backyard of Lot 42
12	test cut in backyard of Lot 8
13	shovel test in Lot 43
15	test cuts in backyard of Lot 7
16	barrel (cistern?) in Lot 42
17	barrel cistern in Lot 43
18	wooden box in Lots 6 and 44
19	stone privy in Lot 7
20	stone privy in Lot 8
21	late nineteenth-century deposits in Lot 43
22	late nineteenth-century deposits in Lot 9
23	shovel test in Lot 8
24	shovel probes in various lots
25	pre-1835 floor deposits in Lot 8
26	pre-1835 merchants' floor deposits in Lot 9
27	stone privy in Lot 6
28	wooden box in Lot 7

Note: No excavation contexts were assigned to Category 14.

In addition to the 27 formally defined excavation context categories, there were approximately 378 contexts that were not assigned to any Priority Group or Category by GCI. These contexts are collectively referred to as "Category 0" in the GCI reports, and they include selectively recovered materials, such as stray finds and material not recovered from screened test cut soils. This group also contains items that were selectively recovered during the deep testing phase of the project, as well as wood samples taken from landfill retention and waterfront structures (Table 2.2).

It was estimated by LBA, based on information prepared by GCI, that the total collection included approximately 561,000 artifacts. The major components of the artifact collection are listed below, together with an estimate of their percentage representation within the collection.

Context Type	Estimated
Landfill and Riverbottom	36%
Yard Deposits	5%
Feature Contexts	40%
Other Contexts	19%

After LBA completed its own initial processing and tabulation, it was determined that the collection included a total of 665,164 artifacts. It should be noted that numerous artifact types were weighed but not counted (e.g., brick, shell).

3. LBA's Laboratory Procedures

LBA's laboratory processing and analysis were structured to provide information on the range of materials present within the collection, to assist in addressing the project's research design, and to prepare the collection for use by future researchers. The various context types represented in the collection (closed feature deposits, yard deposits, landfill/riverbottom deposits, selective samples, and stray finds) were not viewed as having equal analytical value. Given the variety of context types, three different levels of analysis were carried out for the various components of the collection.

LBA's laboratory procedures were designed to be compatible with the work previously accomplished by GCI so that LBA's work would augment and complement, rather than repeat, tasks already accomplished. The rough-sort tabulation scheme employed by GCI was utilized, with minor modification, by LBA for the basic level of analysis, and the excavation context categories (see Table 2.1) were retained as a device for organization of the collections. The three levels of processing and analysis completed by LBA are described below.

TABLE 2.2

GCI'S EXCAVATION CONTEXTS NOT PLACED IN CATEGORIES

Description	Approximate No. of Contexts
Bulkhead wood samples and context numbers assigned to bulkheads	51
Context numbers assigned to, and samples taken from pilings and posts	9
Context numbers assigned to architectural features (spread footers, stone walls, etc.)	110
Context numbers assigned to soil/flotation samples, in addition to normal samples from excavation	5
Context numbers assigned to material collected during backhoe excavation	45
Context numbers assigned to miscellaneous site finds	30
Context numbers assigned to material collected during hand/shovel clearing	64
Context numbers assigned to material collected from arbitrary three-foot levels while exposing wharves	9
Context numbers assigned to material collected from arbitrary three-foot levels excavated in Test Trench West and Test Trench East	55

a. Basic Processing

The landfill/riverbottom, yard, and miscellaneous contexts were processed according to a rough-sort tabulation scheme. In addition to the seven major artifact classes used by GCI, one additional class was added to include crustacean shell (clam, oyster, scallop, etc.). (GCI had included shell with the macrofloral class.) Tabulation consisted of simple counts of the number of items in each excavation context according to the eight rough-sort classes. Rather than counts, weights for the shell were determined.

Beyond simple rough-sort counts, it was desirable to provide some additional information on the materials from these contexts; however, the extremely large number of artifacts from these contexts limited the level of analysis that could be carried out. Some form of sampling was necessary, and it was decided to focus only on the ceramics. During the rough-sort tabulations, the ceramics were sorted first on the basis of size into two categories: (1) those greater than or equal to two inches in maximum length and (2) those less than two inches in maximum length. Ceramics smaller than two inches in maximum length were not tallied by ware group, but simply tallied as "ceramics." Ceramics greater than two inches in maximum length were then sorted and tabulated according to the following major ware types:

Ware Group

Delftware	Other Stoneware
Creamware	Coarse Earthenware
Pearlware	Oriental Export Porcelain
Whiteware	Other Porcelain
Ironstone	Other Wares
Yellowware	
White Salt-glazed Stoneware	

Sorting the ceramics according to major ware groups provided a basis for estimating the date range represented in these contexts.

The sorting according to size was employed for two reasons. First, it provided a sampling scheme that permitted an equivalent level of analysis for all contexts rather than a few. Second, sampling based on sherd size provided a gross measurement of the level of artifact (i.e., ceramic) completeness within a given deposit. Artifact completeness refers to the level of fragmentation of individual items. With such a measure, it is possible to determine whether an artifact assemblage represents primary, secondary, de facto, and/or displaced refuse contents (cf. Louis Berger & Associates, Inc. 1985b and 1987). Definition of refuse types is critical in determining how and if a given deposit can be applied

to addressing a given research domain (cf. Schiffer 1972, 1983; South 1977).

b. Intermediate Level of Analysis of Feature Contexts

The intermediate level of laboratory analysis for features was oriented toward dating of the deposits, assessment of ceramic vessel completeness, and basic pattern analysis. The following discussions consider each of the major artifact classes in terms of these various intermediate analyses.

Ceramics

The intermediate level of analysis for the ceramic assemblages from the features entailed tabulating sherds by general ware type (e.g., "Creamware," "Pearlware," "Redware," etc.) and by descriptive subtypes (e.g., "underglaze blue hand-painted," "green shell edge," "feather edged," etc.). Appendix 4 lists all of the identified types and subtypes. Date ranges were automatically assigned by the computer to temporally diagnostic types/subtypes. For instance, "Pearlware transfer-printed with a design engraved only with lines without stippling" (Code CRP56) is dated 1780-1815. Dates are derived from a number of sources including, but not limited to, the following: Archer (1973); Barber (1976); Cameron (1986); Coysh and Henrywood (1982); Denker and Denker (1985); Gates and Omerod (1982); Howard (1984); Miller (1980); Noel Hume (1969, 1970); Quimby (1973); South (1977); and Towner (1978). Other types/subtypes are simply descriptive and are undated (e.g., CERO3 - "Redware with a yellow/brown to brown glaze").

Dates for identifiable makers' marks were written in for the pertinent sherds. One of the most common marks was "DD & Co., Castleford," (maker's mark code number 650), for David Dunderdale, who operated a pottery at Castleford, Yorkshire, between 1790 and 1820 (Godden 1964:224). Sherds which were less than two inches in diameter were identified by the numbers 80-89 in the Comments field.

Glass

The glass artifacts from contexts receiving an intermediate level of analysis were broken down, for analytic purposes, into functionally distinct groupings based on "Bottle," "Table," "Lighting-Related," and "Other" use categories. Window glass, considered more functionally inclusive under an architectural group of artifacts, was subsumed for analysis under small finds. Identification and tabulation of the glass under this section proceeded unit by unit according to LBA's standard Stage I level of analysis. In addition to type/subtype, date, and count designations, this analysis involved the recordation of select descriptive attributes of the sherds. In addition to catalog and

provenience information, a total of thirteen (13) fields of discrete glass data were available for recordation on the computer data entry sheets. Appendix 4 contains a breakdown of the codes and their associated translations. A brief description of coding procedures follows.

Tabulation of the glass proceeded according to artifact codes determined by function (type) and form (subtype). Codes are alphanumeric, consisting of three letters and a two-digit number. The designated count is simply the number of sherds in any given category. Dating proceeded according to established diagnostic criteria. These criteria, utilized either singly or in combination, include various technological aspects of glass manufacture such as finish types and mold markings, datable embossments, and various stylistic elements associated with certain tablewares.

Sources used for dating include, but are not limited to, Geismar (1983), Haynes (1970), O.R. Jones (1983a,b), Jones and Sullivan (1985), McKearin and Wilson (1978), Mehlman (1982), Munsey (1970), Noel Hume (1970, 1974), and Spillman (1982). Specific page references are cited in Appendix 4 under the various typological and attribute listings. In general, color was assigned purely for descriptive purposes and is broadly defined. All shades of olive green, for example, are included under "Light Olive/Dark Olive Green." Finish types in the collection relate, for the most part, to the shape (and sometimes characteristics) of the varying elements comprising each finish. Base types refer to the marks on the basal surfaces of both bottles and tableware, indicating the mode of their finish manufacture. Manufacturing technique refers to the distinctive mold seams and markings found on the bodies (and sometimes on the basal surfaces and over the finishes) of completed glassware. In the "Wear" field, "Melted/Burned" was used to denote artifacts subjected to fire. The majority of motif codes assigned to the collection refer to the general decorative patterns evidenced. Lettered embossments were assigned as encountered. Comment codes were utilized at the discretion of individual analysts to convey additional descriptive or explanatory data not covered in the standard coded fields.

Pipes

The pipes from the Assay Site were included in the small finds intermediate tabulation. The pipes from Feature 26, the Williams and Winant warehouse floor, received an intensive analysis. For this later analysis only the following types of pipes were analyzed: whole bowls; partial bowls whose shape could be determined or which were decorated; and decorated stems. Shape (as described and dated by Noel Hume (1970), Oswald (1961, 1967), Sudbury (1980), Sudbury and Pfeiffer (1983), and Walker (1971, 1977), decoration or maker's mark, and extent of use or burning were recorded on the computer data entry forms. Bore diameter in sixty-fourths of an inch was measured on a 10 percent sample, or

one pipe per context if there were fewer than ten coded pipes. The 10 percent sample was taken in order to measure the variability of the assemblage and to see if particular bore diameters could be correlated to specific bowl shapes or marks. It was not considered necessary to measure all of the bores because the date of the deposit was already known and because bore diameter dating is not accurate for the nineteenth century.

The computer generated a Pipes report for Feature 26 separate from the pipes section of the Intermediate Small Finds report. The numbers on the Small Finds report represent the total number of pipes, but the numbers on the separate Pipes report include only those coded in Feature 26.

Faunal Materials

The faunal material from Feature 26 were the only faunal remains subjected to an intermediate level of analysis. Faunal materials from Feature 18 in Lot 6 were examined in a more intensive level of analysis (see Chapter IV). The coding system used for the intermediate faunal analysis was an abbreviated version of the standard Stage I analysis created and normally used by the LBA Cultural Resource Group. This coding system allows for identification of bone by species and element. Also, group and class categories (cf. South 1977) are assigned to each species in order to conduct a pattern analysis.

Tentatively identified species were assigned a general type/subtype code and were recorded in the note field of the data entry form. The type/subtype consists of a five-digit code composed of a three-letter/two-integer field. The first letter is always Z and stands for faunal; the second letter denotes class and the third letter is used for distinguishing groups such as domestic and wild mammal. The two integers identify species.

Each bone received a count of one. Whole shell and hinges received a count of one, but shell fragments did not receive a count. All shell was weighed. When possible each bone element was identified. How much and which part of an element present was also recorded.

Small Finds

Feature materials were separated into three groups, including curved glass, ceramics, and small finds/architectural. The small finds/architectural group included faunal and floral materials. One exception to this is Feature 26 where both the faunal and the floral were separated out and received an intermediate level of analysis (see above). Small finds/architectural artifacts were identified and tabulated by feature, and within feature on a unit-by-unit basis. Analysis of the small finds/architectural artifacts consisted of a greatly abbreviated form of the standard Stage I

coding system created by LBA. This coding system is based on a modified version of South's pattern/function typology (South 1977).

The identification of artifacts by specific functional groups provides the maximum level of identification for most of the small finds/architectural materials subjected to the intermediate level of analysis. Certain groups were expanded to include those specific artifacts which might provide clues as to the date and nature of a given deposit. For example, all identified twentieth-century materials were coded as SBS00-Twentieth Century Debris Group regardless of the artifact, whereas in the Personal Group different types of coins were specified. The standard Stage I analysis allows for a maximum of 10 fields of information for each artifact. These fields include type/subtype, identifying group and class, unit of measure (count or weight), and descriptive modifiers such as material and maker's mark. However, in most cases the artifacts were identified only by type/subtype and either counted or weighed. Faunal material was coded ZAA00 and counted, and floral material was coded FAA00 and weighed.

All small finds/architectural artifacts were tabulated using codes based on functional attributes broken down by group and class. The type/subtype consists of a five-digit code. The letters and numbers progress in alphabetical and numerical order in the codebook. The three letters identify the group and class of an artifact. The first letter is always S, and stands for small finds; the second letter identifies the group; and the third letter identifies the class (e.g., SAB: S = Small Finds, A = Architecture, B = Building Materials). The two integers that follow type are the subtype. The integers identify the artifact within a specific group and class. For Assay Site artifacts, many subtypes are 00, indicating only the presence of an artifact within a group and class without specifically identifying the object (e.g., SCS04: S = Small Finds, C = Clothing, S = Sewing Related, 04 = Scissors).

With certain exceptions all artifacts were counted. Cloth, leather, heating by-products, shell, macrofloral, and artifacts in the Small Finds Other group (with the exception of rock, rubber, and unidentified glass) were weighed. Dates were recorded when a time range for an artifact could be determined based on a diagnostic feature, e.g., a dated coin. The material composition of artifacts was generally not recorded; however, in certain cases, such as with brass buttons, material was recorded in order to highlight its importance. The form or method of manufacture was not generally recorded. In certain cases where an unusual artifact would not be accommodated by type/subtype, its form was described. Makers' marks were recorded when present; however, this field was rarely used. General comments about condition of the artifacts (e.g., burned, privy-stained) were more often placed in this field.

c. Intensive Level of Analysis

In order to prepare the artifact collection for future researchers, and to address Research Question No. 4, certain major contexts were subjected to more intensive levels of analyses. These contexts included (a) the materials from the box-like structure (Feature 18) in Lot 6 that can be confidently linked to at least the Courtlandt VanBeuren occupation of the lot, and (b) artifacts from the warehouse floor (Feature 26) in Lot 9. This intensive level of analysis included cross-mending, minimum number of vessel counts, and calculations of artifact frequencies by functional categories, in addition to general pattern analyses. The specific analytical methods applied to each of these contexts are detailed in the field discussions of these features, in Chapter IV.

d. Stratigraphic Analysis

Using the Harris matrix method (Harris 1975, 1979), stratigraphic analysis was completed for all test cuts in order to achieve a clearer understanding of the stratigraphy of the excavated deposits. Harris matrices have been completed not only for the features but for all test cuts that included more than one excavation context. This method of analysis provides a two-dimensional, graphic portrayal of the chronological sequence of the deposits and architectural features that were excavated and recorded at the site. This method is particularly useful for reconstructing complex stratigraphy typically found at urban landfill sites.

Beginning with the smallest unit of excavation and recordation, which in the case of the Assay Site is the context, its spatial relationship was determined by reference to plan drawings, spot elevations, and profiles. Each context may have one of three possible relationships with another: either (1) it is earlier than or beneath another, (2) it is later than or above another, or (3) it is equal to or contemporaneous with another. In many cases, however, the quality of the field records was insufficient to re-establish a fully accurate stratigraphic sequence.

Data analyses (i.e., dating and pattern analysis) have also been carried out according to depositional units (DUs) within features. Depositional units serve as a device for combining separate excavation contexts that relate to a single refuse disposal episode or event (cf. Louis Berger & Associates, Inc. 1985b). For the current study, depositional units have been defined solely on the basis of information provided in the field records, since intensive artifact analyses (e.g., cross-mending) were not conducted on the site's deposits and features (except for Feature 18, the box-like structure in Lot 6; and Feature 26, the warehouse floor in Lot 9). Therefore, these depositional units must be considered to be provisional until these contexts are subjected to an artifactually

based stratigraphic analysis. Depositional units have been designated using a tripartite identifier, consisting of (1) the lot number, (2) the deposit type, and (3) a unique identifying number within each feature. All DUs for the features utilize the letter "F" to designate the association with a feature.

e. Computer Artifact Cataloging and Coding

The computerized data management system developed by the Cultural Resource Group of LBA was used to compile an inventory of artifacts and soil samples. This system is written on an IBM PC-XT using RBase System V, a relational data base development package. Three major data bases were used for data management and manipulation: Rough Sort, Intermediate, and Intensive level data bases. The categories and codes used for these various levels of analyses are presented in Appendix 4. The types of "computer reports" generated by these analyses included calculation of TPQs, MCDs, and Pattern Analysis.

In addition to the artifact computer cataloging, LBA also developed a data base for soil samples collected during excavation. These samples were assigned a color, using the Munsell color chart. The texture was also recorded. This information, along with any comments noted on the provenience tags, was entered into the data base. This system provided easy access to soil characteristics necessary in setting up depositional units.

f. Conservation and Treatment of the Collection

All artifacts in need of conservation had already been segregated from the general collection when LBA took over the project, and treatment had been completed on a majority of these artifacts. Treatment of wood and leather artifacts, however, was in process when LBA received the collection. These artifacts had been placed in net bags, marked with their provenience, and allowed to soak in a solution of Mystox and Polyethylene Glycol (PEG). Before transportation from New York City to LBA's laboratory in East Orange, New Jersey, most of the solution was removed from the Nalagene Tanks and transported in separate containers from the artifacts. This prevented both the spilling of the solution and damage to the artifacts during the move. Upon arrival at LBA's East Orange laboratory, the solution was returned to the tanks and the artifacts were left to continue soaking.

The artifacts were agitated and checked regularly. Once it was determined that the treatment was complete, artifacts were removed from the solution and allowed to air-dry slowly. During the drying process the artifacts were checked regularly for signs of cracking and warping. Several artifacts were wrapped and packed with gauze to prevent cracking and warping. Once the artifacts were dry they were wrapped in acid-free tissue and packed for storage in plastic bags with holes punched in them to allow ventilation.

g. Preparation of Study Collections

The Assay Site artifact collection includes some material that was recovered from general site contexts and thus has relatively little analytical value. This material was used to prepare type collections for future researchers. These general site contexts include what is described in GCI's notes as "stray finds," "material collected during backhoe clearing," and "material collected during shovel clearing." LBA's preliminary examination of this "general" provenienced material indicates that it contains mostly diagnostic artifacts, including ceramic and glass vessels that are relatively complete. Since the materials do represent relatively well-preserved and recognizable vessel forms, they are appropriate for incorporation into an archaeological type collection. Materials selected for incorporation into the type collections were labeled so that the site provenience would be preserved with the artifacts.

After completion of the sorting, labeling, tabulation, and analyses, all materials (except those included in the study collections), were placed in plastic bags with a tag indicating provenience information (context number, test cut, level, and stratum). Materials from the rough-sort categories were bagged according to the eight rough-sort classes (ceramics, pipes, faunal, etc.), and the context number was written on the exterior of each bag as well. The materials were then boxed in standard cardboard boxes, grouped according to rough-sort classes and the 28 context categories established by GCI (see Table 2.1). Each box was numbered, and an external label was applied to each box indicating its contents. Finally, an index of box numbers and contents was prepared to assist future data retrieval.

III. HISTORICAL BACKGROUND OF BLOCK 35

A. INTRODUCTION

An overview of the historical development of Block 35 was prepared by Greenhouse Consultants, Inc. (GCI), in September 1983 as part of the evaluation of the block's archaeological potential. During GCI's fieldwork and preliminary analysis, additional research was undertaken, which resulted in a thorough investigation of surviving tax records (to 1850) and city directories (also to 1850). Historical research conducted by the Cultural Resource Group of Louis Berger & Associates, Inc. (LBA), in the winter of 1987 was directed toward resolving outstanding issues concerning the early partitioning and occupation of the lots along Front Street.

The following sections summarize the overview and histories of the four lots subject to archaeological investigation. Specific lot histories are detailed in tabular form in Appendix 2.

B. DEVELOPMENT OF BLOCK 35

GCI (1983a:21) defined five stages that characterized the development of Block 35. These stages comprise the following:

Pre-Landfill (1760-1790): The block contained a series of slips and docking facilities serving commercial purposes. Miscellaneous items associated with neighboring commercial/ maritime activities were either lost or discarded in the area.

Sequential Filling (1790-1804): Successive landfill episodes resulting in the extension of the shoreline into the East River to form new land and ultimately construction of South Street. The Front Street frontage was completed and occupied in the 1790s and the South Street frontage by 1804.

Early Nineteenth-Century Occupation (1804-1835): Prior to the Great Fire of 1835, the block was occupied by a mix of warehouses, commercial facilities, and residences, all of which were destroyed in the fire.

Nineteenth-Century Commercial Use (1835-1930): Subsequent to the nearly complete destruction in the fire, the block was rebuilt with 21 four- and five-story brick rowhouses, which were modified and reused as the nature of the port evolved.

Twentieth-Century Use (1930-Present): Fifteen nineteenth-century buildings were demolished in 1930 to provide a site for the United States Assay Office Building. The remainder of the site was cleared and paved as a parking lot.

Each of these episodes is described in further detail below. Unless otherwise stated, all information has been taken from GCI (1983a).

1. Pre-Landfill (1760-1790)

"Making land" in New York City began under the Dutch and continues today. The policy was motivated in the seventeenth and eighteenth centuries by commercial, municipal, and medical interests. The value to trade, shipping, and commerce of control of the waterfront and improved harbor facilities has been well documented (cf. Rockman et al. 1983; Geismar 1983). City government profited immediately from sale of riparian rights and expected to gain again as a result of increased settlement and enhanced tax rolls. This position was not without problems as charges of corruption surrounded the process and the minimal control over development led to repeated complaints of litter and filth on the wharves and in the slips. The medical profession came to see draining and filling of low-lying areas as a public health measure. The importance to public health became very obvious in the wake of periodic yellow fever epidemics, the worst of which occurred in 1795 and 1798.

In March of 1775, water lots were granted to a series of merchants and politicians. These grants covered the shoreline and adjacent river bottom in the vicinity of modern blocks 29 to 36, the area now bounded by Stone Street, Coenties Slip, Wall Street, and the East River. Parts of this area had previously been filled; landfill in Block 31, for example, was begun before 1700 (Louis Berger & Associates, Inc. 1987). Nine grants covered the study block; these were subsequently partitioned into the small urban lots characteristic of lower Manhattan.

2. Sequential Filling (1790-1804)

Little aside from pier and slip-related construction occurred within the study block prior to the Revolution. Between 1783 and 1790, the Front Street frontage is believed to have contained three wharves: Roosevelt's (east of Old Slip), Bache's, and Gouverneur's (approximately in the location of Gouverneur's Lane); with two blacksmiths; one cooperage; and one "store" (i.e., storehouse or warehouse). The problems of interpreting the 1790 tax list on which this description is based are discussed below.

In April 1795, the Common Council reassessed their policy on the development of the waterfront and concluded that some improvements were necessary because of drainage and health-related problems. The council ordered construction of a 70-foot-wide street to define the limit of expansion; this became modern South Street. The only development beyond the new street would be wharves and piers necessary for trade. Municipal jurisdiction did not enable the council to compel water lot grantees to comply and the city appealed to the state for appropriate authority, which it received.

Enforcing the new policy and constructing South Street took several years, during which time severe bouts of yellow fever in 1795 and 1798 fanned local support for completing partially finished landfill projects and building appropriate drainage systems. In October 1797, the Council directed water lot grantees between Coenties Slip and Catherine Slip to complete the fill up to South Street within the next 12 months. After some foot-dragging, the grantees between Old Slip and Wall Street signed a petition in 1803 asking all property owners to participate in the landfill process, which was complete by 1804.

3. Early Nineteenth-Century Occupation (1804-1835)

Shepherd and Walton (1976) argue that changes in the post-Revolutionary trading patterns represent intensification of patterns already clear in the late Colonial period. Eighteenth-century commerce had consisted of two principal circuits, transatlantic and coastal, and had served two major functions: (1) redistribution of colonial products for consumption within the colonies; and (2) collection of commodities for export overseas via the large centers (Boston, New York, Philadelphia, and Charleston) and distribution of imports through these centers to their respective hinterlands (Shepherd and Walton 1972:785). Despite dislocation immediately after the War for Independence, the major part of the Atlantic trade was still with Great Britain by the 1790s, although pre-war levels were not regained. The reduction of trade with Great Britain was partially offset by direct trade with France and other northern European ports. Commerce with southern Europe was re-established and trade with the West Indies surpassed colonial levels. The principal difference was open access to non-British islands, and the export of foodstuffs, traditional items in the West Indian trade, increased dramatically. Exports from New York boomed, "reflecting the increased agricultural output of that state" (Shepherd and Walton 1976:412).

In the period 1790-1830, New York grew more rapidly than any other American city and achieved a dominant position before the Erie Canal opened in 1825 (Kammen 1982:123). Foreign immigration remained high after 1790, accounting for a demographic increase of 295 percent between 1790 and 1820. The city's hinterland also grew at an amazing rate, and bonds between the city and its regional context were strengthened by the incorporation of 253 turnpike and 70 bridge companies between 1799 and 1823. Astute business created specialized institutions, such as the Board of Brokers, that accelerated economic growth.

The city had burned twice during the Revolution and at least part of the late eighteenth-/early nineteenth-century boom was reflected in new construction. Between 1786 and 1790, the number of dwellings increased by 45 percent. Demand, however, exceeded supply, and land values between 1785 and 1815 increased by 750 percent (Blackmar 1979:137). The elite benefited disproportionately

from the changing real estate market, and working class tenants, confronted with declining wages, declining prospects for upward mobility, and increasingly constrained living conditions, responded to the market by taking in boarders and creating other forms of shared housing (Blackmar 1979:143).

Because proximity to work was still important in the era preceding mass transit, the social gradients along a given street could be quite steep. Still, rising commercial rents and increasing reluctance among the emerging middle classes to reside among the laboring classes resulted in construction of enclaves such as Greenwich Village, Gramercy Park, Union Square, and Yorkville in the 1820s, 1830s, and 1840s (Blackmar 1979:143; Spann 1981:107). Lower Manhattan, particularly along the East River, was increasingly given over to commercial uses.

Albion (1939) argues that New York's eventual primacy among ports was based on strategic decisions that occurred between 1815 and 1825. Principal among these were the initiation of packet lines and consolidation of the city's position in the cotton export trade. Duties were reduced substantially in 1825 and inauguration of auctions placed New York in a competitive position. More recent historians, notably Shepherd and Walton, suggest that the antecedents of New York's commercial dominance extend further into its eighteenth-century past. Additional support of this position can be derived from A. Jones (1980), who argues that the creation of reserves of liquid capital in the cities of the Middle Colonies by 1774 was critical to their eventual economic success in the industrial nineteenth century.

Regardless of the econometric debate, which addresses issues of historical causality, New York's trade clearly expanded in the early nineteenth century, the size and draw of ships increased, and dock space was at a premium, ultimately adding to the clamor for improved facilities. During the initial expansion, the study block was occupied by a series of merchants, grocers, and artisans primarily associated with shipping (boot and shoe maker, block and pumpmaker, cooper, sail and duck store). Mixed commercial/ residential uses can be definitively associated with Lots 6 and 7. Lot 6 appears to have been exclusively commercial after 1812, and Lot 7 ceased to contain a residential component after 1827.

Finally, prominent members of New York's mercantile community were scions of New England families. They acted as agents or correspondents for New England-based firms so that the commerce of the two competing regions was frequently controlled by a handful of firms. For the project area, this is exemplified by Pelatiah Perit (Perit and Lathrop), who was originally from New England as was the Griswold family of Connecticut.

4. Nineteenth-Century Commercial Use (1835-1930)

The fire of December 1835 provides a convenient point of reference, given the extent of destruction and the opportunity it created for rebuilding. However, the rebuilding that ensued crystallized changes already underway for some years. Well before the blaze, the final conversion to exclusive use by commercial interests had occurred within the study area as it had on other neighboring blocks (Geismar 1983; Louis Berger & Associates, Inc. 1987). The debate among historians, moreover, centers on whether the 1790s and recovery after the Revolution or the period 1815-1825 represent the critical transition in the city's economic future.

Association of individual streets with specialized functions or businesses became a feature of lower Manhattan, although the associations were fluid. By 1852, Wall Street was the financial center, housing the capital markets as well as offices for broker, banks, insurance companies and the Merchants' Exchange and Custom House. South Street, the most intimately connected with maritime activities, was lined with the principal shipping houses and the offices of the packet lines. Pearl Street in the 1830s had been the center of dry goods, but by the early 1850s, dry goods emporiums had spread to William, Broad, Pine, Cedar, and Liberty Streets. Mediating spatially between the two (i.e., South and Pearl) Streets were Front and Water Streets, which contained wholesale grocers, commission merchants and the artisans and tradesmen who supported the shipping industry. Broadway was already associated with retail establishments and personal services (e.g., tailoring, millinery, etc.). The hardware trade was found along Platt and Pearl Streets and the leather dealers were located on Ferry and Jacob Streets (as quoted in Albion 1939:266).

The fire damaged virtually all of the block, which was rebuilt as a series of four- and five-story brick rowhouses. In the period between 1835 and 1850, the study area was characterized by intensive use of space and occupation by grocers, commission merchants, and merchants specializing in cotton, tea, wines, and liquors. The packet lines were also represented by occupants of the project area (Whitlock, Phelps) as well as the range of associated industries (banking, insurance) and the practice of appointing influential merchants as consuls for foreign governments (see Albion 1939).

In the second half of the nineteenth century, the Hudson River port facilities outstripped the East River docks. In part this was due to the increasing importance of the export commodities obtained from the interior, first via the Erie Canal and later by the railroads. Important terminals for rail lines serving the interior were located on the New Jersey side of the New York harbor and the focus of activity shifted from the East River and points north and east to the Hudson River and points west. Increased size of the

vessels and the steam technology, moreover, necessitated new and larger facilities. Increasingly, lower Manhattan was given over to office, banking, insurance, and finance and many of the older rowhouses were abandoned or used as warehouses.

5. Twentieth-Century Use (1930-Present)

The Assay Building was constructed as part of a 700 million dollar federal buildings program. Fifteen lots, said to contain structures almost 100 years old, were bought and demolished and construction on the new building began in the summer of 1931. On the eve of their demolition, the seedy, four- and five-story row houses were used as lodging houses, warehouses, and for light industry.

Originally conceived of as containing a mint, the "new" building is a massive iron-and-concrete structure with steel vaults and a 27-ton vault door. It is five stories high with an attic and a basement that extends about ten feet below grade. The vault is about 12 feet below grade. It was finished in mid-1932 and cost 2.1 million dollars. In March 1966, the remaining six lots (subject to archaeological investigation) were purchased and the buildings razed to make way for a parking lot.

C. PARTITIONING AND USES OF THE STUDY LOTS

A substantial amount of historical data relating to the history of the eight lots contained in the study area was collected by GCI. Review of this material revealed that there was confusion as to the sequence of addresses along Front Street in the period prior to 1818 and that this confusion may have resulted in failure to collect all possible information from the city directories. LBA's first objective was, therefore, to clarify the confusion over the street addresses on Front Street.

LBA focused on the deeds because these documents contain explicit locational information. The sequence of owners and references to occupants can be used to extrapolate associated data from other records, such as tax lists and census lists, believed to reflect routes. Neither tax lists nor census lists necessarily indicate empty or vacant lots, so assigning lot occupation solely on the basis of a sequence from either of these lists in the absence of corroboration from a different type of source, such as a deed, is problematic.

At the conclusion of the deed research, some additional work was conducted in the federal census and the microfilm collections of city directories at the Library of Congress where different editions of directories from the same year are available. Use of the federal census is usually constrained by the absence of information on street addresses prior to 1880. However, the census taker did follow a route, albeit with occasional exceptions, and

the route can be extrapolated by comparing the sequence of names taken from the census, which reflects residence, with the sequence taken from the tax list, which reflects property and location, and with the addresses associated with those names as they are provided in the contemporaneous city directory. Given the high degree of transiency and absentee ownership, only the 1810 federal census yielded any relevant information, although this was extremely valuable as it provided a benchmark for mixed-use properties as well as for properties apparently dedicated exclusively to commercial uses.

LBA has achieved mixed results with respect to the problem of street addresses for the period prior to 1799. This problem may reflect the historical reality of the waterfront in the late eighteenth century. Thus, the ambiguity can be seen as a type of historical evidence. The earliest deed found dates to 1805, although information reflecting earlier occupations was contained in the recitals that prefaced later transactions. In the next section, the results of the deed research are discussed in detail. This is followed by lot-by-lot discussions.

1. Results of Deed Research

Research conducted by GCI located a map of water lot grants in the study area (Figure 3.1), which was produced in the context of a late nineteenth-century lawsuit and which correlated with information contained in the late eighteenth-century water lot grants themselves. The earliest deed associated with Lot 6 (Bache to McEvers et al., 1807, New York City Libers [hereinafter cited as NYC] 76:505) indicates that this lot was in the occupation of Courtlandt VanBeuren and that it was known as 91 Front Street. VanBeuren bought this lot the following year (NYC 351:195). His presence on the property is confirmed in both the directories and in the tax lists, which indicate either the owner or the occupant in the early nineteenth century.

There were four water lot grants the widths of which historically correspond to the four lots along Front Street. Since 87 Front Street (Lot 6) was originally 91 Front Street, it might be thought that the original addresses were 91 through 97 Front Street. However, the 1807 tax list, which renumbered the street addresses (89 Front Street corresponded to 91 Front Street, i.e., Lot 6, and so on), implied that two adjacent lots, corresponding to Lots 7 and 8, were both designated 91 (formerly 93 Front Street); the corner lot was therefore formerly 95 now 93 Front Street. Comparison with city directories, however, indicates that the numbering system of the tax records between 1807 and 1818, when it was changed to the modern system, was never implemented in the city directories. Lot 7, therefore, appears to correspond to 93 Front Street, as reported in the city directories, and Lot 8 corresponds to 93-1/2 Front Street, as listed in the directories. Thomas Delves, listed in 1807 as being at one of the old 93 Front Street addresses, was in fact

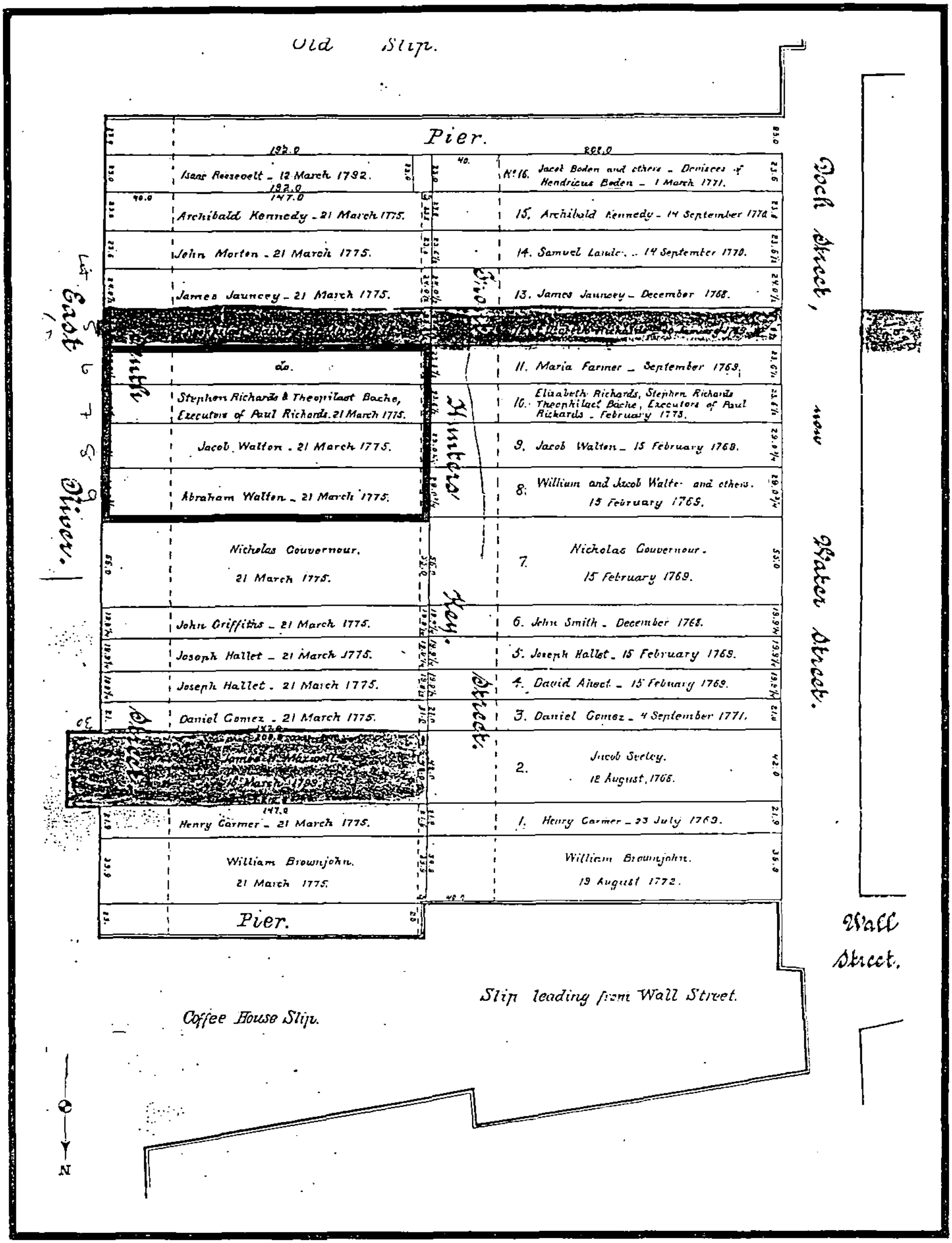


FIGURE 3.1: Water Grants in the Study Area and Vicinity

SOURCE: Map of Water Grants on East River 1885.

BOUNDARY OF STUDY AREA

listed in the city directories at 93-1/2 Front Street. No. 95 Front Street appears always to have been the corner property, which was re-numbered 93 Front Street in 1818.

This system worked consistently for all data from the 1799 tax list through 1850 and matched with data found in the city directories. Two deeds to Lot 7 (Aymar to Whitlock et al., 1831, NYC 275:100; Whitlock et al. to McCormick, 1833, NYC 295:115) refer to this property as having been 93 Front Street. Mrs. Troup's boarding house, mentioned in one of these (Aymar to Whitlock et al., 1831, NYC 275:100) was also listed in the city directory at this address. No reference to Lot 9 as ever having been known as 97 Front Street was found, nor was there any legal evidence of double lots along Front Street, although all of the lots originally extended from Front to South Streets and were later subdivided.

Interpretation of the late eighteenth-century tax lists remains problematic. It is presently believed, however, that the sequence in the lists prior to 1799 (i.e., 1789, 1790, 1791, 1794, and 1795) reflects properties west of Front Street as well as any improvements (i.e., wharves and structures on them) east of Front Street. This is suggested by Thomas and John Ming's cooperage. The cooperage is listed between Bache's and Gouverneur's wharves although the earliest address for Ming's cooperage is "Front Street near Old Slip" and the second is as "86 Front Street," i.e., on the west side of the street. In 1795, Ming's cooper shop was described as being "on wharf"; it is not clear whether this was Randall's or Bache's Wharf. It is also likely that the shop was across the street from his residence at 86 Front Street (New York Directory and Register 1795:129). Bache, moreover, owned both Lots 5 and 6 and was a trustee of the Estate of Paul Richards, which owned Lot 7. Thus, "Bache's wharf" might conceivably refer to the section of wharf along Lot 6 as well as the pier that projected into the East River in the area now called Lot 5.

Gouverneur's Wharf is believed to be under Gouverneur's Lane. The 1795 tax list also refers to "Randall's wharf," a section of wharf presumably associated with Thomas Randall, a blockmaker enumerated in the tax lists from 1789 to 1795, although he was not identified in the associated city directories. Randall is, however, mentioned in an 1805 conveyance (Coster to Coster, 1805, NYC 72:167). The wording is slightly ambiguous. The passage described a tract that measured 23 feet, 3 inches, by 399 feet and was bounded:

> Northerly by Water Street aforesaid Southerly by the said East River in Harbour Easterly by a Water Lot granted to Mr. Jacob Walton and Westwardly by another Water Lot granted to Mr. Paul Richards late in the Possession of Thomas Randall Deceased as in and by the said Indenture of Release referenced thereto . . . (Coster to Coster, 1805, NYC 72:167).

The property conveyed is clearly Lots 8 and 43; the question is, does the phrase, "occupied by Thomas Randall," modify the adjacent lot, that owned by Paul Richards's Estate, or does this modify the lot herewith conveyed, that is, Lot 8? None of the descriptions of the adjacent properties contains reference to occupants although it was not uncommon for descriptions of conveyed properties to refer to the occupant, particularly if the occupant differed from the owner. Thus, the structure of the deed implies that Randall was the occupant of Lot 8. A later deed to the same property of the same literary construction indicates that Mrs. Troup was the occupant, a conclusion confirmed by the information contained in the city directories.

Further confirmation of the association of Randall with Lot 8 is obtained by attempting to link the sequence of names taken from the tax lists with the lots as they are believed to have existed in the late 1790s. LBA's reconstruction of the occupations is presented in Table 3.1. The significant feature of this reconstruction is that it results in the placing of Abraham Walton's water lot at Lots 9/41 and Gouverneur's water lot under Gouverneur's Lane. This interpretation of the sequence in the tax is, therefore, consistent with both the pattern of water lot grants as discerned in the grants themselves and in the re-survey of these grants in the late nineteenth century.

South Street properties presented less problem (Table 3.2). The area was open until after 1802, and the earliest information found relating to these lots dates to 1807.

2. Lot 6: 91/87 Front Street

This lot was contained in a water lot granted to Theophylact Bache on March 21, 1775. Bache had been born in Great Britain but prospered as a merchant in the New World. He attempted to remain neutral during the Revolution, and was, for the most part, successful. Although briefly seized and held by the Americans in Morristown, New Jersey, he was able to return to New York City, then occupied by British troops. He continued the business that he had begun prior to the war and revived his offices at 38 Hanover Square. He built three buildings on Water Street (Nos. 85, 86, and 87) and two on Front Street (Nos. 212 and 213). He eventually constructed two warehouses at the corner of South Street and Gouverneur's Lane.

The earliest possible reference to improvements on this lot is the reference in the 1789 tax list in which T[heophylact] Bache was taxed for a "wharf," valued at £300 (Tax Lists 1789). The wharf was again assessed at £300 the following year as well as in 1791 (Tax Lists 1790, 1791). In 1792, the wharf contained a cooper shop, which Bache presumably rented; the total value of shop and wharf was placed at £450 (Tax List 1792).

TABLE 3.1
FRONT STREET LOTS
1789-1850

Year	Lot 6	Lot 7	Lot 8	Lot 9
1789	Owned by T. Bache; possibly not occupied	Thomas Ming Cooperage; possibly not resident	Thomas Randall Blockmaker	Abraham Walton Blacksmith
1790	Owned by T. Bache; possibly not occupied	Thomas Ming Cooperage	Thomas Randall Blockmaker	Abraham Walton Blacksmith
1791	Owned by T. Bache; possibly not occupied	Thomas Ming Cooperage	Thomas Randall Blockmaker	Abraham Walton Blacksmith
1792	Cooper shop owned by T. Bache, probably rented out	[Vacant?]	No data	Abraham Walton Blacksmith
1793	No data	No data	No data	No data
1794	Cooper shop owned by T. Bache, probably rented out	No data	No data	Estate of Jacob Walton taxed for lot and wharf (confirmed by deeds)
1795	Bache paid taxes on a two-story building	John Ming's Cooperage "on wharf"	No data	No data
1799	William Bache	J.Elsworth Boarding House	[Missing Data]	A. Pentz Cooperage T.Satterwaite "Store"[house]
1800	William Bache Attorney	[Missing Data]	[Missing Data]	A. Pentz Cooperage
1801	C.VanBeuren Grocer	[Missing Data]	[Missing Data]	[Missing Data]
1802	C.VanBeuren Grocer	S. Miller Merchant	T. Delves Merchant	P.Cammann "Store"[house]

TABLE 3.1
FRONT STREET LOTS
1789-1850

Continued

Year	Lot 6	Lot 7	Lot 8	Lot 9
1803	C.VanBeuren Grocer	S. Miller Merchant	T. Delves Merchant	P.Cammann Merchant
1804	C.VanBeuren Grocer	S. Miller Merchant	T. Delves Merchant	[Missing Data]
1805	C.VanBeuren Grocer	[Missing Data]	T. Delves Merchant	Cadle & Stringham Merchants W. Hill Merchant
1806	C.VanBeuren Grocer	Mrs. Troup Boarding House	T. Delves Merchant	Cadle & Stringham Merchants W. Hill Merchant
1807	C.VanBeuren Grocer VanBeuren & Schoonmaker Merchant	Thomas Farmer	Delves & Thompson, Merch'ts	Cadle & Stringham Merchants W. Hill Merchant G. Jackson Merchant
1808	C.VanBeuren Grocer D. Fisher VanBeuren & Schoonmaker Merchant	E. Wilkie Br. Pilot	T. Delves Merchant J.Hutchinson Commmission Merchant	Cadle & Stringham W. Hill Merchant G. Johnson Merchant
1809	C.VanBeuren Grocer D. Hasbrouck VanBeuren & Schoonmaker Merchant	E. Wilkie Br. Pilot Thomas Farmer	J.Hutchinson	Cadle & Stringham W. Hill Merchant G. Johnson Merchant

TABLE 3.1
FRONT STREET LOTS
1789-1850

Continued

Year	Lot 6	Lot 7	Lot 8	Lot 9
1810	C.VanBeuren Grocer (R)* J.Hasbrouck (R)*	G.Sickles Boot/Shoe-maker (R)* T.Hodges (R)* D.Sickles W. Nill	Store[house] owned by J.G. & H.Coster	Cadle & Stringham W. Hill Merchant G. Johnson Merchant
1811	C.VanBeuren Grocer J. Hasbrouck Merchant	G. Sickles Boot/Shoe-maker	Store[house] owned by J.G. & H. Coster	[Missing Data]
1812	C.VanBeuren** Schoonmaker & Hasbrouck	G. Sickles J.Duvall	Store[house] owned by J.G. Coster	[Missing Data]
1813	C.VanBeuren Schoonmaker & Hasbrouck	G. Sickles Boot/Shoe-maker	Store[house] by J.G. & H. Coster	[Missing Data]
1814	C.VanBeuren Grocer Schoonmaker & Hasbrouck	G. Sickles Boot/Shoe-maker	Store[house] owned by J.G. & H. Coster	W. Hill Merchant
1815	C.VanBeuren M.Schoonmaker	G. Sickles Boot/Shoe-maker	Henderson & Cairns Merch'ts	G. Johnston Merchant
1816	C.VanBeuren & Son, Grocer	G. Sickles Boot/Shoe-maker	Henderson & Cairns Merchants	Hinton & Moore Sail/Duck Store
1817	C.VanBeuren & Son	H. Thorn R.McCormick Grocer/Home	Walsh & Gallagher	Hinton & Moore Sail/Duck Store
1818	Schoonmaker, VanBeuren & Co., Merch'ts	H. Thorne R.McCormick Grocer/Home	Walsh & Gallager	Hinton & Moore Sail/Duck Store

*(R) denotes residence known from the 1810 federal census and cross-referenced against the city directory for that year.

**By 1812, VanBeuren had moved his residence to 22 Provost although the business still functioned at 91 Front Street.

TABLE 3.1
FRONT STREET LOTS
1789-1850

Continued

Year	Lot 6	Lot 7	Lot 8	Lot 9
1819	Schoonmaker, VanBeuren & Co., Merchants	R.McCormick Grocer/Home	VanBeuren Merchant Walsh & Gallager	Hinton & Moore
1820	Schoonmaker, VanBeuren & Co., Merchants	R.McCormick Grocer (R) G.Blair Watch-maker E.Blair Cartman	Walsh & Gallager Merchants	Hinton & Moore Sail/Duck Store
1821	Schoonmaker, VanBeuren & DeForest Merchants	R.McCormick Grocer (R) E. Blair Grocer (R)	Taxes paid by Hinton & Moore	Hinton & Moore Sailmakers/ Ship Chandlers
1822	Schoonmaker, VanBeuren & DeForest Merchants	R.McCormick Grocer (R) E. Blair (R) T. Nevins Cooperage	"Vacant"	A.V. Winans Grocer
1823	VanBeuren & DeForest Merchants	R.M'Cormick Grocer (R) E. Blair Cartman (R)	"Vacant"	A.V. Winans Grocer
1824	VanBeuren & DeForest Merchants	R.McCormick Grocer (R)	Taxes paid by Walsh & Gallagher	A.V. Winans Grocer H. Ginnel [sic] Merchant
1825	VanBeuren & DeForest Merchants	R.McCormick Grocer (R)	H.Grinnell Merchant	A.V.Winans & Co. Grocer
1826	VanBeuren & DeForest Grocers	R.McCormick Grocer (R)	C.Green "Store in Rear"	A.V. Winans & Co.
1827	VanBeuren & DeForest Grocers	R.McCormick Grocer (R) G.P. Holmes & Co.	"Vacant" with "Store in Rear"	A.V.Winans & Co. Grocers

TABLE 3.1
FRONT STREET LOTS
1789-1850

Continued

Year	Lot 6	Lot 7	Lot 8	Lot 9
1828	VanBeuren & DeForest Grocers	Owned by W. Chamberlain	Condit & Richards	A.V. Winans & Co. Grocers
1829	VanBeuren & DeForest Grocers	W.Chamberlain Merchant	Condit & Richards	A.V. Winans & Co. Merchants
1830	VanBeuren & DeForest Grocers	W.Chamberlain Merchant	Condit & Richards Merchants	A.V. Winans & Co. Grocers
1831	Owned by (?) Voorhees	W.Chamberlain Merchant	Condit & Scott Merchants	A.V. Winans & Co. Grocers
1832	Owned by Conovert & Labaugh	S.McAllister Grocers	Condit & Scott	A.V. Winans & Co. Merchants Grocers
1833	Conovert & Labaugh Commission Merchants	"Vacant"	Condit & Scott Merchants	A.V. Winans & Co. Grocers
1834	Conover & Labaugh Commission Merchants	"Vacant"	Condit & Scott	A.V. Winans & Co. Grocers
1835	Smith & Rudd Grocers	Parker, Howard & Co.	Condit & Scott Merchants	A.V. Winans Grocer
1836	Owned by Bulord & Co.	Howard, Parker & Co.	Condit & Scott Merchants	Taxes paid by J. Vanbenchoten
1837	Bulord & Caswell Merchants	Brittain C. Woolley Merchant	Condit & Scott	J. Vanbenchoten Merchant Merchants
1838	J. Caswell Merchant	Brittain C. Woolley	Condit & Scott Merchant	J.G. & E. Baker Wine Merchants Merchants

TABLE 3.1
FRONT STREET LOTS
1789-1850

Continued

Year	Lot 6	Lot 7	Lot 8	Lot 9
1839	J. Caswell Merchant	Brittain C. Woolley Merchant	Condit & Scott Merchants	J.G. & E. Baker Wine Merchants
1840	J. Caswell Merchant	Brittain C. Woolley & Co. Merchants	Condit & Scott Merchants	J.G. & E. Baker "Wines"
1841	J. Caswell Merchant	Brittain C. Woolley & Co. Merchants	Condit & Scott Merchants	J.G. & E. Baker "Wines"
1842	J. Caswell Teas, Imported Wines & Liquors	Brittain C. Woolley & Co. Merchants	Condit & Scott Grocers	J.G. & E. Baker Importers of Wines & Liquors
1843	J. Caswell Merchant	B.L. Wooley Merchant T.Marean	Condit & Scott Grocers T. Marean Commission Merchant	J.G. & E. Baker Importers
1844	J. Caswell Merchant S.T.Caswell Clerk	B.L. Wooley Merchant T.Marean Commission Merchant	J.H. Brower Insurance Agent	J.G. & E. Baker Importers
1845	J. Caswell & Co., Grocers S.T.Caswell Clerk	E.Wheeler Grocer T.Marean Commission Merchant	J.H. Brower Insurance Agent Brower & Neilson Commission Merchants	J.G. & E. Baker Importers B.L. Woolley [sic] Merchant

TABLE 3.1
FRONT STREET LOTS
1789-1850

Continued

Year	Lot 6	Lot 7	Lot 8	Lot 9
1846	J.Caswell & Co., Grocers S.T.Caswell Clerk	E.Wheeler Grocer T.Marean Commission Merchant	J.H. Brower Insurance Agent Brower & Neilson Commission Merchants Gill, Gillets & Noyes Teas	J.F. & E. Baker Importers B.L. Woolley Merchant
1847	J.Caswell & Co., Grocers S.T.Caswell Clerk	E.Wheeler Grocer T.Marean Commission Merchant	Gill, Gillets & Noyes	J.G. & E. Baker Importers Teas
1848	J.Caswell & Co., Grocers S.T.Caswell Clerk	E.Wheeler & Co. Grocers	Gill, Gillets & Noyes Teas T. Marean Commission Merchant	J.G. & E. Baker Importers J.L. & N.L. Griswold Merchants
1849	J.Caswell & Co., Grocers	E.Wheeler & Co. Grocers T. Marean Commission Merchants	Gill, Gillets & Noyes Teas J.L. & N.L. Griswold Merchants	J.G. & E. Baker Importers

TABLE 3.1
FRONT STREET LOTS
1789-1850

Continued

Year	Lot 6	Lot 7	Lot 8	Lot 9
1850	J.Caswell & Co., Grocers	E.Wheeler & Co. Grocers T.Marean Commission Merchants	Gill, Gillets & Noyes Teas J.L. Griswold Merchant J.S. Hill Commission Merchant C.H. Hill Merchant	J.G. & E. Baker Importers

Functional affiliation presumes business only unless otherwise indicated by (R). Daniel McCormick's business was located elsewhere; his is the only exclusively residential occupation identified in the project area in this period.

Sources: New York City Tax Books 1799-1850; New York City Directories 1799-1850; New York City Libers; U.S., Bureau of Census 1810.

TABLE 3.2
SOUTH STREET LOTS
1807-1850

Year	Lot 41	Lot 42	Lot 43	Lot 44
1807	Vacant	A.D.Duff Merchant T.H.Merry Merchant	Melick & Burgher Merchants J.D.Aymar	Melick & Burgher A.Coffin Jr. Merchant
1808	Marston & Osborn	A.D.Duff Merchant T.H.Merry Merchant J.Hutchinson Commission Merchant	Melick & Burgher Merchants J.D.Aymar Block & Pumpmaker*	Melick & Burgher
1809	Osborn & Willis Merchants Melick & Burger Merchants	J.Hutchinson	J.D.Aymar Block & Pumpmaker*	Melick & Burgher Goodhue & Swett
1810	W.Osborn Merchant Hubbard & Greene Commission Merchants	Gordon & Henderson	J.D.Aymar Block & Pumpmaker*	Hoyt & Tom
1811	W. Osborn Merchant	D.L.Coit Merchant Henderson & Cairns	J.D.Aymar Block & Pumpmaker	Hoyt & Tom Smith & Hubbell
1812	D.L. Coit Perit & Lathrop	Henderson & Cairns J.Goddard	J.D.Aymar Block & Pumpmaker	Hoyt, Tom & Co. Smith & Hubbell
1813	D.L. Coit Merchant	March & Benson Merchants	J.D.Aymar Block & Pumpmaker	Hoyt, Tom & Co. Smith & Hubbell

*Aymar was at 46 South Street and Bache's Wharf. In 1810, he was taxed for a house and wharf.

TABLE 3.2
SOUTH STREET LOTS
1807-1850

Continued

Year	Lot 41	Lot 42	Lot 43	Lot 44
1814	S.T. Coit Merchant	R.Benson,Jr.	J.D.Aymar Block & Pumpmaker D.Aymar Shipmaster	Hoyt, Tom & Co. Smith & Hubbell
1815	J.B. Murray Merchant	March & Benson Merchants	J.D.Aymar Block & Pumpmaker D.Aymar Shipmaster	Hoyt, Tom & Co. Smith & Hubbell Merchants
1816	Taxes paid by J.& W. Dunlap	March & Benson Merchants "Store"	J.D.Aymar Block & Pumpmaker	Hoyt, Tome & Co. Smith & Hubbell Merchants
1817	Taxes paid by Hazard & Williams "Store"	March & Benson Merchants	J.D.Aymar Block & Pumpmaker	Hoyt, Tom & Co. Smith & Hubbell Merchants
1818	J. Bulkley Ship Chandler	March & Benson Merchants	J.D.Aymar Block & Pumpmaker	Hoyt & Tom Smith & Hubbell Merchants
1819	J.Bulkley Ship Chandler	March & Benson Merchants	J.D.Aymar Block & Pumpmaker	Hoyt & Tom Smith & Hubbell Merchants
1820	J. Bulkley Ship Chandler	S.Robinson & Co. Merchants J.M.Robinson Merchant	J.D.Aymar Block & Pumpmaker	Hoyt & Tom Smith & Hubbell
1821	J. Bulkley & Co. Ship Chandlers	S.Robinson & Co. Merchants	J.D.Aymar Block & Pumpmaker	Hoyt & Tom Merchants J.Smith Merchant

TABLE 3.2
SOUTH STREET LOTS
1807-1850

Continued

Year	Lot 41	Lot 42	Lot 43	Lot 44
1822	J. Bulkley & Co. Ship Chandlers	S.Robinson & Co. Merchants	J.D.Aymar Block & Pumpmaker	Hoyt & Tom Merchants
1823	J. Bulkley & Son Ship Chandlers	T.Phelps Merchant S.Robinson Merchant	J.D.Aymar Block & Pumpmaker	Hoyt & Tom Merchants
1824	J.& H.D. Bulkley Merchants	T.Phelps & Co. Merchants S.Robinson Merchant	J.D.Aymar Block & Pumpmaker*	Hoyt & Tom Merchants
1825	J.& H.D. Bulkley Merchants	T.Phelps & Co. Merchants	J.D.Aymar Block & Pumpmaker*	Hoyt & Tom Merchants
1826	J.& H.D. Bulkley Merchants	T.Phelps & Co. Merchants E.& H. Averill & Co. Merchants	J.D.Aymar Block & Pumpmaker**	Hoyt & Tom Merchants
1827	J. Bulkley & Son Merchants	T.Phelps & Co. Merchants E.& H. Averill & Co. Merchants H.Coit Merchant	J.D.Aymar Block & Pumpmaker**	Hoyt & Tom Merchants

*Aymar listed at 46 South Street and 105 Water Street.
**Aymar listed at 46 South Street and 91 Water Street.

TABLE 3.2
SOUTH STREET LOTS
1807-1850

Continued

Year	Lot 41	Lot 42	Lot 43	Lot 44
1828	J. Bulkley & Son Merchants	T.Phelps & Co. Merchants E.& H. Averill & Co. Merchants H.Coit Merchant	J.D.Aymar Block & Pumpmaker**	Taxes paid by G Douglas "Store"
1829	J. Bulkley & Son Merchants	T.Phelps & Co. Merchants E.& H. Averil & Co. Merchants H.Coit Merchant	J.D.Aymar Block & Pumpmaker*	G.Douglass & Co. Merchants
1830	D. Tuttle & Co. Merchants	T.Phelps & Co. Merchants E.& H. Averill & Co. Merchants H.Coit Merchant T.B. Richards Merchant	J.D.Aymar Block & Pumpmaker* Osborn & Young Merchants S.Whitney Merchant	G.Douglass & Co. Merchants

*Aymar at 46 South Street and 91 Water Street.
**Aymar listed at 46 South Street and 91 Water Street.

TABLE 3.2
SOUTH STREET LOTS
1807-1850

Continued

Year	Lot 41	Lot 42	Lot 43	Lot 44
1831	D. Tuttle & Co. Merchants	T.Phelps & Co. Merchants E.& H. Averill & Co. Merchants H.Coit Merchant T.B. Richards Merchant	Osborn & Youngs Merchants W.Whitlock Jr. Merchant	G.Douglass & Co. Merchants
1832	D. Tuttle & Co. Merchants	Phelps & Co. Merchants E.& H. Averill & Co. Merchants H.Coit & Co. Merchants J. Otis	Osborn & Youngs Merchants W.Whitlock Jr. Merchant	G.Douglass & Co. Merchants H.Coit & Co. Merchants
1833	D. Tuttle & Co. Merchants H. Cheseborough Grocer	Phelps & Co. Merchants E.& H. Averill & Co. Merchants J. Otis	Osborn & Youngs Merchants W.Whitlock Jr. Merchant	H.Coit & Co. Merchants T.B. Richards Merchants
1834	D. Tuttle Merchant H. Cheseborough Grocer	H. & A. Averill & Co. Merchants J. Otis	Osborn & Youngs Wine Merchants W.Whitlock Jr. Merchant	H.Coit & Co. Merchants T.B. Richards Merchant
1835	H.Chesebrough [sic] Grocer	A.Averill Merchant J. Otis	Osborn & Youngs Merchants W.Whitlock Jr. Merchant	H. Coit & Co. Merchants T.B. Richards Merchant

TABLE 3.2
SOUTH STREET LOTS
1807-1850
Continued

Year	Lot 41	Lot 42	Lot 43	Lot 44
1836	Smith & Town Commission	A.Averill & Co. Merchants	Osborn & Youngs Merchants W.Whitlock Jr. Merchant	C.A.& E. Hecksher Merchants J.A. Williams Merchant
1837	Smith & Town Commission Merchants	Taxes paid by T. Andrews "Store"	W.Whitlock Jr. Merchant	C.A.& E. Hecksher Merchants
1838	J. Foulke & Sons	T. Andrews	W.Whitlock Jr. Merchant	Hecksher, Coster & Matfield Merchants
1839	J. Foulke & Sons	T. Andrews	W.Whitlock Jr. Merchant	Hecker, Coster & Matfield (Banker?)
1840	J. Foulke & Sons	F.G.Thurston & Co. Thompson & Andrews Commission Merchants	W.Whitlock Jr. Merchant	Hecksher, Coster & Matfield
1841	J. Foulke & Sons	F.G.Thurston & Co. Thompson & Andrews Commission Merchants	W.Whitlock Jr. Merchant	Hecksher & Coster
1842	J. Foulke & Sons Merchants	Thompson & Adams Commission	W.Whitlock Jr. Merchant	Hecksher & Coster Merchants
1843	J. Foulke & Sons Merchants	Thompson & Adams Commission Merchants	W.Whitlock Jr. Merchant A.Averill & Co. Commission Merchants	I.C. Whitmore Merchant

TABLE 3.2
SOUTH STREET LOTS
1807-1850
Continued

Year	Lot 41	Lot 42	Lot 43	Lot 44
1844	J. Foulke & Sons Merchants I.C. Whitmore Merchant	Thompson & Adams Commission Merchants	W.Whitlock Jr. Merchant A.Averill & Co. Commission Merchants	Mason & Co. W.D. Thompson Merchant
1845	J. Foulke & Sons Merchants I.C. Whitmore Merchant	J.Thompson Jr. Merchant	W.Whitlock Jr. Merchant A.Averill & Co. Commission Merchants	W.D. Thompson Merchant
1846	J. Foulke & Sons Merchants I.C. Whitmore Merchant	J.Thompson Jr. Merchant A.Averill & Co. Commission Merchants	W.Whitlock Jr. Merchant	W.D. Thompson Merchant
1847	J. Foulke & Sons Merchants D.Curtis,Jr. Commission Merchant Spofford, Tileston & Co. Commission Merchants	J.Thompson Merchant I.C. Whitmore Merchant	W.Whitlock Jr. Merchant A.Averill & Co. Commission Merchants	W.D. Thompson Merchant Brower & Wilson Commission Merchants
1848	J. Foulke & Sons Merchants D.Curtis,Jr. Commission Merchant Spofford, Tileston & Co. Commission Merchant	J.Thompson Merchant I.C. Whitmore Merchant A.Averill & Co. Merchants	W.Whitlock Jr. Merchant	Thompson & & Adams Merchants A.Averill & Co. Commission Merchants I.C. Whitmore Merchant

TABLE 3.2
SOUTH STREET LOTS
1807-1850

Continued

Year	Lot 41	Lot 42	Lot 43	Lot 44
1849	J. Foulke & Sons Merchants D.Curtis,Jr. Commission Merchant Spofford, Tileston & Co. Commission Merchants	Thompson & Adams Merchants A.Averill & Co. Commission Merchants	W.Whitlock Jr. Merchant B.Richards Commission Merchants	J.H.Brower Commission Merchant, Shipping & Insurance Agent
1850	J. Foulke & Sons Merchants D.Curtis,Jr. Commission Merchants Spofford, Tileston & Co. Commission Merchants	J.Thompson Merchant A.Averill & Co. Merchants I.C. Whitmore Merchant J.Couper Lord Merchant	W.Whitlock Jr. Merchant B.Richards Commission Merchants	J.H.Brower Commission Merchant, Shipping & Insurance Agent C.Hicksher Consul

Sources: New York City Tax Books 1807-1850; New York City Directories 1807-1850; New York City Libers

From 1789 to 1791, John Ming's cooper shop appeared after Bache's Wharf in the tax lists. Ming's cooperage is not listed in 1792 or in 1794, when Bache was again taxed for a cooper shop, although it is not clear whether the shop was on the wharf or adjacent to it (Tax Lists 1794). It is possible that Ming's shop was, in fact, on Bache's Wharf and that the cooper shop identified in 1792 had been the shop previously associated with Ming. From 1789 through 1797, Ming appears in the city directories as a cooper whose address was on Front Street; it is presently speculated that this entry refers to his residence and that the shop itself was on the wharf. In 1795, Bache reported a "2 house building," presumably on the wharf, valued at £1200 and Ming's "cooper shop on wharf" (£200) was listed two entries below Bache's and after the entry for Thomas Randall, who also reported a wharf in this vicinity. Assuming, then, that Ming's cooperage was always in the same location in this six-year period, the evidence suggests that Bache's Wharf did not contain Ming's cooper shop. Ming's cooper shop has, therefore, been associated with Lot 7 (see Section B.3, above, in this chapter).

In 1799, the first tax list in which street numbers are provided, William Bache, an attorney, was taxed for a brick store at 91 Front Street, valued at $6666 (Tax Lists 1799). He was also taxed for personal property valued at $200 at this address. In 1797, Bache had given his address as 118 Pearl Street (Longworth's American Almanack 1799:115). From 1798 to 1800, he gave his address as 91 Front Street, where he may have maintained a residence as well as his law offices (Longworth's American Almanack 1798:n.p., 1799:155, 1800:126). After 1801, he gave his address as 111 Water Street (Longworth's American Almanack 1801:6).

Between 1800 and 1801, Bache leased the property to Cornelius (or Courtlandt) VanBeuren, a grocer who was listed at 91 Front Street in the directory in 1801 and was taxed for real estate valued at $5500 in the same year (Longworth's American Almanack 1801:299). VanBeuren was not taxed for any personal property in 1802. This is significant since researchers typically link residence to the location at which personal property (or chattels) are reported. Moreover, when a single entry is given in the city directories, it is also assumed that this entry represents residence as well as work place. Thus, William Bache is believed to have resided at 91 Front Street because he reported personal property and because corroborating evidence appeared to be available in the appropriate city directories. In the case of VanBeuren, however, it would appear that presence of personal property was not a valid predictor of residence or that the directory entry referred only to a place of business. Finally, since personal property also encompassed chattels, the value of personal property at a given address may reflect inventory and not residential goods.

Information in city directories indicates that VanBeuren continued to occupy 91 Front Street over the next several years, for which

tax lists have not survived. In 1807, Theophylact Bache sold several properties, including No. 91 Front Street, "in the occupation of Courtlandt VanBeuren" to Charles McEvers Jr. and Leonard Lispenard (NYC 76:505). The following year, they sold the lot to VanBeuren himself (NYC 351:195). In 1807, the firm of Schoonmaker and VanBeuren occupied the property, and VanBeuren was taxed for real estate valued at $3500 and personal estate valued at $1000. Daniel Fisher was also taxed for personal property valued at $500.

Occupation of this lot is summarized in Table 3.1 and Appendix 2 contains all tax and city directory information associated with this lot from 1789 to 1850. In general, the history of Lot 6 was characterized by a long occupation by the VanBeuren family businesses (1801-1830). Courtlandt VanBeuren had occupied the property by 1801, which he used as both a residence and place of business through 1810. In that year, he reported a household that comprised three white men, six white women, and one slave. Both male and female family members ranged in age from under 10 to over 45 (U.S., Bureau of Census 1810:6). In 1812, he reported his residence as 22 Provost Street (Elliot's Improved Double Directory 1812:91). Schoonmaker and Hasbrouck reported both real ($3500) and personal ($300) property at 89 (formerly 91) Front Street in this year (Tax Lists 1812). Obviously, in this entry, personal property referred to inventory belonging to the firm. In 1813 and 1814, Hasbrouck may have occupied the property as a residence.

Courtlandt VanBeuren died in 1820 and his son Egbert took over the family grocery business with various partners. Egbert VanBeuren is known to have lived elsewhere. The VanBeuren firm abandoned the site in 1830, although the family continued to own the property until the late 1860s. Turnover was fairly rapid, although the lot was continually occupied by merchants of one sort or another through 1850. These tended to be grocers or dealers in delicacies (e.g., teas) as the VanBeuren partnerships had been. Noteworthy among these firms was J. Caswell & Company, which was prominent among companies in the China trade.

3. Lot 7: 93/89 Front Street

Lot 7 was contained in a water lot granted to Stephen Richards and Theophylact Bache in their role as Executors of the Estate of Paul Richards on March 21, 1775. In 1789, Thomas Ming was taxed for a cooper shop, valued at £150 (see discussion above). In that year, the entry in the directory was simply "Ming, Thomas, cooper, Front St." (Tax List 1789; New York Directory and Register 1789:62). Ming's cooper shop was again assessed at £150 in 1792 and the entry in the annual directory associated him with "22 Front Street" (Tax List 1790; New York Directory and Register 1790:71). In 1791, Ming's cooper shop was still valued at £150 and the contemporary directory indicated only that he was on "Front Street" (Tax List 1791; New York Directory and Register 1791:87). Mrs. Ming (first

name not given) also maintained a boarding house at an unspecified location on Front Street.

In 1792, Theophylact Bache and Thomas Randall, the two successive entries, both reported a cooper shop; Bache, as discussed previously, reported a cooper shop and wharf, and Randall, reported a cooper shop and blacksmith's shop. The problems of interpreting the sequence of names have already been described. It suffices, here, to say that several scenarios can be posited. First, Ming might have rented the cooper shop which is believed to have been on Bache's Wharf. Second, the cooper shop indicated in the entry for Bache may not have been on his wharf but adjacent to it. Since Bache was one of the trustees for the Estate of Paul Richards, which owned the property, he might have been responsible for the taxes on the shop, which were simply subsumed into the entry for his neighboring property. Third, the cooper shop may have been owned by Randall although operated by Ming, and hence the shop was added to Randall's assessment since Randall owned the next property. The directories shed little light on this problem since they merely state that John Ming, a cooper, was located at "Front St., near Old Slip" (New York Directory and Register 1792:93).

The next reference to John Ming occurred in 1795. In the tax list for that year, the entry for Ming followed the entry for Randall, which had followed the entry for Bache. Randall (Lot 8) was taxed for "house building" and John Ming for "cooper shop on wharf [of Randall?]" (Tax List 1795). The cooper shop was then valued at £200. The directory associated John Ming, cooper, with "86 Front Street" (New York Directory and Register 1795:129).

In 1798, John Elsworth reported a boarding house at 93 Front Street (Longworth's American Almanack 1798:n.p.). The following year he was assessed for a brick store valued at $5333 and personal property valued at $250 (Tax List 1799). The annual directory again listed his boarding house at 93 Front Street (Longworth's American Almanack 1799:218). By 1800, however, he had moved the boarding house to 101 Maiden Lane (Longworth's American Almanack 1800:187).

Two names are associated with 93 Front Street in 1802, suggesting that this was a double lot (see discussion in 3.B). From 1802 through 1804, Lot 7 has been assigned to Stephen Miller who is listed in the 1802 tax list as being in property, valued at $4250, on which Thomas Delves, who is associated with Lot 8, paid taxes (Tax Lists 1802). Although the tax list indicates that Miller had personal property at this location in the amount of $50, the city directories from 1802 through 1804 indicate that Stephen Miller, a merchant at 93 Front Street, lived at 18 Gold Street (Longworth's American Almanack 1802:271, 1803:215, 1804:207; John Langdon and Son's New York City Directory 1804-1805:n.p.).

In 1806, Mrs. Troup reported a boarding house at 93 Front Street although by 1807 she had moved to Greenwich Street (Longworth's American Almanack 1807:446). In that year, Thomas Farmer was taxed for a house valued at $3500 although the entry noted that it was "unoccupied" and the contemporary directory linked Thomas Farmer and Company with a store at 75 Front Street (Longworth's American Almanack 1807:177). In 1808, Edward Wilkie, a Branch Pilot, appears to have resided at this address; he was taxed for a house valued at $3500 and personal property valued at $200 and was also listed at this address in the contemporaneous city directory (Longworth's American Almanack 1808-1809:327).

From 1807 to 1827, there was a series of mixed residential/ commercial occupations, beginning with Wilkie's and continuing through Garrett Sickles' and Robert McCormick's. These were fairly long occupations. Sickles was at this location from 1810 to 1816 and Robert McCormick from 1817 to 1827, during which time his grocery was known to have been located at 94 Front Street. Other long occupations were associated with Brittain L. Woolley (merchant), 1837-1844; Thomas Marean (commission merchant), 1844-1850; and Ezra Wheeler (grocer), 1845-1850. Competition for space and its intensive use are illustrated in that Robert McCormick's residential occupation was shared by Ezekiel Blair's residential occupation (1820-1823) as well as by the mixed use in 1822 (Thomas Nevins's cooperage) and 1827 (G. P. Holmes and Company). These mixed-use occupations typically were associated with artisans (Sickles, Nevins) and laborers (Blair). McCormick was a grocer like many of his neighbors but his grocery may have been small in scale since he simply reported himself as a "grocer" and never in partnership with others.

Functional affiliations for this lot are summarized in Table 3.1.

4. Lot 8: 93-1/2 /91 Front Street

Lot 8 was historically contained in a water lot granted to Jacob Walton on March 21, 1775. It is not clear how Thomas Randall, who appears in the early tax records, obtained use of the property. The earliest deed on record is a transaction between Henry A. Coster and John G. Coster in July 1805 (NYC 72:165). Their association with the property is confirmed in contemporaneous tax lists, and the description of the lot conveyed states that it had formerly been the property of Jacob Walton and was bounded on one side by the water lot of Abraham Walton (i.e., Lot 9) and on the other by the water lot of the Estate of Paul Richards (i.e., Lot 7).

Thomas Randall, a blockmaker, appears in the tax lists for 1789, 1790, and 1791, but not in the directories for those years. As discussed in the preceding section, he has been assigned to this lot. Carlisle Pol[l]ock was taxed for a lot valued at £300 in

1794, which was adjacent to a lot and wharf, both belonging to the estate of Jacob Walton. There is no mention of Abraham Walton, and deed research associated with Lot 8 (discussed in the next section) suggests that the Estate of Jacob Walton came to control Lot 9 as well as Lot 8. If it is assumed that the wharf corresponds approximately to Lot 9, then the "lot," valued at £600 in 1794, is associated with Lot 8. Under either scenario (i.e., assignment to Pollock or assignment to Walton's estate), the lot appears to have been empty in 1794.

In 1795, however, Lazcleir and Williams maintained a shop on Randall's Wharf (i.e., approximately Lot 7). The partnership was not found in the annual directory, however, and the assignment cannot be confirmed. The next available information dates to 1802 when the lot, enumerated as 93 or 93-1/2 Front Street, was associated with Thomas Delves, who was taxed for property valued at $4250 (Tax Lists 1802). Longworth's American Almanack (1803:103) in 1803 listed Delves as a merchant at 56 Wall Street with a "store" at "93 1/2 Front Street"; the same directory listed Miller at 93 Front Street with a residence at 18 Gold Street (see above). Delves and Thompson were at 91 (formerly 93) Front Street in 1807, and in 1808, the property was owned by the Costers but occupied by Delves and John Hutchinson, a commission merchant (Tax Lists 1807, 1808; Longworth's American Almanack 1808-1809).

The association of John and Henry Coster with this lot appears to have been primarily as an investment, since they were exclusively linked to the property only from 1810 to 1814. The Costers had been born in Holland and established an import-export business in New York in 1775. They appear to have survived the War and flourished in the West Indian trade for a number of years thereafter.

In general, the history of Lot 8 indicates two relatively long occupations, Thomas Delves, 1802-1808, and Condit and Richards/Condit and Scott, 1828-1843 (see Table 3.1). The parcel, moreover, only witnessed commercial occupations; no residential or mixed-use occupations could be assigned to the lot. After the fire of 1835, use of the lot appears to have become more intensive, and like other properties in the vicinity, the occupants were generally commission merchants, grocers, or firms dealing in specialty items (teas, liquors). Noteworthy among the later occupants was the firm of J. L. & N. L. Griswold, presumably one of the iterations of the Griswold family partnerships prominent in New York City commerce since 1794 (Albion 1939:245).

5. Lot 9: 95/93 Front Street

This lot was contained in a water lot granted to Abraham Walton on March 21, 1775. The Estate of Jacob Walton obtained control over the property since the earliest deed to this lot between Henry Walton and his sister Ann Morris clearly identifies the lot but

claims that it descended to Walton from the estate of their father Jacob Walton (NYC 318:416). The earliest tax records, however, link the property with Abraham Walton, who was taxed in 1789 for a black[smiths] shop valued at £550, which was between Thomas Randall's blacksmith's shop (Lot 8) and Isaac Gouverneur's wharf (Tax List 1789). The same sequence of names and property values appeared in 1790 and 1791 (Tax Lists 1790, 1791). Unfortunately, no corroborating evidence was found in the city directories. In 1789, Abraham Walton was listed at 135 Water Street and in 1790, he was listed at 137 Water Street; Jacob Walton never appeared (New York Directory and Register 1789:93, 1790:107). Subsequent directories listed both Abram and Abram Jr., an attorney, on Water Street.

In 1795, however, the New York Directory and Register (1795:242) listed Richard and Lawrence Yates, merchants, at 111 Water Street with a "store" at 95 Front, which would then have been the waterfront. Richard and "L." Yates were taxed for a store valued at £2000 that year, which was adjacent to the entry of the wharf belonging to Jacob Walton, which was followed by Isaac Gouverneur's wharf; both Walton's and Gouverneur's wharves were valued at £600 (Tax List 1795). The configuration of structures is, of course, unclear, and it is possible that the Yates store, or warehouse, was on Walton's wharf and that both structures are associated with the lot.

In 1799, Thomas Satterwaite was taxed for a brick store valued at £6666 at 95 Front Street. Also associated with this address in 1799 was Adam Pentz "& water lot." This clearly indicates that fill was only partially complete in this area, which is confirmed by other research that indicates that the South Street frontage was filled after 1802 (see above). The directory for that year confirms that Adam Pentz, a cooper, maintained his shop at 95 Front Street, although his residence was located at 8 Roosevelt. Satterwaite, a merchant, was listed at 87 Water Street (Longworth's American Almanack 1799:317). He was only there for a year, however, since the directory for the following year placed his shop at 20 Old Slip (Longworth's American Almanack 1800:299).

In 1802, Peter Camman was listed at 95 Front Street in both the tax list and the city directory. His brick house was valued at $5500. Camman was a merchant who maintained his residence at 30 Cedar Street (Longworth's American Almanack 1802:162). Camman was associated with 95 Front Street through 1803; thereafter his place of business was on South Street although not within the project area.

With some gaps, the lot was occupied by a series of merchants until 1816 (see Table 3.1). From 1816 to 1821, there was first a sail/duck store and then a ship chandler on the lot. These occupations were followed by a long and exclusive occupation by Anthony V. Winans' grocery from 1822 until 1835, when it was

destroyed by the fire. John G. and Edward Baker's establishment was in place by 1838 and remained the sole occupant through 1850. This firm traded primarily in Hungarian wines.

6. Lot 41: 48 South Street

This lot was contained in the water lot granted to Abraham Walton on March 21, 1775. The circumstances under which the water lot was subdivided are unclear. However, by 1807, the date of the earliest tax record showing the South Street properties within the project area, the original water lot had been subdivided into Front and South Street parcels.

No residences or mixed use occupations can be associated with this property during the period in question (see Table 3.2). Until 1818, turnover appears to have been quite rapid, but from 1818 to 1829, John Bulkley and his company (ship chandlers) occupied the property. In the early 1830s, Hallam Cheseborough, a grocer, was associated with the property as well as several merchants' firms. From 1837 through 1850, the building was occupied by Joseph Foulke and Sons, and after 1843, use of the space clearly became more intensive. Foulke traded out of Curaçao in the Dutch West Indies. Although the firm appears in the directories as a firm of commission merchants, Spofford and Tileston, associated with this lot after 1847, were agents for a shipping line that maintained coastwise as well as transoceanic routes.

7. Lot 42: 47 South Street

This lot was contained in the water lot granted to Jacob Walton on March 21, 1775. The circumstances under which the water lot was partitioned into two parcels are unclear although, as is the case for Lot 41, this had occurred by 1807. As was also the case on Lot 41, no residential or mixed residential/commercial occupations were associated with this property.

The early occupants of the property appear to have been quite transient (see Table 3.2). In this regard, the presence of John Hutchinson, a commission merchant, on the property in 1808 and 1809 is interesting. He was also associated with 93 Front Street, suggesting that firms moved around fairly easily albeit within a relatively restricted area. Similarly, Daniel Coit is associated with this property as well as with the adjacent Lot 41.

Occupation of the property became increasingly stable after about 1815, with terms of use growing longer. Although the association of firms with this location was fairly stable, use of the property was intensive fairly early, with more than one firm present after 1823. Among these were a series of firms belonging to Thaddeus Phelps. Phelps was involved in the cotton trade, exporting American cotton to Europe. In 1822, he also formed a line of Liverpool packets.

Occupants appear to have rented the property. After 1842, Moses Taylor owned the lot and paid taxes on it. However, he did not appear at this address in the city directories for these years. Local histories describe Taylor as having been at 44 South Street for about 50 years, where he engaged in the West Indian trade, particularly in trade with Cuba. He also traded extensively in tea.

8. Lot 43: 46 South Street

Lot 43 was contained in the water lot granted to the Estate of Paul Richards on March 21, 1775. The first known occupation (1807) was intensive, with both Melick and Burgher, merchants, and John D. Aymar, a block and pumpmaker, reported at this location. Melick and Burgher occupied two lots in 1807 and 1808 --Nos. 46 and 45 South Street. Aymar, also associated with 33 Old Slip in 1807, remained at 46 South Street for 24 years (see Table 3.2). For most of this time, he was the sole occupant of this address although he was also associated with 105 (1824-1825) and 91 Water Streets (1826-1830). It is not clear whether these multiple addresses signaled a home as opposed to a work address; none of them was identified as a residence. It is possible that he simply maintained several shops near the waterfront.

After Aymar left the property, it was occupied by a series of merchants. Averill & Co., one of the occupants, was associated with more than one location in the study area. From 1826 to 1836, the firm was located on Lot 42 (the adjacent property) and from 1843 to 1847 on Lot 43. The company returned to Lot 42 in 1848, when it also expanded briefly into Lot 44, as well. Like other properties in the study area, the lot was more intensively used over time, although the occupants were quite similar to one another, being either general or commission merchants. However, even these merchants tended to focus on a geographical area. Illustrative of these men was William Whitlock, who traded with Brazil. Whitlock also maintained a packet line that operated between New York and Le Havre. He was unusual among New York's merchants in that he worked independently, having been burned early in his career in an unfortunate partnership (Albion 1939:108).

9. Lot 44: 45 South Street

Lot 44 was contained in the water lot granted to Theophylact Bache on March 21, 1775. The earliest known occupant of the parcel was Melick and Burgher, which was also associated with the adjacent Lot 45 (see Table 3.2). Melick and Burgher specialized in the St. Croix trade, probably trading in sugar and rum. For many years, the firm of Hoyt and Tom was associated with this property. This partnership was active in the East India trade, particularly in the importing of tea from Canton. Hoyt and Tom remained at 45 South Street until 1827. In the last year of the firm's tenure at this

location, the premises were shared with Goodhue and Co., which moved to 44 South Street the following year. Originally from Salem, Massachusetts, Jonathan Goodhue traded in tea and did a lot of business in New England as well. The partnership of Goodhue and Swett eventually owned a line of Liverpool packets.

Like other South Street properties, use of this parcel was intensive from about 1830 onward. The history of 45 South Street is somewhat unusual for its association with interests other than commerce (e.g., insurance, banking), although these interests were clearly derived from trade and proximity to wharves was important.

IV. OVERVIEW OF THE EXCAVATIONS

A. INTRODUCTION

1. Background

The Assay Office Building, completed in 1932, occupied the southern half of the project area, while the northern portion of the block had been converted to a parking lot in the 1960s (GCI 1983a). The Landmarks Preservation Commission determined that construction of the 1932 Assay Office Building would have destroyed any once extant archaeological resources beneath it. Therefore, archaeological excavations were limited to the northern portion of the block, an area that included eight lots, each measuring roughly 23x100 feet.

The excavations were conducted in three major stages: (1) deep testing, (2) backyard testing, and (3) mitigation (Figure 4.1). The deep testing program was oriented toward identification and evaluation of archaeological remains associated with landfilling. The location of buried ships that may have been used during the landfilling process was stated as one of the primary concerns to be addressed during the deep testing program, as it was clearly in the interest of all parties to identify any ships at an early stage in the project. While the deep testing program was oriented primarily toward resources related to landfilling processes and technology, the backyard testing program was designed to identify and evaluate archaeological features and deposits related to the occupation of the block. Although the deep testing and the backyard testing programs had distinct and different archaeological goals, there was a degree of overlap during the execution of fieldwork. GCI expected to and did identify occupational resources during the deep testing program; and resources related to the block's landfill were identified during the backyard testing program.

The final stage of excavation (mitigation), was an archaeological data recovery program designed to record and recover the important archaeological features and deposits identified during the two testing programs. The principal features related to landfilling and waterfront technology were massive wharf structures built during the late eighteenth century and a number of bulkheads. The landfill itself was considered an important archaeological resource, and a large sample of the landfill deposits throughout the block was excavated.

A broad range of occupational material was excavated, including refuse deposits in closed contexts (privies, cisterns), and from open yard areas and architectural features (cellar floors, building foundation systems, etc.). One of the most remarkable deposits excavated on the block was the remains of a grocery/warehouse that had burned in the Great Fire of 1835.

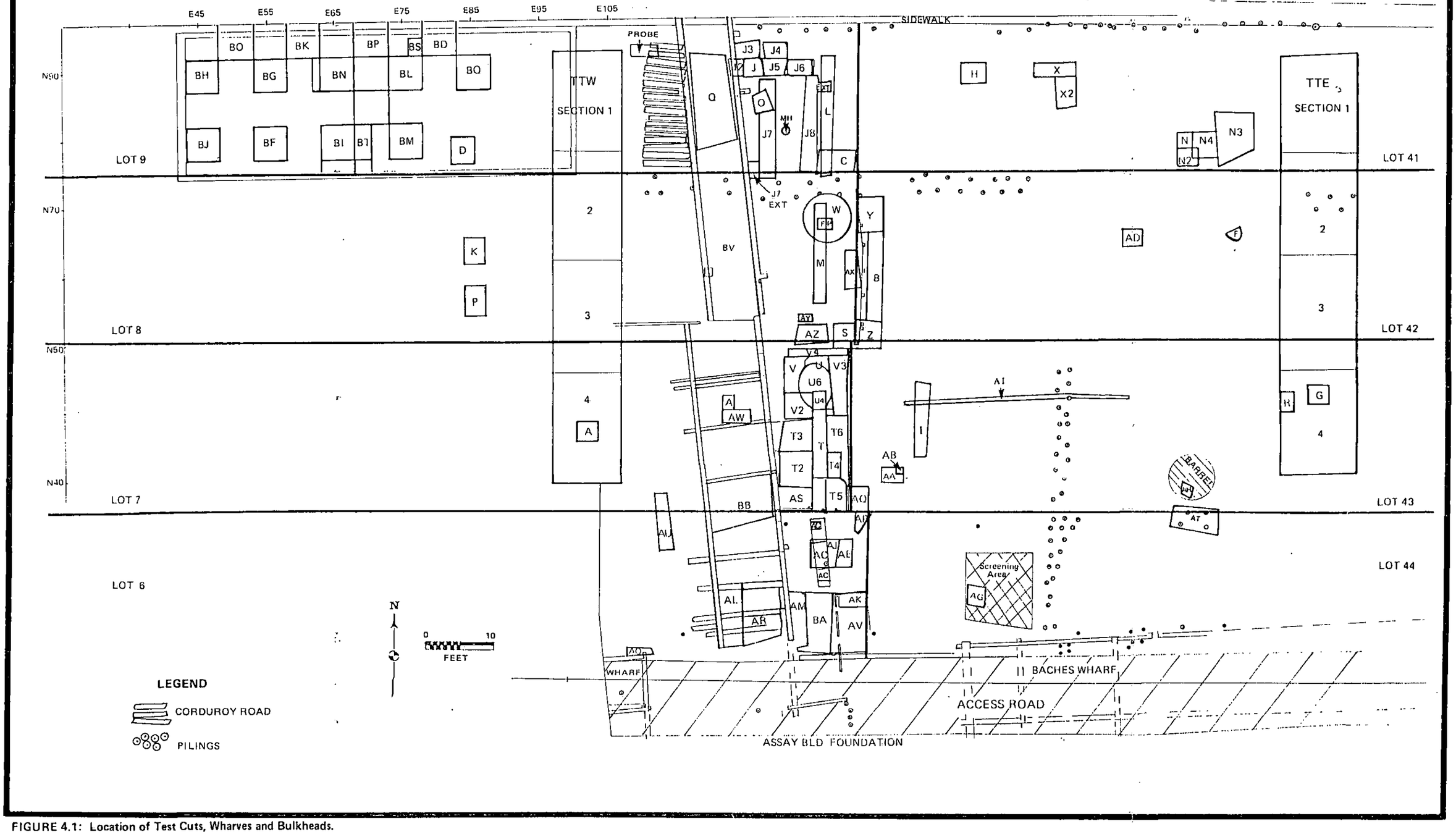


FIGURE 4.1: Location of Test Cuts, Wharves and Bulkheads.

During the mitigation effort, excavation began on the slurry wall surrounding the construction site. No archaeological testing was performed in the area of the slurry wall. During its construction, several cast iron cannons were discovered. As a result, the field crew monitored the remaining wall excavation. No other significant archaeological remains were observed.

The remainder of this section provides a more detailed description of the goals and methods of each phase of the archaeological field investigations. Discussion of the actual results and findings are organized by the two major themes that guided the excavations: (a) waterfront technology and landfilling processes and (b) historical occupation of the block. Table 4.1 summarizes the rationale for excavation unit placement and the findings from each test cut.

2. The Deep Testing Program

The deep testing program was the first subsurface archaeological exploration of the Assay Office Site. GCI's strategy for exploration of the landfill followed a historical review of the block's developmental history (GCI 1983a) as well as a review of geotechnical test data. Historical sources indicated that the progressive extension of lower Manhattan's shoreline across Block 35 could be seen in two principal episodes. Spatially, these two episodes were delineated by Bache's Wharf, which extended across the block in an L-shaped configuration by 1797 (Taylor 1797). The western area, or landward side, appears to have been filled in between 1780 and 1797, while the eastern, seaward side was believed to have been filled in between 1797 and 1802-1803. Historically, then, the process of landfilling was seen as a two-stage process, the first encompassing roughly the western half of the site and the second, the remainder of the block.

Geotechnical borings done in the 1930s permitted a somewhat more refined reconstruction of the landfilling process. Based on these borings, a stratigraphic model was developed for the site, covering the entire sequence from bedrock to the modern pavement surface (Figure 4.2). The lowermost stratum, bedrock, dipped toward the East River (South Street) and was capped by channel bottom sediments that generally ranged in thickness from one to five feet. Three major deposits were documented overlying the riverbottom formation. The uppermost of these (possibly relating to the nineteenth-century use of the block) was described as undefined "Fill," "Brick, Fill and Loam," and "Brick Fill and Stone." Beneath these upper deposits the soil borings indicated a second and earlier deposit, described by the engineers as "Fill Timber Brick," "Timber Brick Fill," and "Fill and Mud." These deposits fluctuated between 10 and 20 feet in thickness.

TABLE 4.1

RATIONALE FOR TEST CUT PLACEMENT

TEST CUT	LOT	RATIONALE FOR PLACEMENT	SUMMARY OF FINDINGS
A	6	Sample stratigraphy in TTW.	Landfill.
B	42	Locate intact features, and occupation-related deposits.	Located a modern sump. Did not identify undisturbed occupational deposits.
C	9	Record wood plank complex.	Corduroy road at extreme western end of lot.
D	9	Locate artifactual and structural remains that predate the 1835 fire.	Located two artifact-bearing strata: a) collapsed materials from upper story of warehouse, and b) burned deposit associated with 1835 fire. Also located burned warehouse flooring.
E	8	Locate occupation-related deposits.	Test produced rubble-laden deposits, the rear stone wall of a structure, and remains of a wharf.
F	42	Sample contents of wood barrel cistern.	Clay-lined wood barrel, containing few late-18th-century artifacts.
G	44	Sample and document stratigraphy in TTW.	Landfill.
H	41	Locate intact occupation surfaces or deposits.	Rear of lot was heavily disturbed.
I	43	Locate intact backyard features and/or deposits.	No features or deposits were located.
J	9	Sample artifact deposit.	Pit-shaped feature, containing 19th-century bottle glass and ceramics.
J2	9	Define extent of pit feature.	Same as Test Cut J.

TEST CUT	LOT	RATIONALE FOR PLACEMENT	SUMMARY OF FINDINGS
J3	9	Define extent of pit feature.	Same as Test Cut J.
J4	9	Define extent of pit feature.	Same as Test Cut J.
J5	9	Define extent of pit feature.	Same as Test Cut J.
J6	9	Define extent of pit feature.	Same as Test Cut J.
J7	9	Define extent of pit feature.	Same as Test Cut J.
J7 Ext.	9	Define extent of pit feature.	Same as Test Cut J.
J8	9	Define extent of pit feature.	Same as Test Cut J.
K	8	Locate structural remains and occupation-related deposits.	Located floor of burned structure, and modern pillar/pier.
L	9	Locate stratified occupational deposits.	No features or occupational-related deposits were located.
M	8	Locate features and/or stratified occupation deposits.	Located a stone-lined privy containing mid-19th-century and landfill deposits.
N	41	Determine the nature of an artifact deposit identified during stripping.	Refuse pit with redeposited fill.
N2	41	Determine the extent of artifact deposit.	Refuse pit with redeposited fill.
N3	41	Determine the extent of artifact deposit.	Refuse pit with redeposited fill.
N4	41	Recover the remainder of the artifact-bearing deposit.	Refuse pit with redeposited fill.
O	9	Verify and determine the integrity of a potential stone feature.	Stone work represented a foundation for a column support.

TEST CUT	LOT	RATIONALE FOR PLACEMENT	SUMMARY OF FINDINGS
P	8	Sample the integrity of the deposits on the floor of the warehouse.	Located a thin stratum of burned material from the 1835 fire on the floor of the structure.
Q	9	Sample the deposits above the wharf, and expose its surface construction.	Recordation of the wharf.
R	43	Sample ceramic deposit in TTE.	Late 18th- to early 19th-century china shop dump in landfill.
S	42	Sample stratified deposits at western end of lot.	Landfill.
T	7	Locate features and/or stratified occupational deposits.	Located a stone privy, and wooden box-like structure.
T2	7	Determine integrity and/or extent of wood box-like structure.	Established northern extent of structure, and documented intact deposits underlying several disturbed fill soils.
T3	7	Sample rear yard deposits.	Redeposited fill.
T4	7	Sample rear yard deposits.	Redeposited fill.
T5	7	Determine eastern extent of wood box-like structure, and sample fill deposits.	Established eastern extent of wood structure, and documented intact deposits underlying several disturbed fill soils.
T6	7	Sample rear yard deposits.	Redeposited fill.
U	7	Determine dimensions and sample interior of stone privy.	Documented an oval privy containing mid-19th century, partially disturbed deposits.

TEST CUT	LOT	RATIONALE FOR PLACEMENT	SUMMARY OF FINDINGS
U2	7	Determine horizontal extent of stone privy.	Documented an oval privy containing mid-19th-century, partially disturbed deposits.
U3	7	Sample lower deposits within the stone privy.	Mid-19th-century disturbed fill soils.
U4	7	Sample interior of stone privy.	Mid-19th-century disturbed fill soils.
U5	7	Sample interior of stone privy.	Mid-19th-century disturbed fill soils.
U6	7	Sample lower deposits of fully exposed privy.	Mid-19th-century disturbed fill soils.
V	7	Sample deposits adjacent to stone privy, and search for an associated builder's trench.	Documented redeposited fill.
V2	7	Sample deposits adjacent to stone privy.	Stratigraphically excavated yard deposits.
V3	7	Investigate flagstone slab adjacent to privy.	Fill deposit under support beam.
V4	7	Sample deposits under spread-footer complex.	Deposit consisted primarily of mortar and architectural materials.
V5	7	Expose north side of stone privy.	Established extent of privy.
W	8	Sample interior of stone privy.	Mixed 19th-century fill, consisting of construction rubble and night soil.
X	41	Investigate artifact deposit under basement floor.	Landfill.
X2	41	Investigate artifact deposit under basement floor.	Landfill.

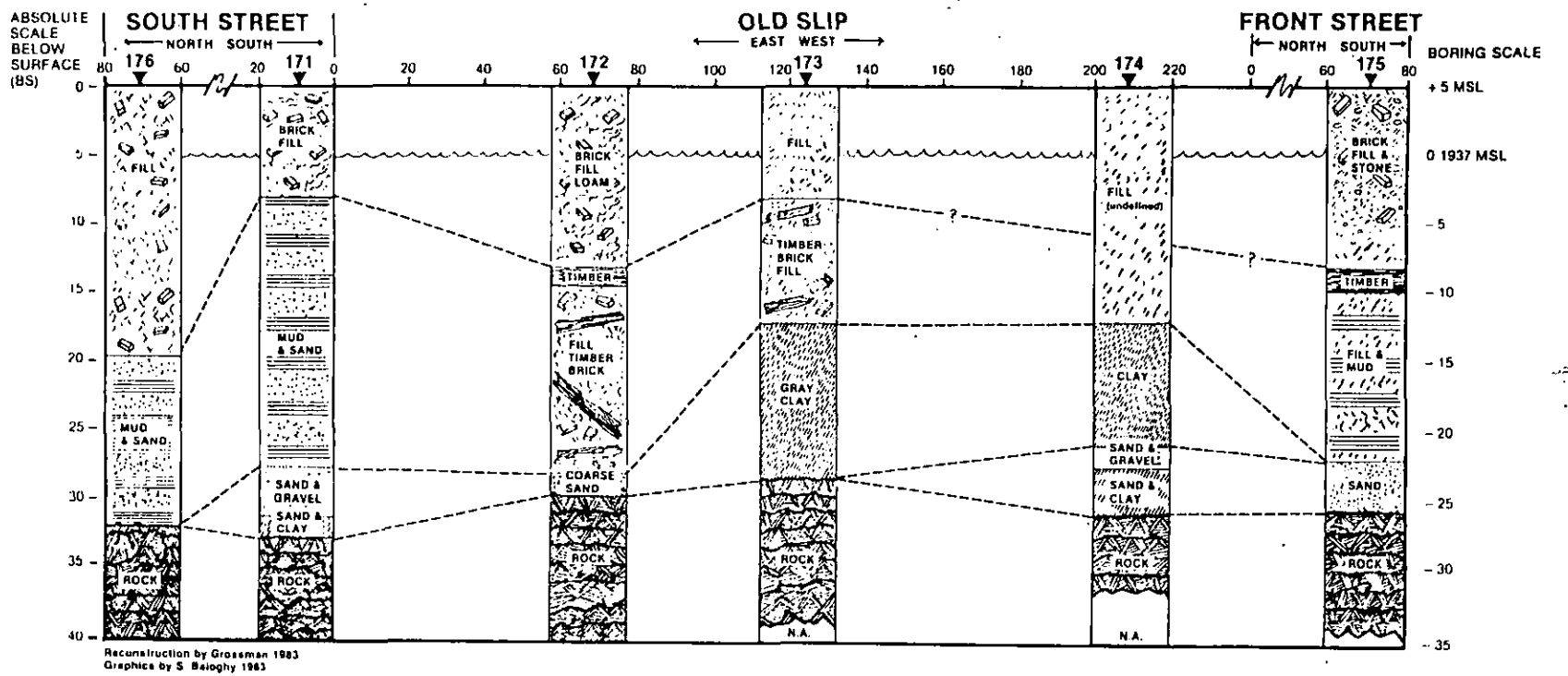
TEST CUT	LOT	RATIONALE FOR PLACEMENT	SUMMARY OF FINDINGS
Y	42	Determine extent of bulkhead.	Landfill. Established the northern extent of north-south bulkhead.
Z	42	Determine extent of bulkhead.	Landfill. Established the southern extent of north-south bulkhead.
AA	43	Sample interior of a rectangular brick structure.	Contained large quantities of mortar and non-diagnostic materials.
AB	43	Sample lower deposits of rectangular brick structure.	Rubble deposit overlying landfill.
AC	6	Sample deposits within and adjacent to the stone lined privy.	Shale deposit occurred within and adjacent to privy.
AD	42	Sample possible burned deposit, and examine profile.	Thin lenses, containing fragmentary artifacts--area was extensively disturbed.
AE	6	Determine if a layer of brick and concrete sealed the entire privy structure.	Concrete and brick sealed the entire structure.
AF	7	Sample interior matrix of wharf.	Uncovered pine grillwork (faggots) on interior of wharf.
AG	44	Sample rear yard deposits.	Landfill.
AH	43	Sample contents of wood barrel.	Partially disturbed wood barrel cistern containing very fragmentary late 18th- to early 19th-century material.
AI	43	Search for fill retaining structure.	Located a series of north-south oriented piles. No fill retaining structures were found.

TEST CUT	LOT	RATIONALE FOR PLACEMENT	SUMMARY OF FINDINGS
AJ	6	Sample contents of stone-lined privy.	Early 19th-century materials over a partially disturbed landfill deposit (possibly due to privy cleaning).
AK	6	Sample interior deposits of wooden box-like structure.	Overburden and a pink shale, overlying an organic matrix associated with Courtlandt VanBeuren occupation, overlying landfill.
AL	6	Sample fill within wharf.	Organic fill overlying stone.
AM	6	Determine wood box integrity, and extent.	Undisturbed deposit, consisting of a pink shale and overburden, overlying an organic matrix associated with Courtlandt VanBeuren occupation. Landfill.
AN	6	Sample contents of wood barrel within wood box.	Documented stratigraphy similar to that recorded at Test Cut AM.
AO	6	Search and record fill retention structures.	Documented remnants of wharf.
AP	6	Determine the existence and/or extent of a possible fill retention structure.	Indeterminate, test cut was terminated due to excessive water.
AQ	7	Sample stratigraphy at rear of lot.	Landfill.
AR	6	Sample fill within wharf.	Organic fill overlying stone.
AS	7	Determine extent of box-like structure.	Exposed south wall of plank box.
AT	43/44	Determine orientation of piles.	Series of piles oriented east-west.
AU	6	Expose possible wharf or bulkhead structure.	Questionable remains of bulkhead or wharf.

TEST CUT	LOT	RATIONALE FOR PLACEMENT	SUMMARY OF FINDINGS
AV	6	Sample the eastern third of the wood box.	Stratigraphy was comparable to that of adjacent Test Cut AK.
AW	6	Investigate interior of wharf.	Documented wood chip matrix, and configuration of wood faggots.
AX	8	Record stratigraphy at rear of lot, and search for wharf or bulkhead structures.	Landfill. Also located a north-south oriented log (possibly wharf-related).
AY	8	Search for wood bulkhead structure in rear of lot.	Located possible bulkhead structural element. Landfill.
AZ	8	Determine if wood plank in adjacent Test Cut AY represents the remains of a box.	Wood plank is associated with bulkhead structure.
BA	6	Sample interior of wood box.	Stratigraphy was comparable to that of adjacent Test Cuts AM and AV.
BB	6	Record stratigraphy and internal configuration of wharf elements.	Landfill deposits found in association with wharf's internal structural elements.
BC		No Unit assigned this designation.	
BD	9	Randomly selected to sample remains of burned grocery store.	Post-1835 construction debris, overlying 1835-burned warehouse deposits and pre-1835 construction material.
BE	9	Randomly selected to sample remains of burned grocery store.	1835-burned warehouse house deposits.
BF	9	Randomly selected to sample remains of burned grocery store.	Warehouse building rubble, overlying 1835 warehouse deposits.

TEST CUT	LOT	RATIONALE FOR PLACEMENT	SUMMARY OF FINDINGS
BG	9	Randomly selected to sample remains of burned grocery store.	1835-burned warehouse deposits, overlying pre-1835 warehouse construction materials.
BH	9	Randomly selected to sample remains of burned grocery store.	Warehouse building rubble, overlying pre-1835 construction. Landfill.
BI	9	Judgmentally placed to complete a 50-percent sample of the burned grocery store.	1835-burned warehouse deposits.
BI Ext.	9	Examine the construction details at the side wall of the burned structure, and expose a wooden crate.	Stratigraphic deposition is similar to that of Test Cuts BD, BE, BF, BG, BH, and BI.
BJ	9	Judgmentally placed to complete a 50-percent sample of the burned grocery store.	1835-burned warehouse deposits, overlying landfill.
BK	9	Judgmentally placed to complete a 50-percent sample of the burned grocery store.	Burned warehouse deposits overlying pre-1835 warehouse construction.
BL	9	Judgmentally placed to complete a 50-percent sample of the burned grocery store.	Warehouse building rubble, overlying ca. 1835 burned warehouse deposits.
BM	9	Judgmentally placed to complete a 50-percent sample of the burned grocery store.	Stratigraphic deposition is similar to that of Test Cut BL.
BN	9	Judgmentally placed to complete a 50-percent sample of the burned grocery store.	1835-burned warehouse deposits.
BO	9	Judgmentally placed to complete a 50 percent sample of the burned grocery store.	Post-1835 construction materials, overlying 1835-burned warehouse deposits, and pre-1835 warehouse construction.

TEST CUT	LOT	RATIONALE FOR PLACEMENT	SUMMARY OF FINDINGS
BP	9	Judgmentally placed to complete a 50 percent sample of the burned grocery store.	Stratigraphic deposition is similar to that of Test Cut BK.
BQ	9	Judgmentally placed to complete a 50 percent sample of the burned grocery store.	Post-1835 construction materials, overlying 1835-burned warehouse deposits.
BR	9	Expose a wood frame object.	1835-burned warehouse deposits. Possible wine bottle holder, or skid slats.
BS	9	Recover the contents of a wood barrel exposed in Test Cuts BD and BL.	1835-burned warehouse deposits (predominantly wine/liquor, and carboy/ demijohn bottles)
BT	9	Increase the sample of materials from a wood crate and barrel, exposed in Test Cut BI.	Contents of crate consists primarily of bottle glass (wine/liquor, carboy/demijohn). 1835-burned warehouse deposits
BU	9	Expose a wood frame object.	Possible wine holder or skid slats. 1835-burned warehouse deposits
Test Trench East (TTE)		Testing landfill and identifying fill retaining features.	Documented several spread-footer complexes, a series of wood pilings in a staggered east/west pattern, and two glass and ceramic dumps within landfill.
Test Trench West (TTW)		Testing landfill and identifying fill retaining features.	Located a burned basement floor in Lots 8 and 9, and a vertical plank bulkhead at Lots 7/8. Landfill consisted primarily of pantiles, brick, and oyster shell.



SUB-SURFACE STRATIGRAPHY
Block 35 - U.S. Assay Office
Derived from 1937 Rock Data
Map - Volume 1, Sheet 1

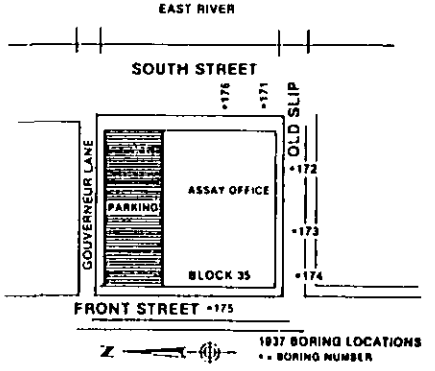


FIGURE 4.2: Soil Boring Profile of Block 35.

SOURCE: Greenhouse Consultants Inc., 1983

In two of the boring profiles, a relatively thin, one- to two-foot-thick layer of horizontally laid "Timber" was documented at a consistent depth, approximately 13 to 15 feet below surface. In both soil profiles, the wood elements mark the interface of two separate fill deposits. The occurrence of these wood elements at a consistent depth suggested the presence of a buried wood structure. Underlying these two fill deposits, boring profiles documented a third deposit, described as "Mud," "Clay," or "Gray Clay." This third deposit ranged in depth from 18 to 25 feet below surface in the central and western profiles, and between 10 and 30 feet below surface under South Street. While the lower "Sand" deposits are consistent with sediments from flowing river channels, the "Mud and Clay" are consistent with still or backwater sediments such as would be expected with slower currents in and around piers, slips, and jetties which existed in the area in the seventeenth and eighteenth centuries (GCI 1983b:4).

The identification of sunken ships was the foremost concern in the initial development of the deep testing program. However, the field strategy was modified prior to fieldwork, and the research goals were expanded by GCI to include (a) a study of the landfill process in New York City from the late seventeenth to early eighteenth centuries and (b) an examination of the material culture content of the landfill, viewed in terms of changing consumption patterns that may have occurred during the late Colonial and Federal periods (Henn and Wall to Baugher, April 6, 1984).

The initial plan involved excavation of two 40-foot backhoe trenches, oriented parallel to Front and South Streets, to examine the two major filling episodes represented spatially on the eastern and western parts of the site (GCI 1983b:9). The excavation strategy was later modified to encompass two 14x60-foot trenches. Steel sheet piling was installed in each trench (Plate 4.1) to prevent the trench walls from collapsing. Pumps were used to drain the trenches while excavation was in progress.

The two trenches were designated Test Trench West (TTW) and Test Trench East (TTE), and they were subdivided into four 15-foot-long sections for horizontal control. Since the sheet piling obscured the wall profiles, excavation proceeded in 3-foot levels from alternate sides of the trench, thereby permitting recordation of a continuous stratigraphic profile. Small, hand-excavated units were placed within each trench in order to obtain a stratigraphically controlled sample of the cultural material in the landfill.

The initial excavation of TTW began on April 9 and was completed on April 20, 1984. The northern portion of the trench contained the rear walls and burnt basement floors of two structures that occupied Lots 8 and 9. These structures were thought to be the remains of two buildings that had burned in the Great Fire of 1835.

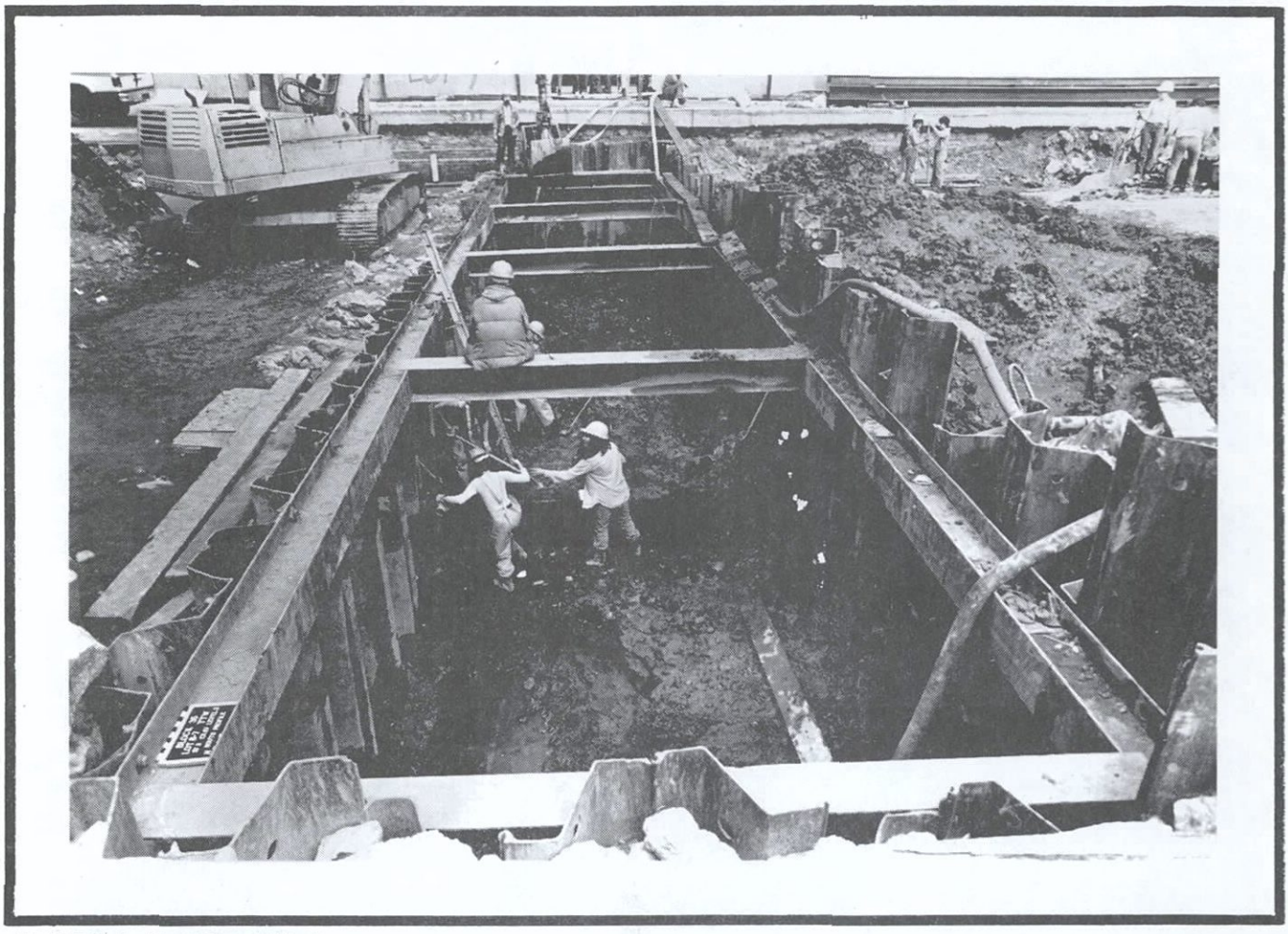


PLATE 4.1: Test Trench West.

These burnt deposits were recognized as potentially important, and it was decided that they should be sampled by manually excavated units (Test Cuts D, K, and P) (see Figure 4.1) outside the trench rather than delaying the ongoing machine excavation.

A wooden bulkhead structure oriented east-west was exposed in the southern part of the west trench (Figure 4.3). This bulkhead was built of vertically set planks supported by rough-hewn log posts on the northern side. This type of structure had not been previously recorded in lower Manhattan and, because of its unique construction, it was considered an important example of landfill/waterfront technology.

Additional fieldwork was carried out in Sections 3 and 4 of TTW between April 27 and May 4. This included detailed recordation of the bulkhead and controlled excavation of a sample of the landfill on both sides of the structure, as well as extending Test Cut A to a depth of 12.5 feet below sea level (see Figure 4.1). Backhoe excavation in Section 4 was advanced to a depth of 24.2 feet below sea level and was terminated at that depth when culturally sterile red sandy clay soils were reached (Henn and Wall to Baugher, April 6, 1984).

Excavation of TTE began on April 24 and was completed on May 11, 1984. No sunken vessels or landfill retention structures were identified in this trench, although a number of architectural features and trash deposits within the landfill were identified. Excavation was continued to a depth of 20 feet below grade; however, recordation of stratigraphic profiles was discontinued at a depth of 10.2 feet below grade in the northernmost section (Section 1), as this area was used as a sump to drain the remainder of the trench. Excavation in the central portion of the trench (Sections 2 and 3) reached a thick stratum of gray to black clay, which was identified as harbor bottom sediment.

Test Cut G, a manually excavated 3x3-foot unit, was placed in the southern end of the trench (Section 4) and stratigraphically excavated to a depth of 17 feet below grade, thereby providing a fairly complete stratigraphic column sample of the landfill. A deposit of pearlware and other late eighteenth- and early nineteenth-century ceramics and glassware was partially sampled by Test Cut G. Test Cut R was used to augment the sample of this deposit. A large sample of crown glass, possibly representing two dumping episodes, was recovered from the northern portion of Section 1, between depths of 10 to 14 feet below site datum.

TTE also contained a number of architectural foundation elements associated with early nineteenth-century buildings along South Street. These included spread-footer complexes and support beams along the centerline of Lots 41, 42, and 43, as well as along the side property lines of Lots 41/42 and 42/43. Also, a series of five woodpiles, arranged in a staggered east-west pattern, was

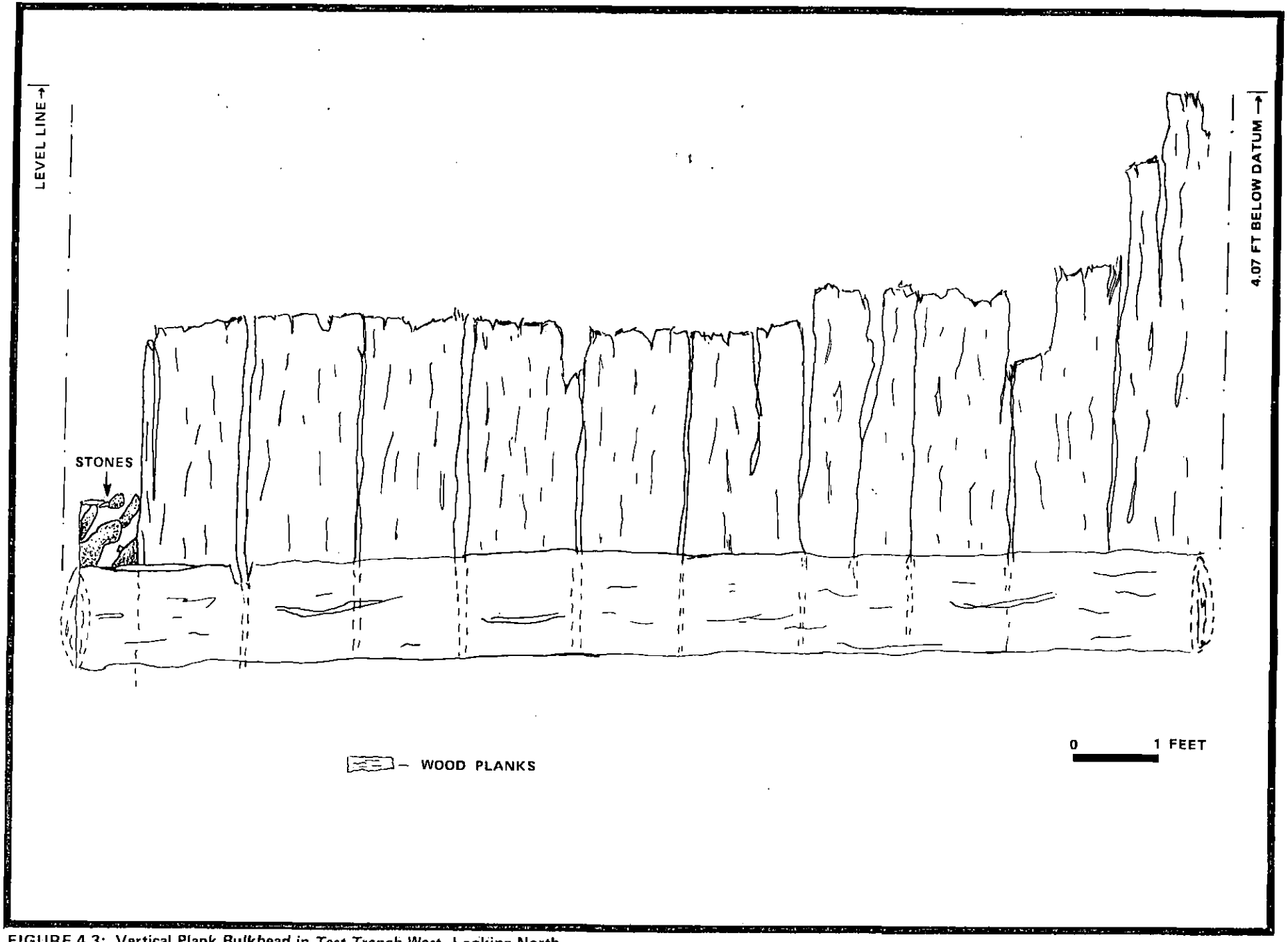


FIGURE 4.3: Vertical Plank Bulkhead in Test Trench West, Looking North.

exposed in Section 2, near the property line between Lots 41 and 42. Two of the piles were extracted, and it was determined that they had been driven through the landfill deposits and into the underlying harbor bottom sediments (Henn and Wall to Baugher, May 14, 1984). The interpretation of these piles was initially uncertain; however, as excavation of the block progressed, numerous similar pile arrangements were found directly beneath spread footers. This suggested that they functioned as structural support elements.

3. Backyard Testing

The principal goal of the backyard testing program was to determine the presence or absence of well-preserved features or refuse deposits associated with the occupation of the block. Specifically, the testing program was oriented toward the identification of occupational refuse that had been deposited in open yard areas (sheet refuse) or in closed feature contexts (wells, privies, cisterns, trash pits, etc.). It was expected that these resources would most likely have survived in open, rear yard areas that had never been disturbed by building construction.

However, a review of historic maps indicated that the number of open yard areas was quite small; and inspection of building records indicated that relatively deep basements would have been present beneath the buildings. Therefore, the backyard testing strategy focused principally on the yard areas at the extreme rear of the lots within the site. As testing proceeded, however, the exposed areas in some lots amounted to as much as one-third or more of the lots.

The excavation strategy involved a combination of machine clearing and hand excavation. Machine excavation (backhoe, front-end loader, and jackhammer) facilitated the removal of the surface pavement and underlying demolition rubble. In the recent yard areas, machine excavation proceeded to the level of the earlier yard surfaces; in the remainder of the rear lot areas, machine excavation proceeded to the level of the most recent basement floor. In areas where it was anticipated that intact deposits or features might have survived beneath basement floors, machinery was used to break through the floors and expose the underlying soils.

After yard areas were exposed, hand-excavated units were laid out to test for features or intact sheet midden deposits. These hand-excavated units included small test squares, usually 3x3 feet, and long, narrow trenches oriented parallel to the rear lot lines. During this phase of work, exposed features were sampled rather than excavated completely. Finally, narrow east-west backhoe trenches were excavated through the rear of the lots to test for fill retention structures (GCI 1984; Henn and Wall to Baugher, April 4, 1984, and April 11, 1984).

The backyard testing program was carried out in two phases in order to accommodate construction activities. The first phase of backyard testing included Lots 7, 8, 9, 41, 42, and 43; and this work was completed between April 13 and May 25, 1984. Testing of Lots 6 and 44 was not begun until May 25, because that area was in use as a construction staging area and because of excavations for the slurry wall.

A number of closed features with occupational deposits were identified, primarily on the lots facing Front Street (Lots 6, 7, 8, and 9), during this testing phase. With the exception of Lot 7, the testing program determined that the deposits in open yard contexts had been quite disturbed and were therefore not suitable for data recovery. Testing in the rear yard area of Lot 7 revealed the best preserved yard deposits within the site, along with a stone-lined privy and a wooden box-like structure that contained occupational refuse. Archaeological data recovery was subsequently conducted on the yard deposits and features in this lot. A ceramic dump was uncovered during testing of the rear yard of Lot 9. The dump was initially identified as an occupational deposit. This deposit was excavated during the mitigation phase, but it was ultimately determined to be part of landfill.

4. Mitigation

The final phase of excavation (i.e., mitigation), was a data recovery program oriented toward recovery of significant archaeological deposits and features that had been identified in the testing programs. A broad range of archaeological resources was determined to merit data recovery, including landfill retention structures, wharves, landfill deposits, yard deposits, and occupational deposits from closed feature contexts (see Table 4.1).

The research goals for the mitigation program (see Chapter II) reflected the wide range of resources identified at the site. Waterfront technology was one of the primary research topics pursued during mitigation, as a number of wharves and bulkhead structures were identified during testing. Two abutting cobb wharves oriented north-south across Lots 6, 7, 8, and 9 were excavated, as well as an east-west oriented wharf exposed in the southern portion of Lots 6 and 44. The latter wharf has been identified as Bache's Wharf (Figure 4.4).

Also, a number of wooden bulkhead structures were examined (Figure 4.5). The principal bulkheads included: (a) an east-west, vertical plank structure that extended west from the southernmost of the cobb wharves and; (b) a north-south, horizontal plank bulkhead in the rear of Lot 42. The latter structure abutted two smaller, horizontal plank bulkheads along the side property line of Lots 7 and 8, and 8 and 9. A horizontal log was also found a few feet west of the bulkhead in the rear of Lot 42. It is unclear whether this log was associated with the bulkhead in Lot 42. Another

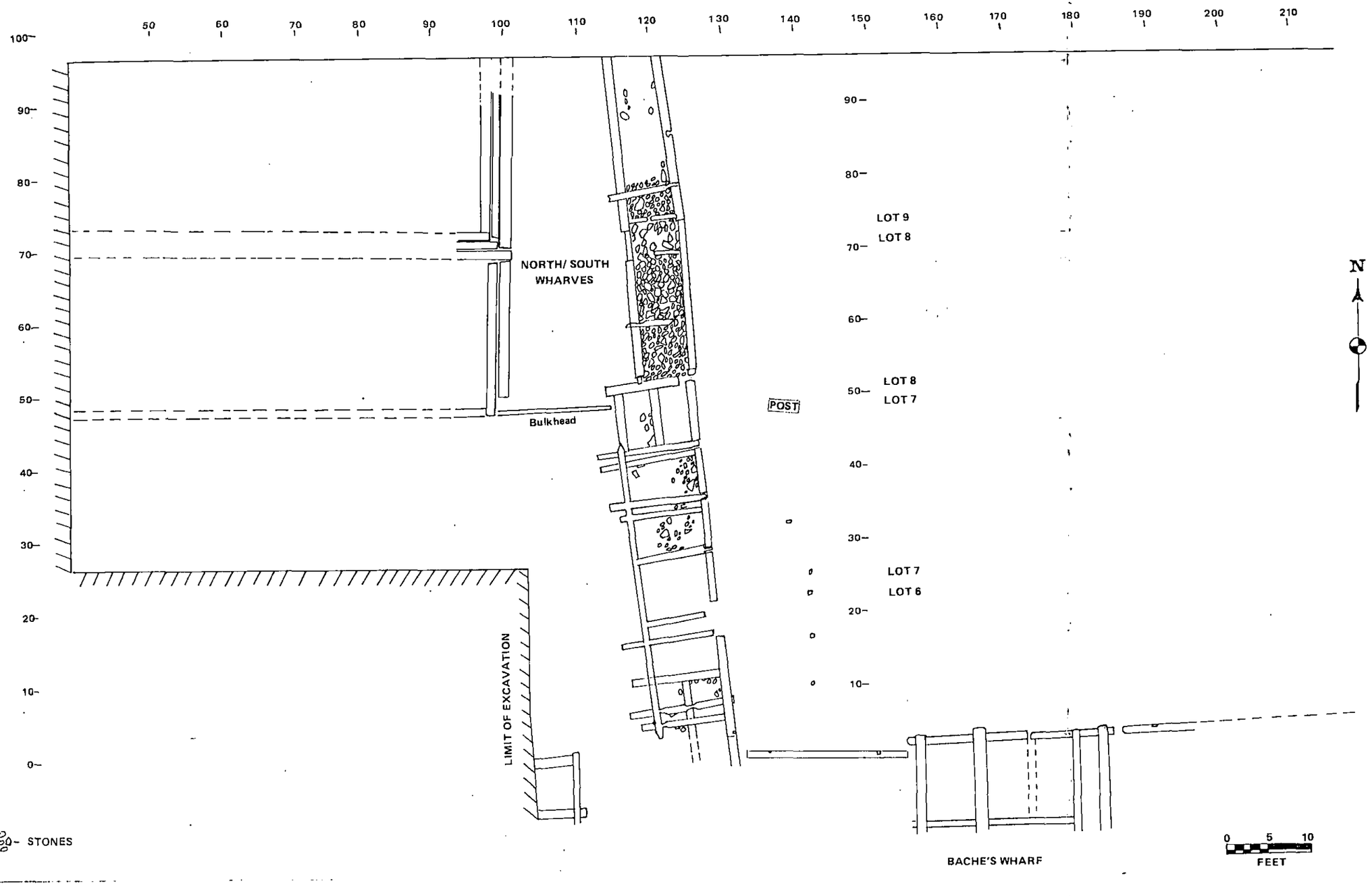


FIGURE 4.4: Planview of North/South and Bache's Wharves.

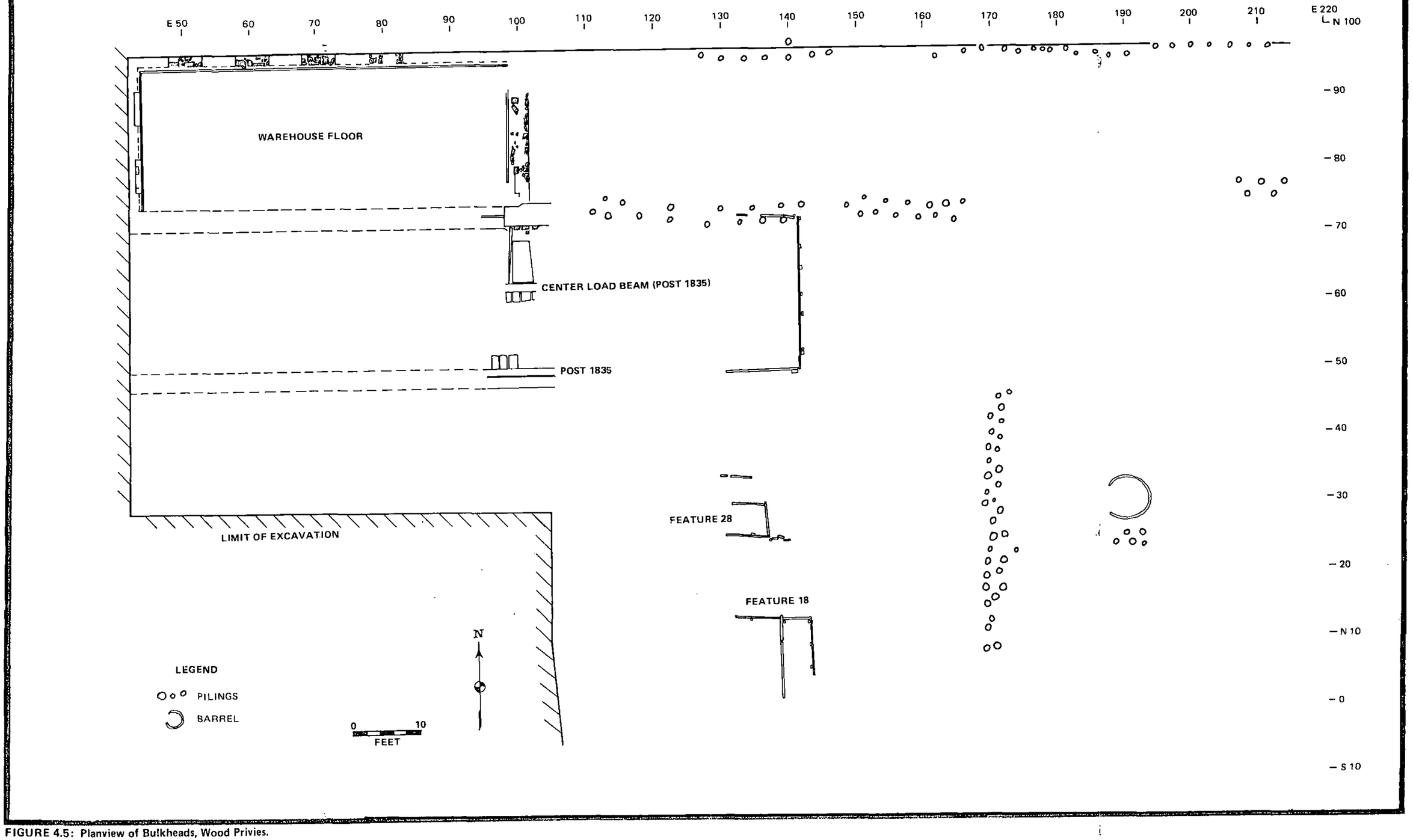


FIGURE 4.5: Planview of Bulkheads, Wood Privies.

horizontal plank structure was identified in the rear of Lot 43, extending west along the property line of Lots 6 and 7. This structure was abutted by smaller wood structures that formed a box-like feature in the rear of Lot 7. At the intersection of the north-south cobb wharves and Bache's Wharf, another box-like feature had been formed by two horizontal plank structures (see Figure 4.5).

In conjunction with the exposure and recordation of the wharves and bulkheads, samples of the landfill were systematically excavated. The principal purpose of these landfill samples was to establish the temporal sequence of the various stages of the block's filling. The landfill samples were also viewed by GCI as general samples representative of New York City's material culture during the late eighteenth and early nineteenth centuries, with the potential to provide information pertinent to domestic consumer behavior.

Data recovery was also undertaken, for example, on a few deposits within the landfill that appeared to represent discrete deposits of household or commercial refuse. For example, Test Cut N, in the rear of Lot 41, was to sample what appeared to be redeposited privy fill. This deposit was fully excavated to provide information on domestic consumption patterns. A trash deposit in the rear yard area of Lot 9, initially identified as commercial refuse discarded during the second quarter of the nineteenth century, was sampled during testing and more fully excavated during data recovery.

A large number of timber piles were identified during testing, most frequently beneath spread-footer planks that in turn supported building foundation walls on the lots facing South Street. While spread-footer planks had previously been documented as building foundation elements (Rockman et al. 1983), timber piles of this sort had not been excavated in lower Manhattan at the time of the Assay Site field phase. Therefore, initially, there was some uncertainty concerning their function. It was first suggested they might have been (a) the remains of waterfront structures, such as piers, or (b) foundation elements sometimes used in conjunction with spread-footer planks. During data recovery, additional work was done to expose and map the timber piles and spread-footer planks. It appeared that the piles functioned as foundation elements for structures built after the landfilling was completed.

A number of refuse deposits in closed feature contexts were identified during testing and later subjected to data recovery (see Table 4.1). These include three stone-lined privies; two barrels, possibly used as cisterns; and two box-like structures abutting the wharves. On the basis of the testing, these features appeared to have been abandoned during the early nineteenth century when the block was primarily commercial. Therefore, the research value of these deposits was viewed primarily in terms of their potential to provide information on workplace activities. The burnt warehouse floor deposits in Lot 9 were viewed as particularly important.

Since these deposits appeared to represent the in situ remains of the warehouse at the time it burned, a large sample of the floor was excavated during data recovery, to provide information on activities within a well-defined commercial setting.

The majority of the field excavations related to the mitigation program were carried out from June 13 to August 22, 1984. Data recovery within Test Trench West, comprising the excavation and recordation of the horizontal plank bulkhead that extended west from the cobb wharves, was completed earlier, in order to accommodate construction activities.

5. Construction of the Slurry Wall

Construction of the slurry wall was initiated while the archaeological excavations were in progress, but without prior archaeological testing of the area of direct impact. Construction of the slurry wall involved excavation of a two-foot-wide trench to bedrock around the perimeter of the site, and then injection of liquid concrete into the trench to form a barrier against ground water seepage. Several cast iron cannons were excavated with the spoil as the excavation was progressing along Front Street during the evening of April 27. This discovery was reported to members of the archaeological team in the vicinity of the site, and measures were taken to ensure the stability of the cannons. Altogether, a total of seven cannon fragments were recovered and subsequently shipped to a conservation laboratory equipped to stabilize large cast iron items. After the discovery of the cannons, the slurry wall construction was archaeologically monitored until its completion, but no other significant archaeological finds occurred (Henn and Wall to Baugher, April 4, 1984). A description and analysis of the cannons is presented in Appendix 6 of this report.

6. General Field Recordation Procedures

Throughout all phases of excavation, a fairly uniform set of procedures was utilized, although there was some variation from the deep testing program and the subsequent backyard testing and data recovery phases.

The mapping procedures had an important function during the excavations, and a variety of instruments and techniques were used. At the outset of fieldwork, a grid was established over the site, oriented to conform to the historic lot partitioning. Lot lines were mapped to the site grid, to facilitate placement of excavation units according to historic property boundaries. North and east (horizontal) coordinates were made with an electronic transit. More than 10 mapping stations were established during the excavations, owing to ongoing construction activities and the large size of the site. Mapping datums were tied in to a common city reference, so that all vertical measurements could be directly expressed in elevation above or below mean sea level.

The basic unit of provenience was the context. Each excavated context was assigned a number in the field, and this context number remained with the excavated artifacts throughout laboratory processing. Context numbers were also assigned to architectural features, to facilitate mapping and stratigraphic interpretation, as well as to stray artifact finds and selectively collected artifacts or samples.

Hand-excavation units were referred to as Test Cuts, and each test cut was assigned an alphanumeric identification. With the exception of the series of 5x5-foot units excavated in Lot 9 during data recovery, there was little standardization in the sizes of test cuts. Rather, most test cuts were laid out according to whatever size seemed appropriate for the particular situation. Excavation of each test cut proceeded according to natural strata or culturally distinct layers; the strata within each test cut were identified numerically. Strata were normally divided into arbitrary four-inch levels that were identified alphabetically; in some circumstances, larger or smaller levels were used. No feature designations were assigned in the field, so that in normal circumstances, a context number provided full information pertaining to (a) lot, (b) test cut, (c) stratum, and (d) level.

The basic written record of the excavations was a standardized context information sheet. The context information sheet included the following information: (a) provenience information--context number, grid coordinates, lot, stratum, level, and opening and closing elevations, (b) personnel--crew chief and excavators, (c) soil description--color and texture, (d) soil inclusions, (e) material discarded, (f) excavation techniques, (g) general artifact categories present, (h) stratigraphic relationships, (i) samples taken, (j) opening plan drawing, (k) plan and profile drawing references, (l) photographic references, and (m) narrative comments.

In addition to the standard context information sheets, scaled plan and profile drawings were made of test cut profiles, structural features, etc. Both black-and-white photographs and color slides were also used to record the excavations. Journal notebooks were maintained by the field supervisors; these journals generally described daily crew assignments and observations of the work in progress.

Excavated soils were normally screened through 1/4-inch hardware cloth mesh. Both water-screening and dry-screening techniques were used during the course of the excavation. Bulk architectural materials such as brick and mortar were weighed and sampled in the field, and the remainder discarded.

One-pint soil samples were often removed from the excavated material, prior to screening. In addition to soil samples,

flotation samples were taken from selected contexts, and in many instances, from the soil samples themselves.

B. EXCAVATION OF WATERFRONT STRUCTURES, LANDFILL, AND RIVERBOTTOM SOILS

1. Waterfront Structures

Based on historical data, Block 35 was initially a slip bounded by two wharves extending eastward into the East River (Hills 1782): Bache's Wharf on the south (in Lots 5 and 45) and Gouverneur's Wharf on the north. The latter is currently under Gouverneur Lane. Portions of Bache's Wharf (totaling 65.5 feet), were uncovered during data recovery, as well as two north-south oriented sections of a second wharf which formed a continuous ca. 90-foot structure (assumed to link Bache's and Gouverneur's wharves) (Plate 4.2). The two north-south wharf sections abutted at approximately the Lot 7/8 line.

Additionally, four wooden bulkheads were identified, each functioning as fill retaining structures. Another two possible bulkheads were also uncovered. These latter bulkheads encompassed portions of earlier constructed bulkheads.

a) The East-West Wharf (Bache's Wharf)

This east-west oriented wharf, first exposed during backyard testing, runs parallel with the southern lot boundaries of Lots 6/44. The wharf is of block and bridge construction. In this type of construction, a heavy timber crib is built near shore and floated into position. The crib is weighted with stone and fill and sunk into place. The distance between the blocks is then spanned with timber bridges (see Louis Berger & Associates, Inc. 1987:V-11 to V-14).

The exposed sections of Bache's Wharf consisted of (a) a partially exposed "block" to the west of the north-south wharf ca. 8.5 feet in length, (b) a gap, with no wharf or fill retaining structural elements, ca. 23 feet long, (c) a horizontal timber face section approximately 22 feet long and 8 feet high intersecting with the north-south wharf, (d) another block section, ca. 30 feet long and ca. 16 feet high, and (e) another horizontal timber face section, only partially exposed, ca. 9 feet long. The horizontal timbers were spliced with half-lap joints while cross timbers were secured to them by half-dovetail and shoulder housings (see Figure 4.4) (Plates 4.3 and 4.4).

The original bridge construction appears to have been removed during installation of later landfill retaining features (i.e., horizontal timber sections between the blocks; see Plate 4.4). The bridges themselves were probably constructed of planking. How these planks were supported is unclear. From historical reports

PLATE 4.2. Assay Site Wharves. North/South Wharves to Right and Bache's Wharf in Upper Center of Photo.

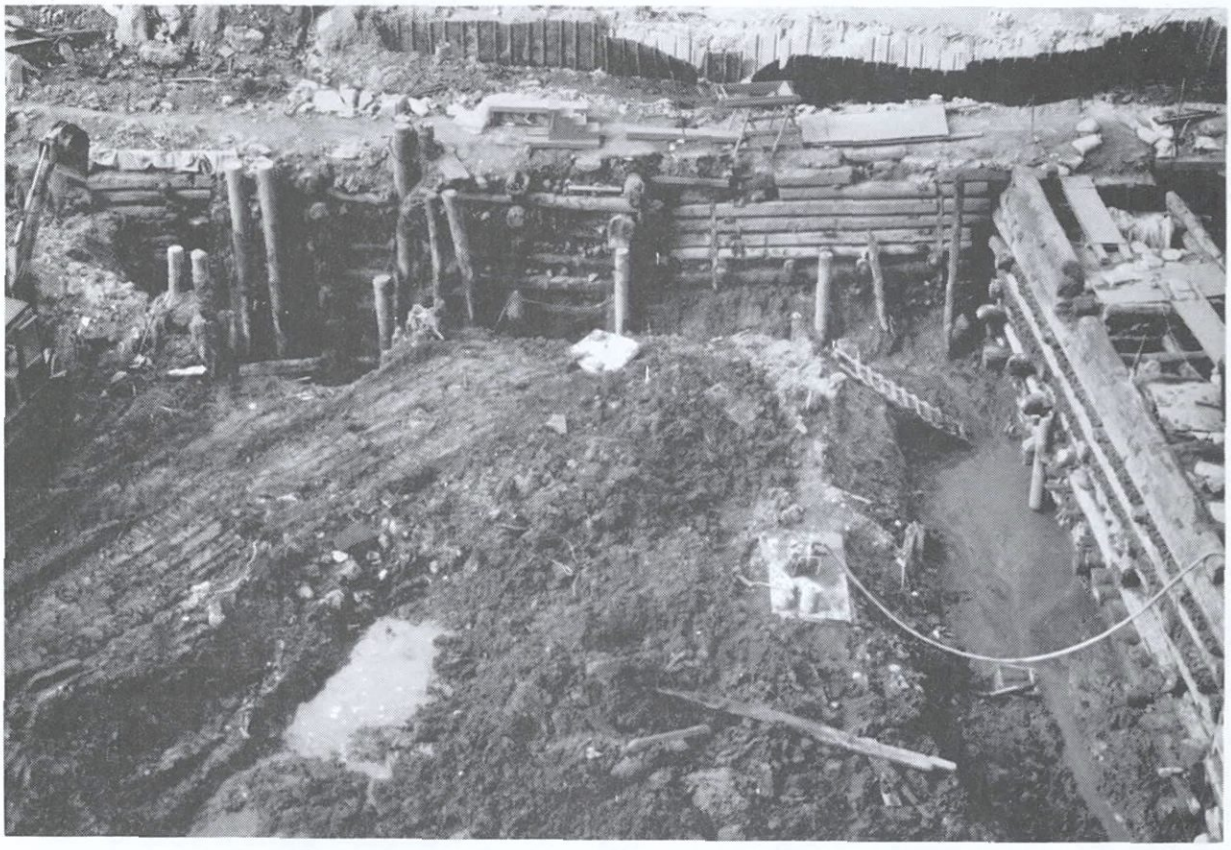


PLATE 4.3. Bache's Wharf. Note Block Construction in Center Surrounded by Filled-in (Planked) Bridge Areas.

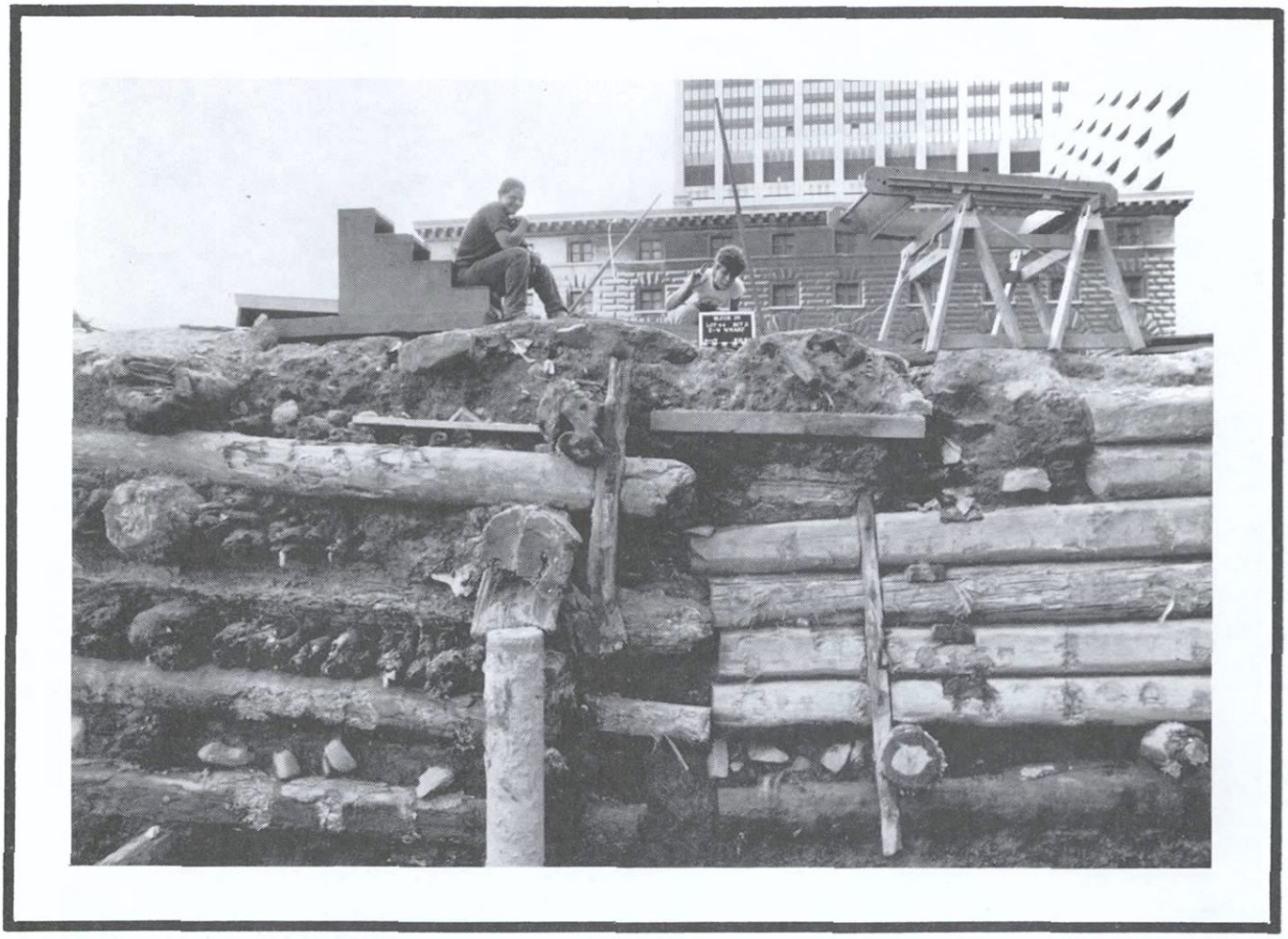


PLATE 4.4: Close-up of Bache's Wharf.

of wharf building techniques we know that pilings were sometimes used. Another technique was to lay long sturdy timbers from one block to another (assuming the gap between the blocks was not too great), with planks laid over these. Since the gap between the two blocks in Bache's Wharf was ca. 45 feet, it is conceivable that it was spanned by the latter technique, since logs at least that long were available and were actually used in the north-south wharf. However, it should be noted that the area where the bridge support pilings would have been placed was not investigated (as this area was beyond the limit of the archaeological investigations). Pilings were uncovered in Lot 45 during preliminary construction excavation in an area that correlated to the easternmost exposed "bridge" section of the wharf. Unfortunately, due to the nature of excavation, it was not possible to determine whether these pilings were related to wharf construction or later architectural features.

As noted above, excavation of the northern portion of Bache's Wharf revealed two sections of horizontal timbers (see Figure 4.4). The western timber section, which is adjacent to the north-south wharf, was more fully exposed than the eastern section. Therefore, the following discussion focuses on the western section. This horizontal timber section is detailed below as an example of the type of landfill retaining structures that were present within the Assay Office Site.

Horizontal Timber Face Sections

This structure consisted of a number of horizontal timbers, approximately 1.1-foot square, consisting of both alternating courses of roughly hewn timbers and rounded logs. These timbers were notched in two or three places along the top in order to accommodate the shaped ends of the logs that formed the inner supports within and perpendicular to the face. The ends of these cross logs lay flush with the outer face of the timber section. The total length of the crosslogs extending behind the face is unknown. Although Lot 5 was outside of the project area, construction excavation exposed the rear of what remained of the structure, revealing that it had been destroyed by the construction of the Assay Office Building. Because of this, it is not possible to determine whether or not this structure had a rear "face" as well, or was actually constructed as a bulkhead only, and not as a "closed" structure. The interpretation that the structure did indeed have a "rear" face (or at least some supporting structure) seems more acceptable since the crosslogs were present. It seems unlikely that long logs would simply project back from the face without support in the rear.

The solid timber face was also supported by vertical guideposts near either end of the structure. The horizontal timbers were all square-notched at these points to accept the guideposts (which were ca. 0.35 feet square), enabling them to lie flush with the face.

The posts had holes corresponding to each horizontal timber, indicating that some sort of fastenings were used, probably iron spikes (judging from the size of the holes and iron oxidation stains). It is interesting to note that the only place iron spikes may have been used in the construction of any wharves or fill retaining structures uncovered in Block 35 was in relation to these types of guideposts. All other fastening was executed with various types of wood joinery. The guideposts extended to or below the bottom of the structure, and are assumed to have extended to or near to the top, though this is not certain as the original top of the timber structure is no longer extant.

The base of this particular section was a horizontal log. It was, however, overlaid by four logs (ca. 0.8 feet in diameter) laid in a header position, or perpendicular to the face, spaced approximately equidistant between the two guideposts. All these crosslogs were notched on top to accommodate the round stretcher log above. The bottoms of these header logs were not notched; they simply rested on the lower stretcher log. The two end crosslogs were also notched for the guideposts, which they abutted. The headers in this row projected approximately 0.7 feet beyond the face of the structure.

The face of the structure was seven stretchers high, including the two uppermost partial timbers. The top of the feature was at a depth of ca. 2.7 feet below site datum, while its bottom was at ca. 11.0 feet below site datum. Overall, the section was ca. 22 feet long and ca. 8 feet high, and sloped down to the east. Worm boring damage was present, but was comparatively light.

The other timber face section to the east was not uncovered sufficiently to compare it to the western section. However, judging from those portions that were visible, general construction techniques were similar.

b) North-South Cobb Wharves

The two north-south oriented wharves were first identified in the backyard testing of Lots 7, 8, and 9, then later exposed in Lot 6 during data recovery. The structures were initially exposed by backhoe scraping in the area between Test Trench West and the backyard areas of Lots 6, 7, 8, and 9 (Wall and Henn 1984a and b). In the process of clearing the yard area of Lot 9, a plank or corduroy road was found. Removal of this structural feature exposed elements of the north-south wharves.

The two north-south wharves seem to have been of the cobb type, similar in construction to the blocks in the block and bridge construction of Bache's Wharf. Cobb wharves were generally made of heavy timber frameworks, with logs laid on top of each other in rows of headers and stretchers, filled with cobbles, cobblestone, ballast, and/or fill (Heintzelman-Muego 1983).

The north-south wharves consisted of two abutting sections (Plate 4.5), each approximately 15 feet high, and 45 feet long (Boros et al. 1985). The uppermost timbers were approximately 2.5 feet below site datum. The number of stretchers utilized to accomplish this height varied between 7 and 8, depending on the depth of river-bottom. The stretchers consisted of both rounded and beveled logs. These logs were notched, as were the header logs, in order to accommodate the overlying course of timbers. In addition, short timbers were employed by being spliced together using half-lap joints (Figures 4.6 and 4.7). A mast, with an incised mark, was included among the course of logs. The mark was at first tentatively identified in the field as either a King's Broad Arrow or as a Masonic symbol. After close examination of the mark in the laboratory, it appears that neither is correct. The Broad Arrow was employed to mark trees for the use of the Royal Navy in both Great Britain and the British colonies (Albion 1965:111; 231-280). The Broad Arrow mark, as illustrated in Sloane (1965:96), is a simplified arrowhead with a shaft and two wings; all three portions meet at the top of the shaft to form a point. The incised mark on the mast incorporated into the wharf has only two wings or legs and no shaft (Plate 4.6). The other possible interpretation of the mark was the Compass and the Square, one of the most common Masonic symbols. This symbol consists of a triangular compass with pointed legs surrounding or standing over an inverted square. The sides of the square extend slightly beyond the legs of the compass. Although the mark on the mast is similar to the Compass and the Square, it differs in ways that are significant to Masons (Edwin Visser, personal communication). Several characteristics preclude identification of this mark as the Compass and the Square: the outer legs of the triangle end in perpendicular feet rather than points; the inner angle on the "square" exceeds 90 degrees; and the legs of the "square" do not extend beyond the legs of the "compass". Therefore, the mark on the mast remains problematical. It is quite possible that it is simply a stylized "A". Similarly styled letters are known from impressed makers' marks on stoneware pottery made in the late eighteenth century (Denker and Denker 1985: Figure 14).

This framework of heavy timbers formed a series of four- to eight-foot-long cells (Boros et al. 1985). The northern wharf structure was one cell wide, while the southern was two cells wide. Squared vertical guideposts, attached to the wharf sections by iron fasteners were utilized to aid in the placement of the wooden headers, and possibly prevent shimmying. A layer of wooden faggots was placed between the upper three courses of stretchers in order to create a floored cell in which to contain the stone fill (see Figure 4.6; Figure 4.8) (Plate 4.7). Smaller, split logs were used between the lower two courses of stretchers, possibly to redistribute the weight of the cobble fill. The layers of split logs and faggots did not extend through the width of the structures (Boros et al. 1985) (see Figures 4.6 and 4.8) (Plate 4.8).

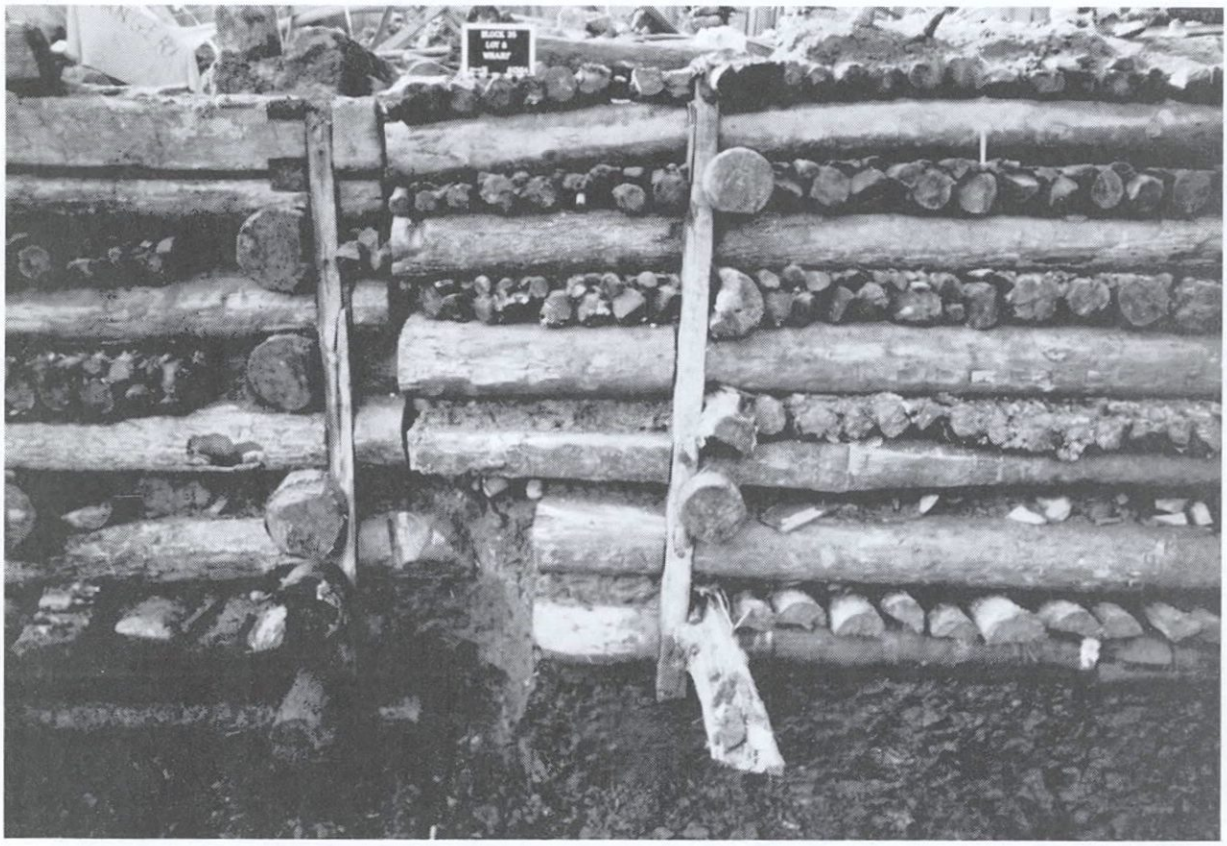


PLATE 4.5: Close-up of Abutment of North/South Wharves

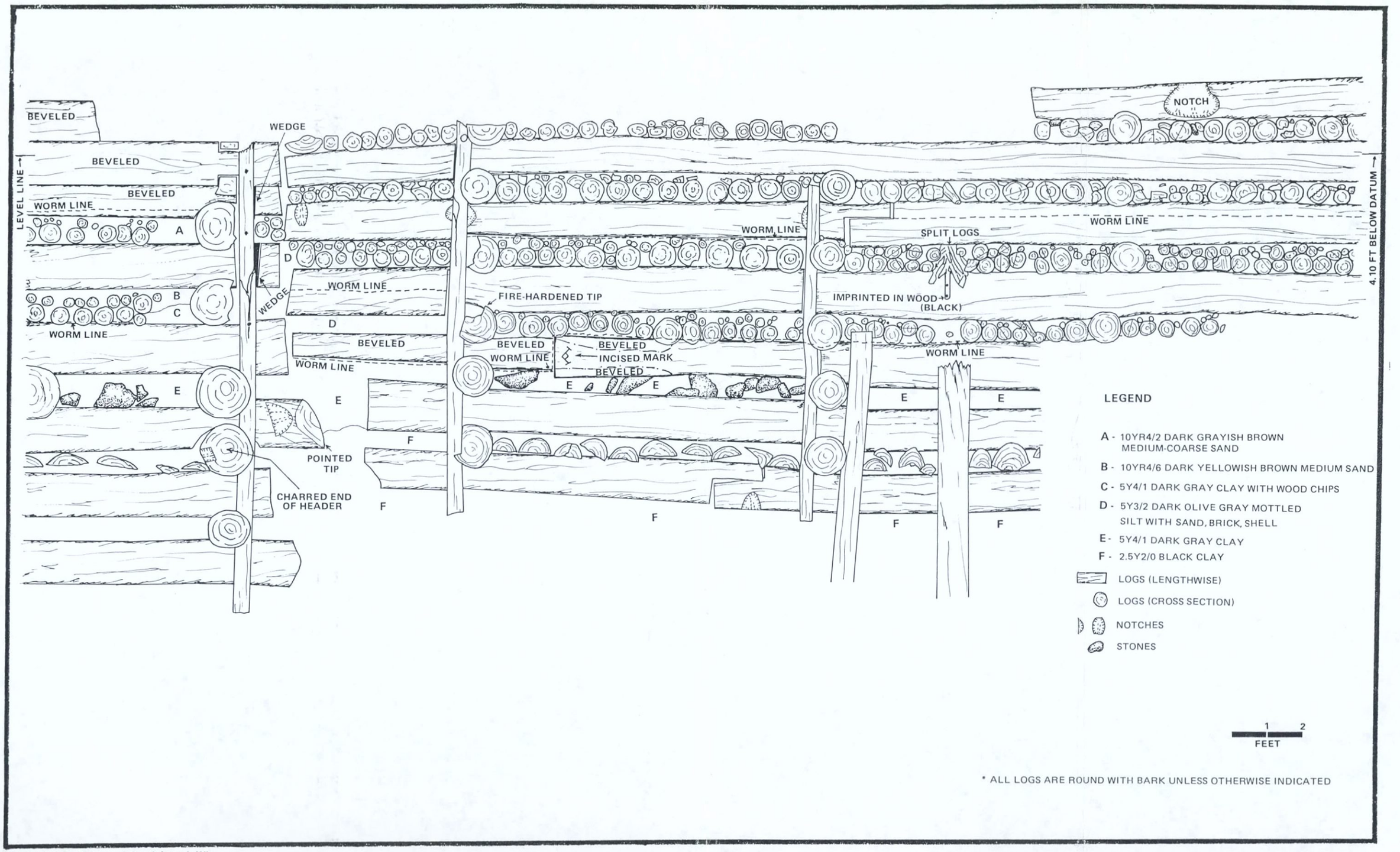


FIGURE 4.6: Profile of North/South Wharves.

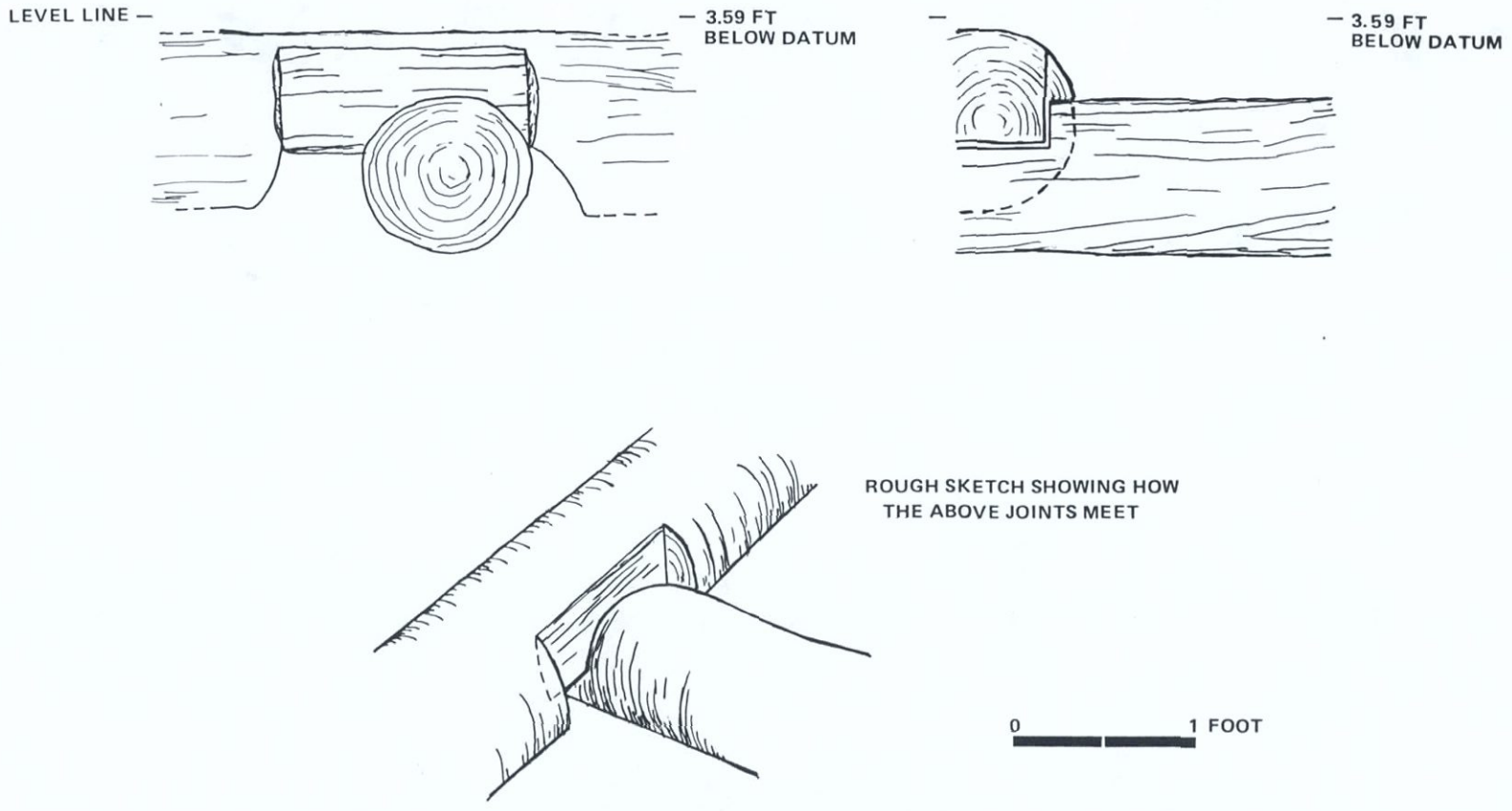


FIGURE 4.7: Detail of Joinery Within North/South Wharves.

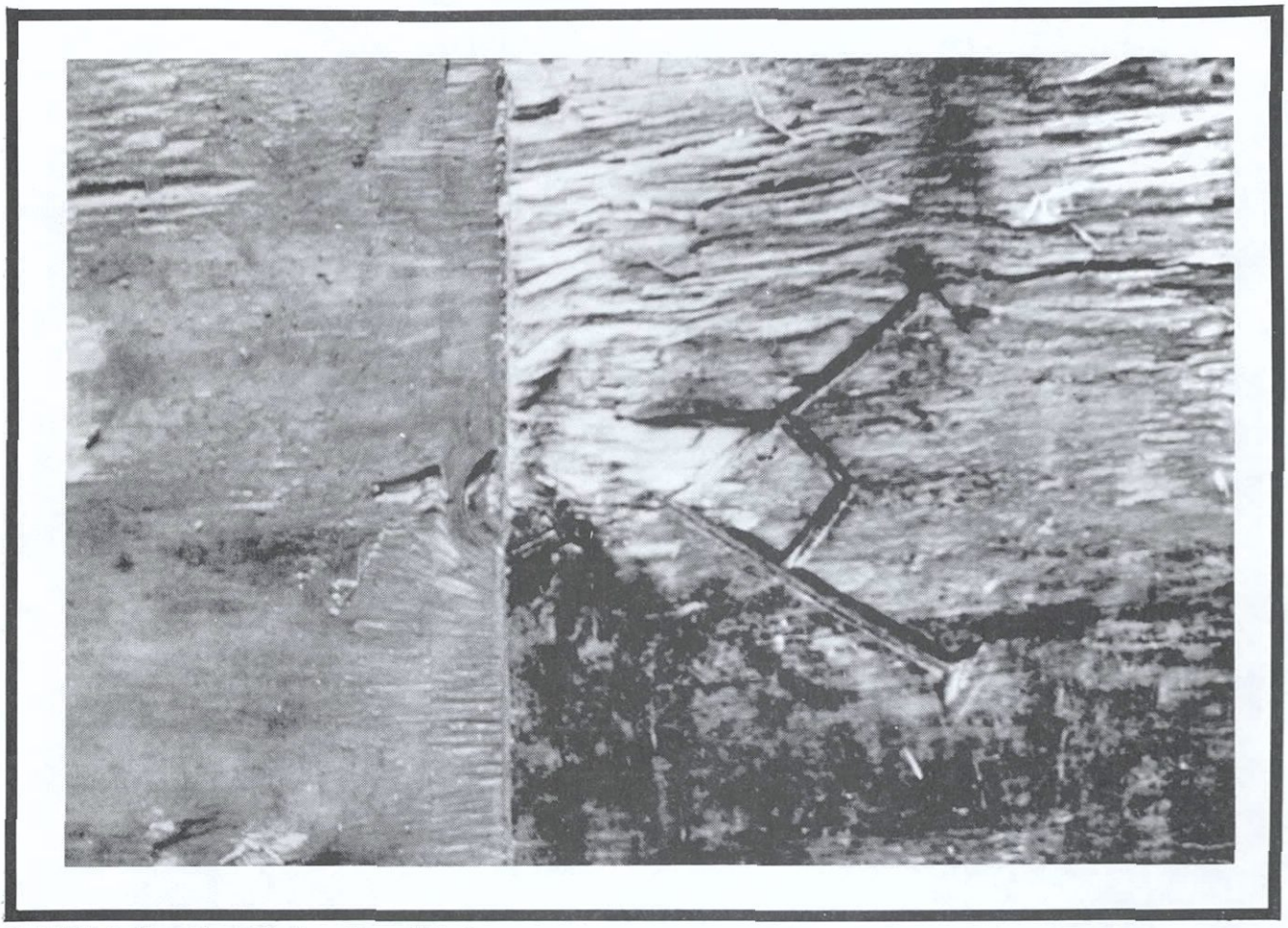


PLATE 4.6 Close-Up of Mark on Reused Mast

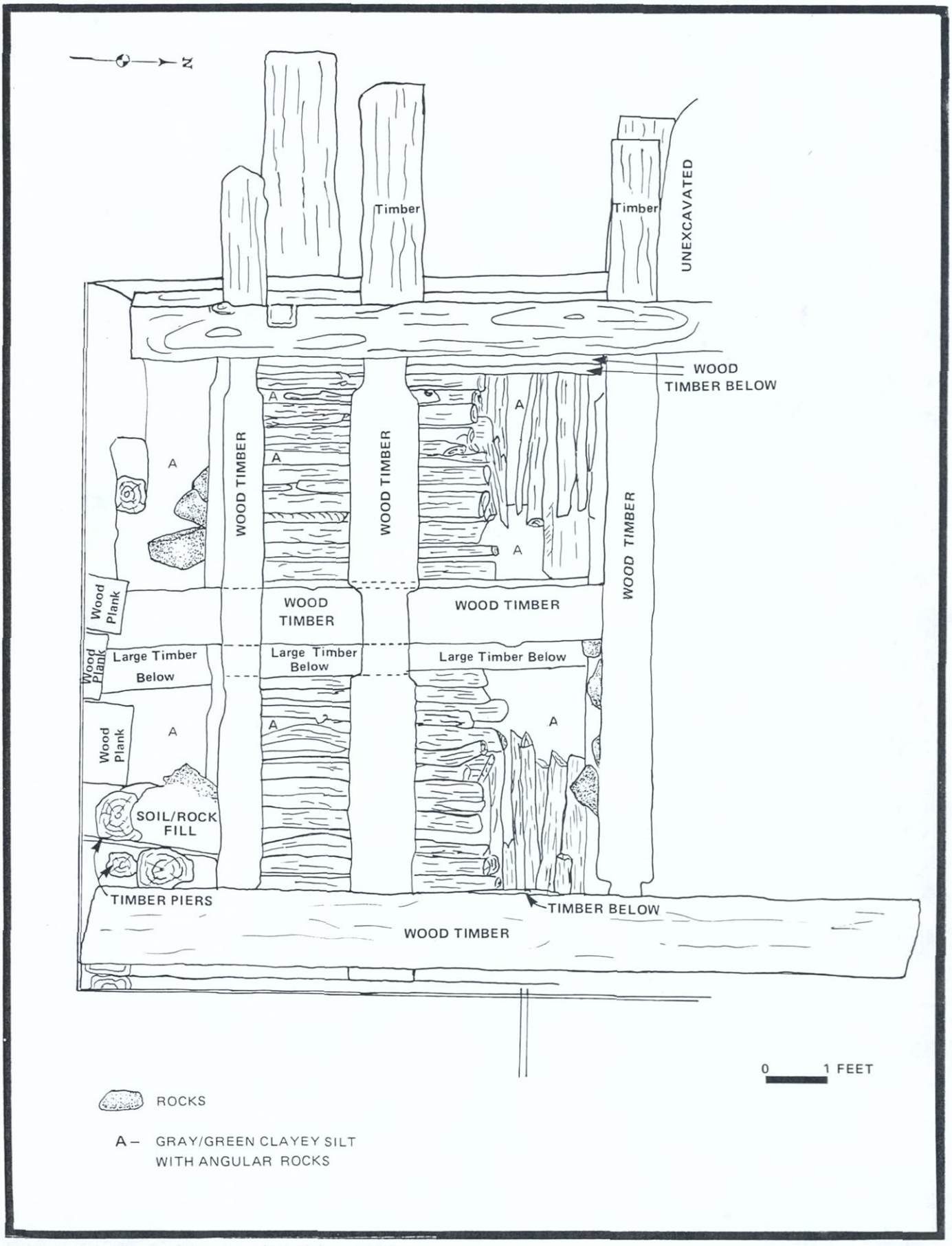


FIGURE 4.8: Detail of Planview of North/South Wharves.

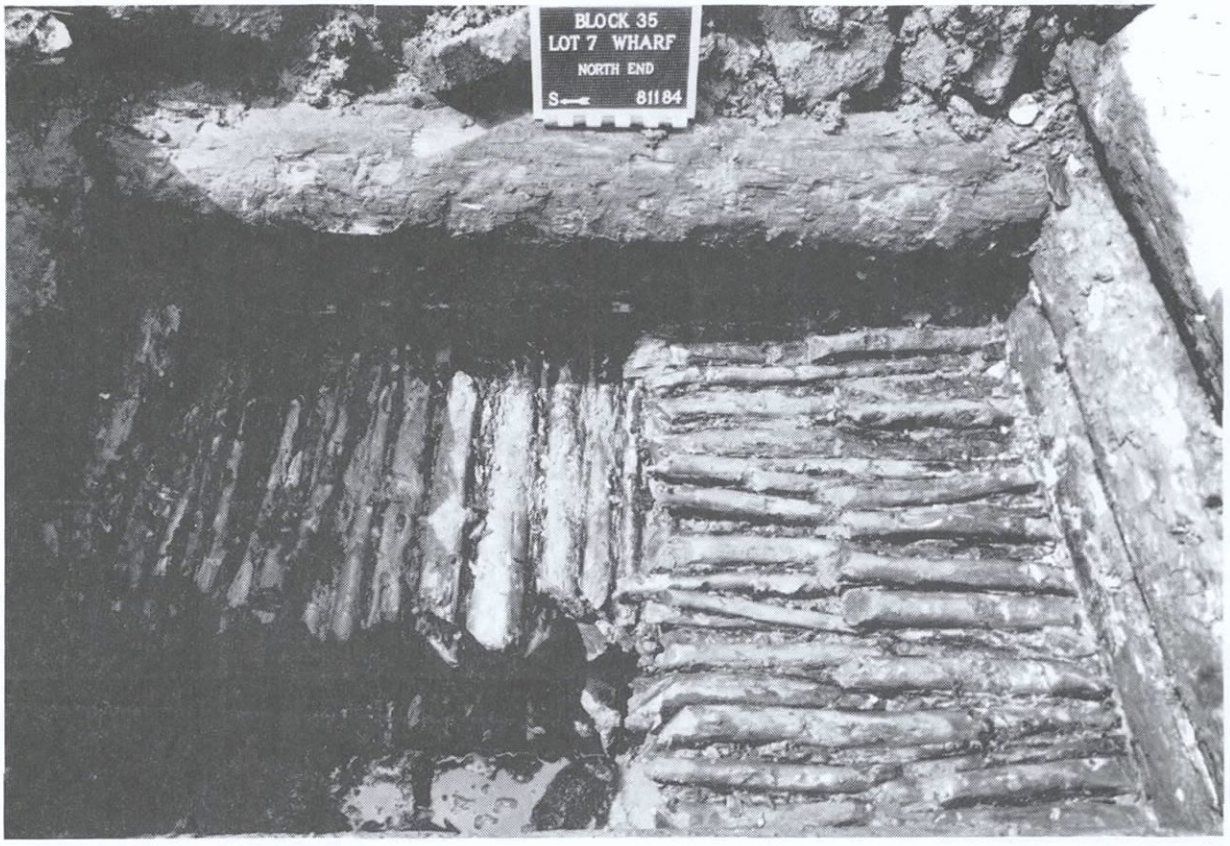


PLATE 4.7: Interior of North/South Wharves Showing Interlaying of Faggots.

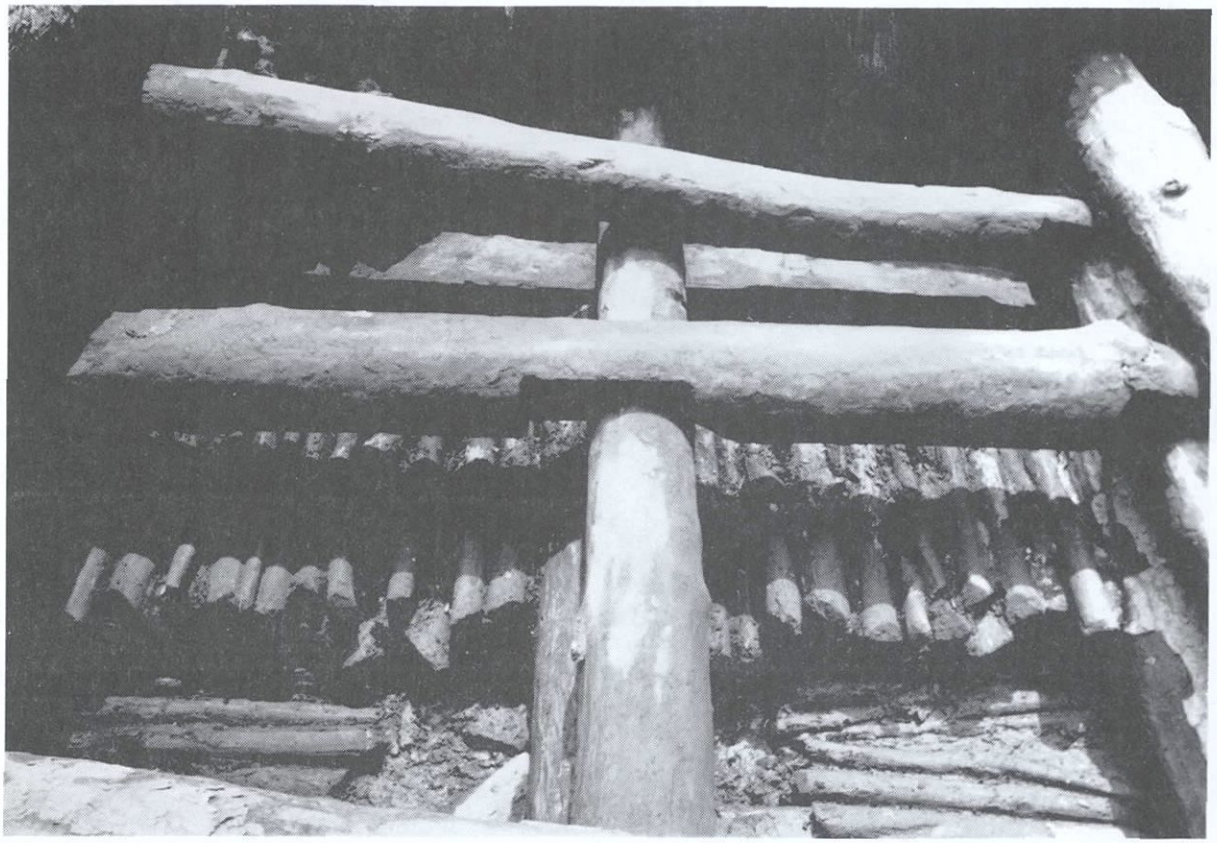


PLATE 4.8: Interior of North/South Wharves, Lot 6.

Based on stratigraphic evidence from excavations within and abutting the north-south wharves and Bache's Wharf, in addition to their construction techniques, orientation, and extent of teredo worm damage (Plate 4.9), it is possible to identify the construction sequence of the two waterfront structures. The "block" sections of Bache's Wharf were built first. Then the north-south cobb wharf in Lots 6 and 7 was constructed (along with the east-west bulkhead in TTW, on the 7/8 lot line). It is unclear whether the bridge sections of Bache's Wharf were filled in at the same time as the construction of the Lot 6/7 north-south wharf or somewhat afterward; however, teredo damage suggests the latter. Finally, the north-south cobb wharves in Lots 8 and 9 were built and subsequently used in the final phase of filling the western portion of Lots 8 and 9.

c) Bulkhead at Juncture of North-South Wharves

An east-west oriented bulkhead was exposed in Test Trench West, along the Lot 7/8 property line to the west of the cobb wharf (see Figure 4.3 and Plate 4.1). This bulkhead consisted of 10 planks set vertically, and supported on their northern side by a rough-hewn log. This log was set horizontally, adjacent to the bulkhead, on top of a thick, gray to black clay. There was no evidence to suggest that the horizontal log was attached to the vertically set planks. The upright planks were each cut diagonally at a 45 degree angle at their lower end, presumably so that the planks could be driven into the clay. (The base of the planks was ca. 2.5 feet into the clay.)

d) Bulkhead--Lot 8/42

Backyard testing of Lot 42 (Test Cut B), exposed a north-south oriented wooden bulkhead, approximately 23 feet long (see Figure 4.5). The bulkhead consisted of five horizontally laid planks supported on the east (or water side) by square posts, and by landfill on the west (see Figure 4.5; Figure 4.9). The lowest horizontal plank extended approximately 6.15 feet below datum. Excavation of TCY suggested that the northern extent of the bulkhead was at the Lot 41/42 line.

e) Bulkheads--Lot 8/9 and Lot 7/8

Two bulkhead sections, both oriented east-west, were located north and south of Lot 8 (see Figure 4.5). The northernmost of the two structures extended approximately 9 feet west from the above-mentioned north-south oriented bulkhead. This northernmost section consisted of three horizontal wood planks placed between a series of wood pilings (Figure 4.10). The wood planks were not fastened to the pilings.

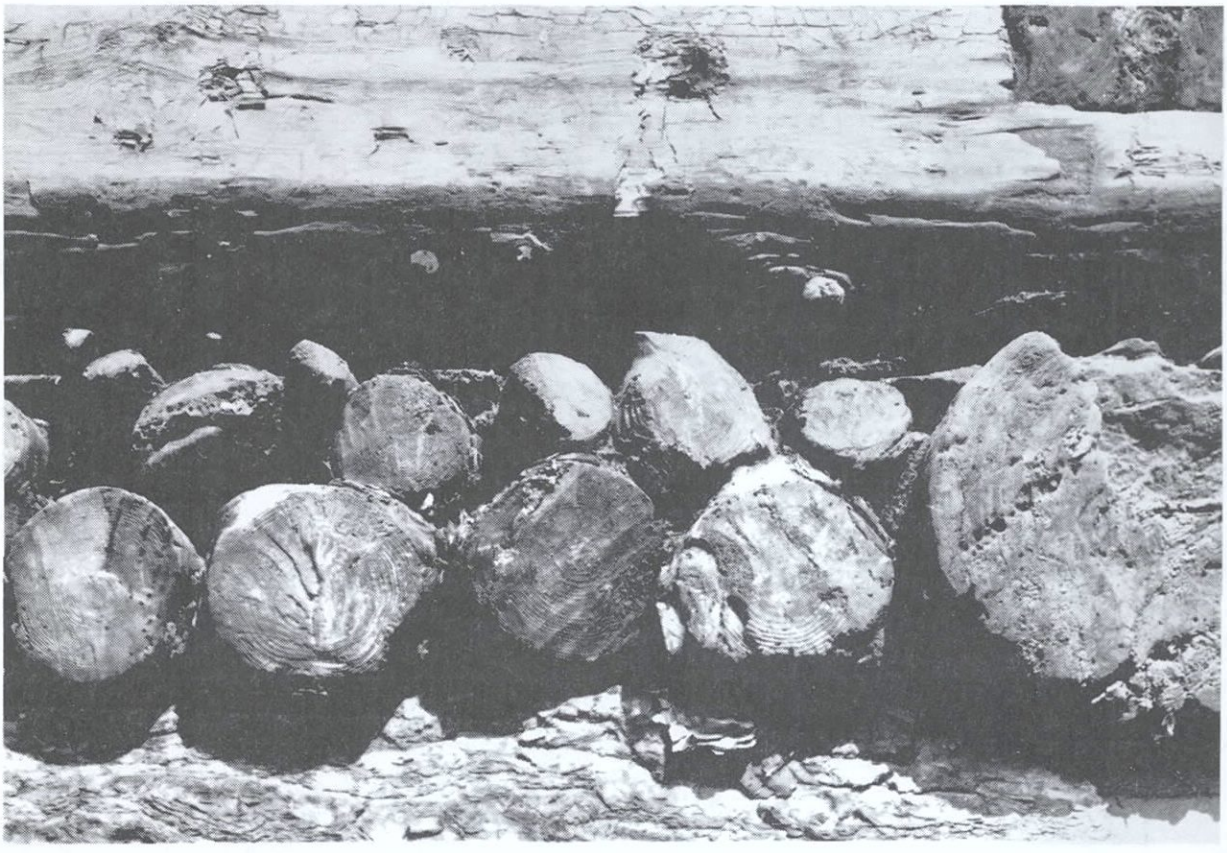


PLATE 4.9: Close-up of North/South Wharves, with Ends of Faggots and Worm Holes.

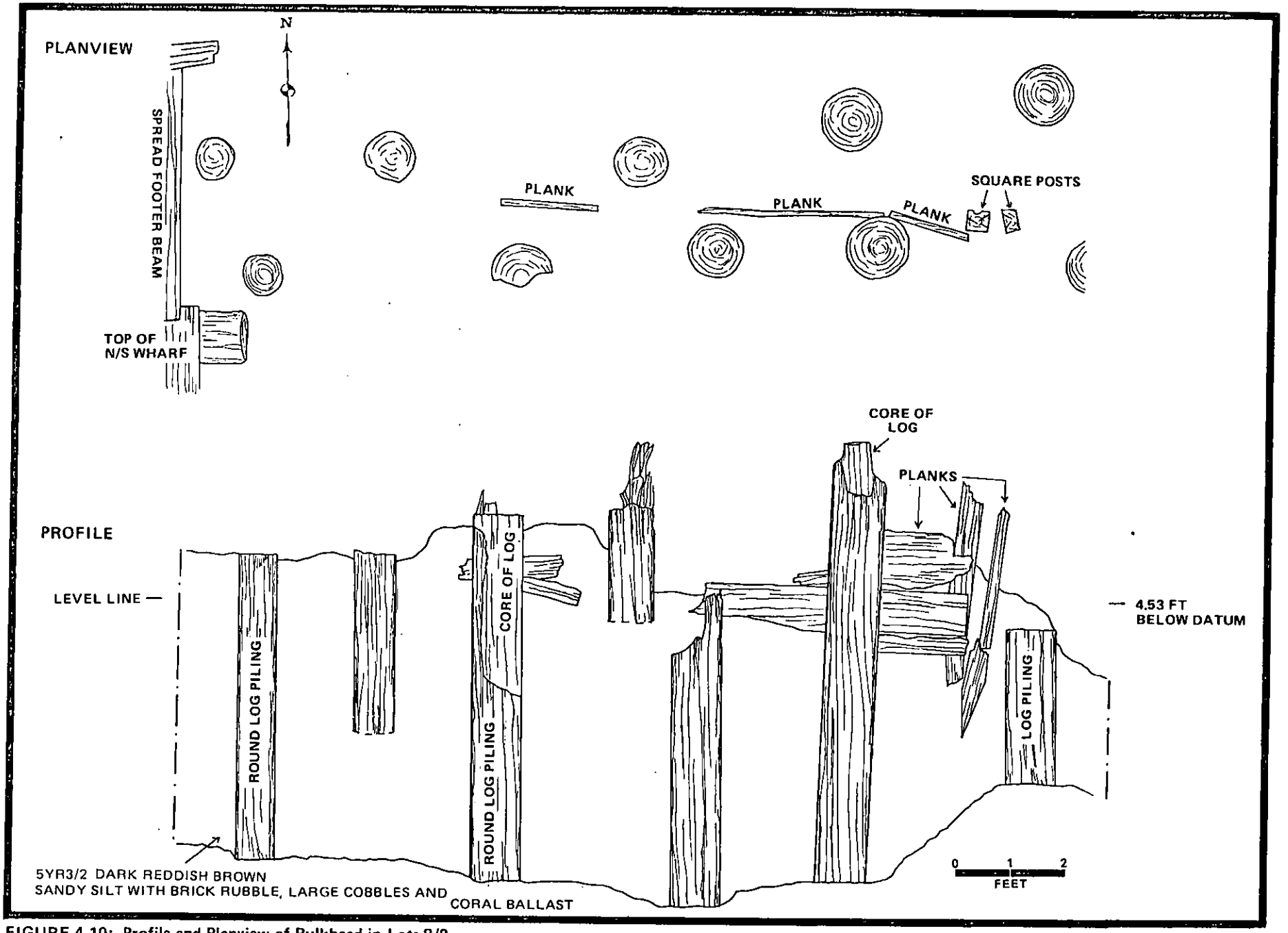


FIGURE 4.10: Profile and Planview of Bulkhead in Lots 8/9.

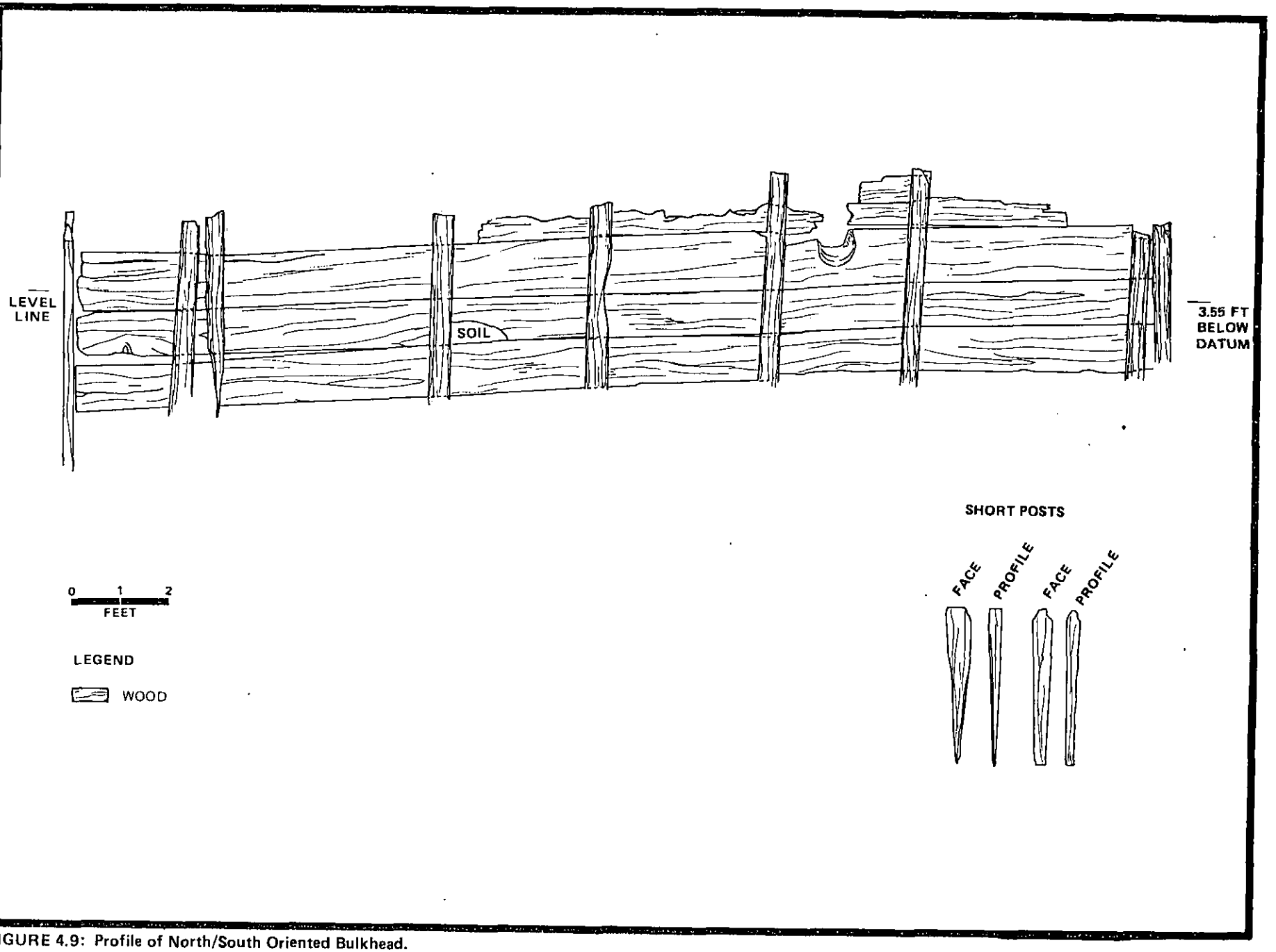


FIGURE 4.9: Profile of North/South Oriented Bulkhead.

The southernmost of these parallel bulkheads extended approximately 10.5 feet west from the north-south oriented bulkhead. Like the two above-mentioned bulkhead structures, this third bulkhead consisted of horizontally laid planks against an upright post.

2. Landfill and Riverbottom Deposits

The two test trenches (TTW and TTE) provided an initial view of the landfill soils within the site. In order to obtain a stratigraphically controlled sample of these soils, hand-dug excavation units were placed within the trenches. Based on the results of these trench excavations, and the machine- and hand-clearing of backyard areas, additional excavation units were advanced into the landfill deposits. In addition to these hand-dug units, GCI took bulk samples of landfill from various locations across the site.

The excavation units which sampled primarily landfill soils included:

Lot 9: Test Cuts J, J2, J3, J4, J5, J6, J8, L
Lot 41: Test Cuts H, X, X2, N, N2, N3, N4
Lot 8: Test Cuts S, AX, AY,
Lot 42: Test Cuts Y, Z, AD
Lot 43: Test Cuts AQ, R, G (the latter two were in TTE, Section 4)
Lot 7: Test Cut A (within TTW, Section 4)

All of these test cuts, except for TC A, were located to the east of the north-south wharves. It should be noted that many of the test cuts listed above were not initially excavated for the purpose of sampling landfill soils. Some of these units, such as the J series, were first thought to represent occupational deposits. However, they were in fact rich artifact-bearing landfill soils, possibly from commercial activities.

Several test cuts were also placed within the north-south wharves to sample the fills within the cribbing. These units are shown in Figure 4.1, and included Test Cuts Q, AF, AL, AR, AW, BB, and BV.

LBA conducted a preliminary analysis of the landfill and riverbottom soils within the block. This analysis involved identifying linkages among the different landfill deposits across the site, based on soil color, texture, and content. General overviews of the test trench excavations were taken from summary field notes made by the crew chiefs. Information on test cut excavations was obtained from field forms. The artifacts from landfill and riverbottom contexts were subjected only to the rough-sort analyses. As noted in Chapter II, this consisted of cataloging materials into the following categories: curved glass, pipes, other diagnostics, non-diagnostics, bone, shell (in grams), macrofloral, ceramics less than two inches in size, and ceramics equal to or

greater than two inches in size. The latter were identified further by ware type (e.g., delftware, creamware, pearlware, etc.). These ware type categories provided gross dates of the fill deposits. The rough-sort catalogues for the landfill and riverbottom soils are presented in the general artifact catalogue, and are listed by context number within the above test cuts.

Test Trench East

The landfill within TTE generally sloped 45 degrees from west to east, suggesting a downward slope as one moved away from the north-south wharves toward the East River. Two major artifact concentrations within the fill included a crown glass deposit in Section 1, and a ceramic deposit in Section 4. The crown glass was in two deposits, separated by a brown sand. These two deposits were made up of densely packed sherds of crown glass and little soil. The crown glass deposit was further investigated through the excavations of several test cuts in Lot 41 (see below).

The second artifact concentration in TTE was a ceramic deposit within dark brown to black sands and silts. Test Cut R was placed in TTE to sample this deposit; and about 4,000 ceramic sherds were recovered from this test cut. The majority of the sherds were less than two inches in size. The larger sherds were mostly pearlwares (annular, mocha, handpainted, transfer-printed, etc.), but some creamwares were also recovered. Test Cut G contained a smaller portion of this ceramic deposit, which may represent a dump from a china shop or a shipment of ceramics broken on the wharves or on a ship and then thrown into the dock area.

Test Cut G was placed within the trench in order to provide a controlled sample of landfill soils. The unit consisted of various dark brown to black sands. Several of the lower excavation contexts contained pinkish sands. A pinkish brown sand was also identified in TC AQ at the westernmost end of Lot 43 (see Figure 4.1). Riverbottom clays were not reached in TC G. The predominant artifact types within TC G were shell (over 100 kg were recovered) and non-diagnostic materials. The test cut's lower strata contained the most ceramics and glass, with ceramic sherds being the most prominent of these two artifact classes. However, the number of ceramic sherds from these lower strata did not have the high frequencies exhibited by the ceramics deposits in TC R. It should be noted that some strata within TC G were sterile, and the overall artifact density within TTW was low.

Test Trench West

In contrast to TTE, TTW landfill soils contained no ceramic or glass concentrations, but yielded large quantities of red and yellow brick, stone, pantiles, and shell. As indicated in Test Cut A, the landfill deposits in Lot 7, to the west of the north-south wharves, consisted of gray to brown to reddish brown silty sands

overlying red/gray to dark gray silts and sands with coral. About 130 kg of coral were recovered from the lowermost three strata within TC A. This coral may have been used as ship ballast. These lower deposits (with the coral) were interpreted as water lot fill soils, while the upper deposits represented filling of the lots prior to development. The ceramic frequency within the lower fills is quite low (i.e., less than 50 sherds), and the ceramics were almost all less than two inches in size (and thus were not assigned to ware categories). The upper fill deposits also had low ceramic counts. Those sherds which were larger than two inches in size consisted of creamwares and coarse earthenwares. Shell weights were highest (ranging from ca. 1 to 13 kg) within the upper fill deposits. The riverbottom soils within TTW, which were not excavated in TC A, were reddish brown fine sands and clays.

Lots 9 and 41 Test Cuts

The landfill soils in Lots 9 and 41 yielded deposits quite different from the lots to the south. Also, the linkages between the test cuts in these northern lots, based on soil color, texture, and content, were more discernible than among the test cuts to the south. The primary difference between the landfill soils in Lots 9 and 41, east of the north-south wharves, and the lots to the south was the high artifact frequencies in the former lots, especially in the J test cuts and in TC X and X2.

Fill soils in the J test cuts were brown to dark brown sands and silts. One distinct deposit that occurred in almost all of these test cuts, and also extended into TC X2, was a brown to dark brown silt and sand with wood chips. Some contexts within TC J and J2 consisted only of wood chips.

The artifact frequencies among the J test cuts is quite high. Test Cut J5 yielded about 3,477 ceramics, while TC J6 produced over 16,000. The majority of the large sherds from these ceramic deposits are creamwares, but some pearlwares are present. The soils exhibiting these high ceramic frequencies consisted of black silts, brown and gray clayey silts, and brown and dark gray silty sands (from TC J4, 5, and 6 respectively). TC J6 also produced an extremely high shell weight (226 kg).

The J test cuts also have a high frequency of curved glass. Unlike the ceramics, which cluster in TC J4, J5, and J6, the high curved glass counts (i.e., greater than 1,000 sherds) occur in TC J, J3, J4, J5, and J6, with the highest frequency in a dark brown/black clayey silt with wood chips in TC J4. In addition to the curved glass, there is a large amount of crown glass in all of the J test cuts. Interestingly, in TC J, the crown glass deposit seemed to overlie the wood shavings, which in turn overlay glass bottle fragments. The GCI excavators indicated that the artifact deposits in the J test cuts extended into TC L. However, the rough-sort

counts in TC L are much lower, with the entire unit producing a total count under 250.

One final point that should be noted about the J excavation units is that the majority of the fill soils slope downward, toward the south, away from what would have been the Gouverneur's Wharf area. Interestingly, a similar situation occurs within TC AG, located north of Bache's Wharf, in Lot 44. GCI excavators noted that landfill in TC AG appears to have been dumped into the dock area from the south (i.e., Bache's Wharf). They also noted that this same sloping pattern was observed in the deposits in TTW in Lot 7.

Test Cuts X and X2, in Lot 41, identified another heavy artifact concentration within this northern section of the block. This concentration consisted of crown glass fragments as found in TTE Section 1 and in the J test cuts to the west. Also as seen in TTE, the landfill soils within and surrounding TC X and X2 sloped toward the east. Test Cut X contained deposits of brick and stone rubble overlying a gray/black silt full of wood shavings. A layer of wood shavings and fragments was also observed in the lower strata of TC X2. As noted above, deposits with wood chips were also present in the J test cuts in Lot 9. The remaining strata in TC X were reddish brown and gray brown sands and silts, with relatively low artifact counts, except for shell.

The gray/black sandy silt present in TC X occurred as a gray/brown silt full of crown glass fragments (over 160,000) in TC X2 (a more detailed discussion of the glass is presented in Chapter VII). The crown glass appeared to have been compressed onto a lower brick rubble deposit. The fill soils below the crown glass deposit in TC X2 included gray sands and clays, and reddish brown and yellowish brown sands, with the lowermost stratum containing wood shavings, as noted above. Interestingly, such high frequencies of crown glass do not occur within the test cuts between TC X2 and TTE, Section 1 (i.e., TC N, N2, N3, N4).

The N test cuts did yield relatively high counts of ceramics among individual contexts. The prominent soil types within the N test cuts consisted of black sands overlying reddish brown to gray coarse sands, and brown sands. These soils generally sloped downward, toward the east. The reddish brown sands were also found in both TC X and X2 to the west. Unlike the reddish brown sands in the N test cuts, these soils in TC X and X2 have low frequencies of ceramics.

Among the N test cuts, the brown silty sands in TC N4 have the highest ceramic count (over 2,700). Counts of 400 and over occur in the black sands in TC N and N2. The large sherds in TC N and N2 consist of almost equal numbers of creamwares and pearlwares, while pearlwares have a higher frequency than creamwares in TC N4. Other major artifact classes within these test cuts include shell, bone, curved glass and non-diagnostic materials.

Field observations on the N test cuts suggest that the ceramic deposit that occurs within these units does not follow one particular stratum. This seems to be the case based on the rough-sort analysis. The majority of the ceramics seem to come from the black sands (in TC N and N2), a brown silty sand (TC N4) and the reddish brown coarse sands (TC N4). This suggests that the ceramics and the various sands were not deposited together. In other words, the ceramics, and other materials were thrown into the dock area and sank into the earlier deposited sands. This could be examined more fully by *cross-mending* the ceramics within the N test cuts.

Test Cuts Within North-South Wharves

Test Cut Q, located in the northernmost section of the two wharves, contained orange/brown silty sands and clays with pantiles, red brick, and oyster shell. These soils in turn overlay a cobble fill. The content of TC Q is thus similar to the general stratigraphic observations made for TTW. Test Cut BV to the south of TC Q (see Figure 4.1) had different fill soils, consisting of silty sands overlying brown/green and brown to black clays. Test Cut BV did have a cobble fill, but there were also large angular rocks among the wharf's logs.

The soils within TC AR, located in the Lot 6 section of the north-south wharves, included brown silts and red sands overlying blue/green and gray/green silts with gravels, shale, and large rocks. These gray/green silts with gravel and large stones, also occurred in TC AW, located to the north of AR in Lot 7, and in TC BB, which lies on the boundary of Lots 6 and 7.

Compared to the artifact frequencies within the Lot 9 and 41 test cuts, and the landfill deposits in TTW, the test cuts within the north-south wharves yielded few artifacts. Ceramics that were recovered from these test cuts were mostly creamwares and coarse earthenwares.

Summary

The above discussions did not examine all test cuts excavated into the block's landfill soils, but reviewed the most significant aspects of these deposits. These discussions also highlighted the major differences among the many landfill soils within the site.

Clearly, landfill to the west of the north-south wharves differs in soil type and content from landfill to the east of the wharves. Fills in the western portion of the block have relatively low ceramic and glass frequencies, but do contain large quantities of construction debris (brick, stone, and pantiles) and ship ballast (coral). These types of materials are also found within the northern sections of the north-south wharves; however, as one moves south within the wharves, crossing the Lot 7 and 8 lot lines, the

fill changes in terms of soil color and texture and content. These differences suggest that the two separate wharf sections were filled with different source materials, and may represent different construction efforts by different water lot owners.

High concentrations of artifacts occur within the fill soils to the east of the north-south wharves, as found in TC R in Section 4 of TTE, and throughout Lots 9 and 41 (the J, X, and N test cuts, and Section 1 of TTE). The quantity and type of artifacts within the Lots 9 and 41 landfills suggest that commercial enterprises on or near Gouverneur's Wharf (which was immediately north of the Lots 9 and 41 landfill deposits) and the north-south wharves dumped broken merchandise into the dock area. These artifacts could also have been from ships docked along the wharves; however, given that the artifact deposits in the J test cuts slope away (southward) from Gouverneur's Wharf and the north-south wharves, these materials were most likely thrown from the wharves themselves. A similar scenario appears to have occurred along Bache's Wharf to the south. The clustering of materials along the north-south wharves in Lot 9 and in the vicinity of Gouverneur's Wharf, further suggests that these broken goods were tossed into the water-filled dock, rather than deposited into the dock area in order to expedite the filling of the eastern portion of the block.

The presence of the ceramic dump in TC R, in Lot 43, may be part of intentional filling of the block, or it may represent portions of the ceramic deposits in Lots 9 and 41 which were somehow spread to this southeastern section of the site. Given the low frequency of creamware and pearlware ceramics between the two areas, the former scenario is probably correct. It is interesting to note, however, that the ceramics in TC R were from dark brown and black sands and silts, while some of the ceramics in the N test cuts were from black sands. It is also possible that a shipment of ceramics broke on board a ship and were subsequently thrown from two sides of the ship. These hypotheses can be more fully explored by attempting to cross-mend these various deposits, and by comparing the types, subtypes, and forms present within the Lots 9 and 41 and Test Cut R assemblages.

The occurrence of deposits with wood shavings within the J and X test cuts in Lots 9 and 41 suggests that debris from a cooperage(s) was also thrown off the wharves into the dock. In fact, a cooperage owned by Adam Pentz was located at 95 Front Street in 1799. Similar deposits of wood shavings and wood fragments were identified within the test cuts adjacent to a section of the north-south wharves in Lots 6 and 7. These deposits, which were mixed with large quantities of household refuse, were most likely from the Ming cooperage, which occupied Lot 7 during the late eighteenth century. The wood shaving deposits associated with Ming are discussed further in Section C of this chapter.

The source of the materials within the N test cuts in Lot 41 is not clear. The presence of ceramics, curved glass, bone, shell, and floral remains suggests redeposited domestic refuse within landfill. If, however, the ceramics are found to mend with those in the J test cuts, or in TC R, then these assemblages would be associated with commercial activities along the waterfront, or would represent both commercial and domestic refuse.

Though not discussed above, the various contexts representing riverbottom soils adjacent to the north-south wharves, in Lots 6 and 7, also exhibit a high concentration of materials. What is unusual about these contexts is the large number of complete ceramic, glass, and metal objects, including whole pewter plates. These riverbottom deposits are examined more closely in the Lot 6 and 7 occupational deposit discussions in Section C of this chapter.

C. EXCAVATION OF OCCUPATIONAL DEPOSITS

1. Lot 6

Lot 6 was prepared for testing by machine removal of twentieth-century demolition debris and structural remains to expose a nineteenth-century brick basement floor. The exposed basement floor was then broken through and removed, so that hand clearing could begin. Along the northern lot line, a system of ground sills resting directly on spread-footer planks was exposed and recorded (Figure 4.11). Additional hand clearing in the rear of the lot revealed a section of the cobb wharf that had been previously identified in Lot 7. Clearing along the southern boundary of Lot 6 revealed another spread-footer complex, and Bache's Wharf, extending into Lot 44 (see Figure 4.4). Intact occupational deposits within Lot 6 were present within and adjacent to two "closed" features. These included Feature 27, a privy, and Feature 18, a wooden box-like structure which may have also functioned as a privy.

Feature 27

Removal of a deposit of crushed shale and schist in the rear yard area of Lot 6 revealed a rectangular stone structure, later determined to be a privy (Figure 4.12). This fill deposit and the immediately adjacent deposits were examined by the excavation of Test Cut AC, a 2x10-foot unit oriented north-south. Excavation of Test Cut AC showed that the shale deposit continued inside the privy shaft as well as in the adjacent areas of the test cut. Immediately beneath the shale deposit, a layer of concrete and brick was exposed within the feature, and excavation was temporarily postponed. Test Cut AE was then placed across the unexcavated portion of the privy structure, to determine if the concrete and brick stratum had sealed the entire shaft. This unit

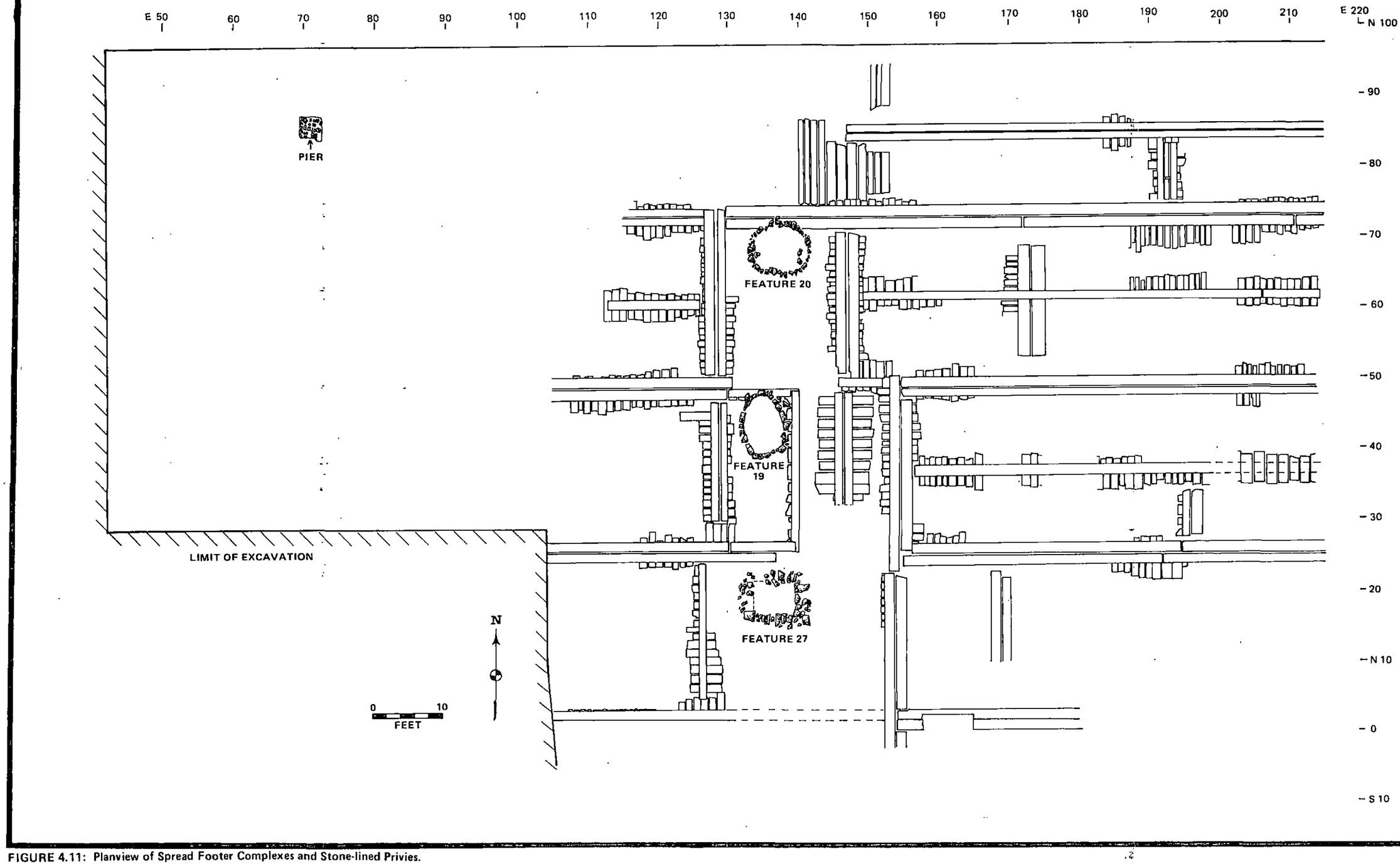


FIGURE 4.11: Planview of Spread Footer Complexes and Stone-lined Privies.

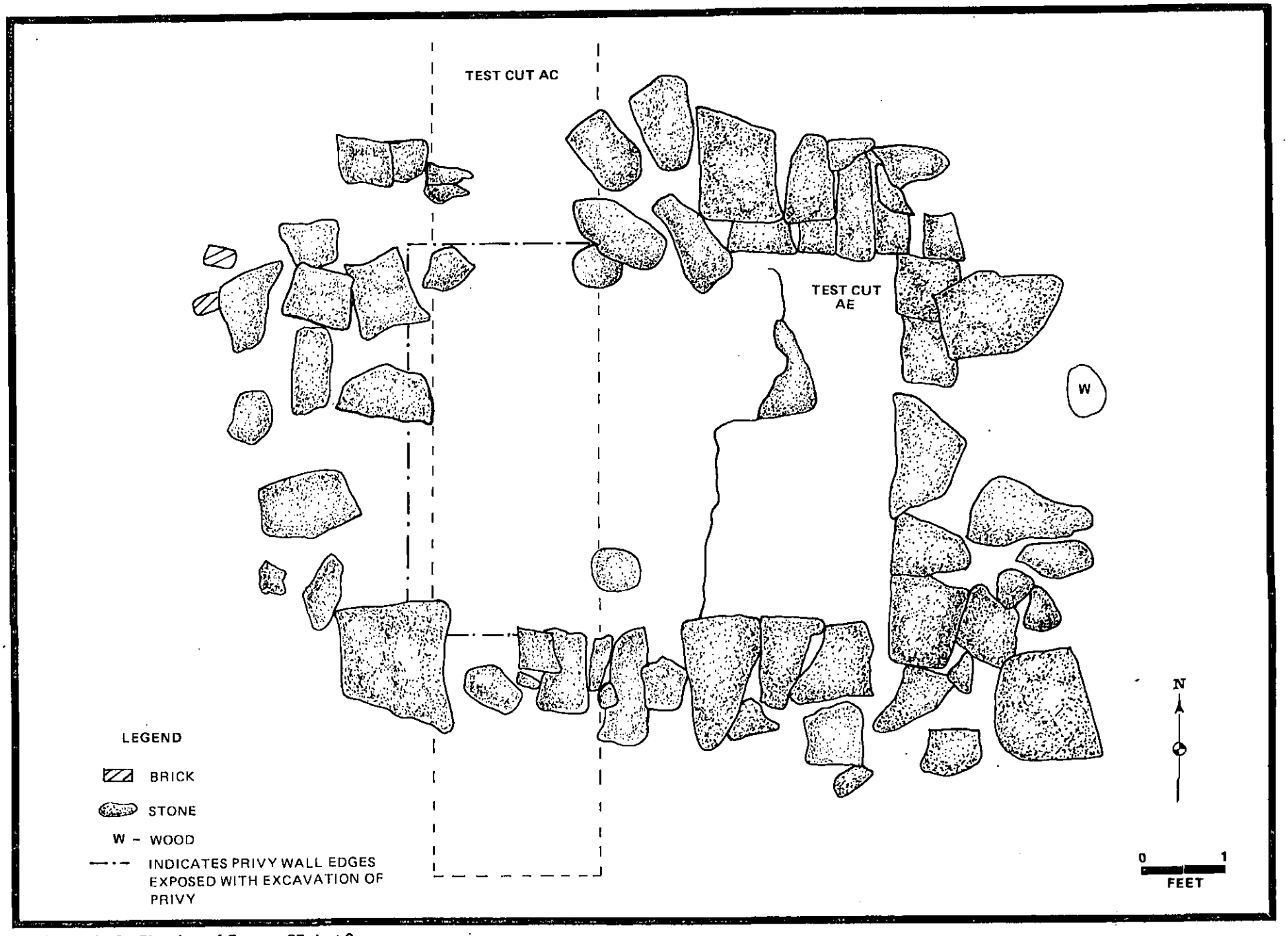


FIGURE 4.12: Planview of Feature 27, Lot 6.

determined that the concrete and brick stratum had sealed the entire privy, so that it was necessary to use a jackhammer to continue excavation within the privy. After removal of the concrete and brick, Test Cuts AC and AE were closed, and a single unit, Test Cut AJ, was employed for provenience purposes, rather than continuing with two separate units. The eastern half of Test Cut AJ was excavated during the testing program, and the remainder was excavated during data recovery.

The privy was rectangular in form, with maximum interior dimensions of approximately 4x5 feet (see Figures 4.11 and 4.12). Within the privy shaft, the uppermost deposits consisted of shale rubble and concrete rubble. Organic soils were located beneath the concrete rubble, and these in turn rested on gray sands. The lowermost excavated deposits, the gray sands, may represent underlying landfill deposits, as excavation of Test Cut AJ extended well below the lower extent of the privy shaft. It is possible that a cleaning of the privy, prior to its last use, may have also extended below the shaft, so that some of the lower gray sands might represent refuse deposited in the privy.

Two timber piles were exposed beneath the organic soils, in the privy shaft. These features/structural elements may represent the earliest construction episode on Lot 6, and their stratigraphic position certainly places them earlier than the filling of the privy (Figure 4.13). The stratigraphic relationship between the piles and the privy shaft itself is not clear, and it can be stated with certainty only that both features were in place after the landfill was deposited. The piles probably represent the remains of a building foundation. The top elevation of the piles was approximately four feet below mean sea level, a depth which is comparable to many of the timber piles recorded in other areas of the site. If the piles represented a waterfront structure, they should have extended above sea level when they were installed. Assuming that the two piles represent a building foundation rather than a waterfront structure, then two scenarios are possible. Either the privy was constructed after removal of a building or the privy was abandoned and filled prior to construction of a building on the rear of Lot 6. Given the overall trend toward more intensive land use, it seems more probable that a building was extended over the open yard space occupied by the privy. If one accepts this scenario, it is implied that all of the privy fill deposits, including the organic soils, would have been disturbed to some degree by installation of the foundation.

On the basis of the field data, five provisional depositional units may be defined for the contexts excavated in association with Feature 27 (also, see Appendix 3 for Harris matrices on this feature):

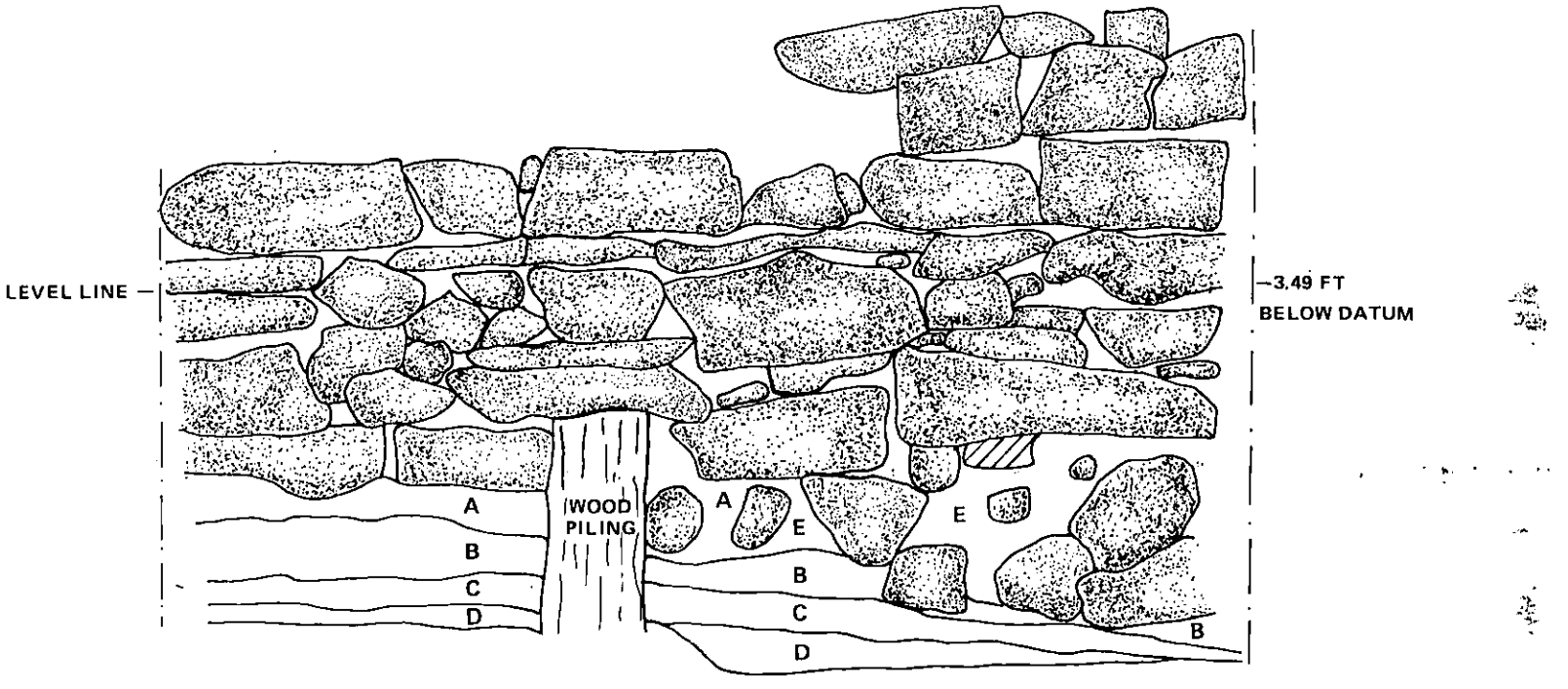


FIGURE 4.13: Profile of Feature 27, Lot 6, Showing Wood Piling.

Depositional Unit	Description/Interpretation
6F1	Underlying sands--landfill
6F2	Organic privy deposits
6F3	Overlying shale rubble
6F4	Privy construction
6F5	Adjacent yard deposits

Overall, the excavated assemblage is relatively small, comprising approximately 1,900 artifacts, although the deposits include a wide variety of items (ceramics, bottle glass, pipes, clothing, etc.) and organic refuse (bone, shell, and macrofloral items). This variability is suggestive of a domestic deposit.

Depositional Unit 6F2 is the major unit within the feature, comprising more than 70 percent of the excavated assemblage. This context is dominated by Kitchen group artifacts (45%), but also includes a variety of items representative of the Architecture, Arms, Clothing, Personal, Tobacco Pipes, and Activities groups. Organic material recovered from the deposit includes 144 bone elements, 411 gm of shell and 325 gm of macrofloral material. The pattern analysis for this unit is most notable for its high representation of the Arms group (21%), produced by the recovery of numerous lead shot.

Depositional Unit 6F1 includes the sands below the privy shaft. The materials recovered from this unit, while lower in overall frequency, are quite comparable to those of the overlying organic deposit in terms of artifact group percentages. The shale rubble and concrete are included in Depositional Unit 6F3. Very little material was recovered from these contexts.

Construction of the privy (Depositional Unit 6F4) is represented by the stone privy wall itself, as well as the soil excavated between the stones while the shaft was dismantled. The amount of material recovered from this context seems surprisingly large and, in terms of major artifact group representation, the assemblage is quite comparable to the organic fill (6F2) and landfills (6F1) (see Appendix 7, Depositional Unit Pattern Analysis). Three contexts excavated with Test Cut AC represent the yard deposits immediately adjacent to the privy shaft (Depositional Unit 6F5). Relatively little material was recovered from these contexts.

Dating of the depositional units is presented in Table 4.2. It is possible that after the privy was constructed, a cleaning episode may have extended the depth of the shaft below the level of the lowermost masonry course, so that some of the deposits assigned to the landfill may represent later refuse deposits. This would explain the close ceramic TPQs of 6F1 and 6F2. The dating of the construction of the privy shaft (6F4) is somewhat later than the fills within the privy. However, the differences between the dates

TABLE 4.2

DATING OF DEPOSITS, LOT 6 PRIVY (FEATURE 27)

DEPOSIT	MCD	CERAMIC TPQ	OTHER TPQ
6F1--Landfill	1803.0 (n=66)	1810	1780
6F2--Organic Refuse	1799.9 (n=181)	1800	1821
6F3--Shale Rubble	1797.3 (n=3)	1780	--
6F4--Privy Construction	1788.3 (n=50)	1825	--
6F5--Adjacent Yard	1794.3 (n=10)	1790	--

does not necessarily suggest an inverse in the expected dating sequence, but may be a result of the "imprecise" dating of the key diagnostic materials in 6F2 (i.e., transfer-printed whiteware and embossed pearlware ceramics) and in 6F4 (i.e., wine bottles, post-dating 1821).

As discussed above, the organic privy fill (6F2) might have been disturbed by installation of the timber piles. The relatively fragmentary nature of the deposits, as indicated by the ceramic size index, may be a result of that construction episode. The sherd size indices for the various deposits are given below:

Depositional Unit	Size Index	Sample Size
6F1	0.17	81
6F2	0.23	221
6F3	0.0	4
6F4	0.04	67
6F5	0.0	11

Depositional Unit 6F2, the organic refuse deposit, potentially has some value for additional analysis and interpretation. This deposit may be assignable to the VanBeuren & DeForest Merchants occupation, which ended circa 1830; however, it is difficult to confidently assign the deposit to the five-year interval between 1825 and 1830. In the early 1830s, the lot was occupied by a

succession of merchants, but from circa 1837 to 1850, the Lot 6 occupation seems to have been relatively stable (see Appendix 2, Front Street Lots 1799-1850).

Given the uncertainty of the historical association and the relatively fragmentary nature of the deposits, intensive analysis may not be appropriate for this deposit.

Feature 18

Clearing in the rear yard of Lot 6 exposed a wooden box-like structure that measured 8.3x11.3 feet in plan (see Figure 4.7; Figure 4.14) (Plates 4.10 and 4.11). The north and east walls of the box were formed by horizontally laid planks supported by interior posts, while the west and south walls were formed by the two wharves (Figure 4.15). Immediately above the box, a section of a brick wall was exposed, oriented north-south. The fill of the box was sampled during the backyard testing program, then fully excavated during mitigation, yielding one of the best preserved deposits from the site.

During the backyard testing program, the interior deposits of the box structure were sampled by Test Cuts AK and AM. Test Cut AK was a 2x4.8-foot unit placed in the northeast corner of the feature, while Test Cut AM was a 2.2x8.3-foot unit along the west wall of the box, formed by the north-south wharves (see Figure 4.1). Both units were excavated approximately 4 feet into the interior fills, sampling three major stratigraphic units. The uppermost deposit was a shale rubble fill, equivalent to the deposit that covered the remaining rear yard area of Lot 6. Beneath the shale rubble was a deposit of ceramics and organic refuse. The lowermost deposit was a gray sand with very little cultural material. Excavation in Test Cut AK was hindered by flooding, and it was necessary to discontinue excavation before the ceramic deposit overlying the gray sand had been fully excavated.

The shale rubble deposit in Test Cut AM was more massive than in Test Cut AK, and the ceramic/organic deposit was much more sparse. A small wooden barrel, penetrated by a wooden post, was exposed in the southern end of Test Cut AM. The barrel was excavated separately as Test Cut AN (see Figure 4.1). The barrel fill was comprised primarily of gray/brown silts and sands, with some darker organic deposits, not dissimilar to the deposits found in the surrounding Test Cut AM. Excavation of Test Cut AM was terminated when a gray sand, similar to that found at the base of Test Cut AK, was exposed across the entire unit.

During testing, it was not clear whether or not the deposits excavated from Test Cuts AK and AM represented landfill or occupational refuse, and additional work was undertaken during data recovery. Test Cut AV was laid out to encompass roughly the

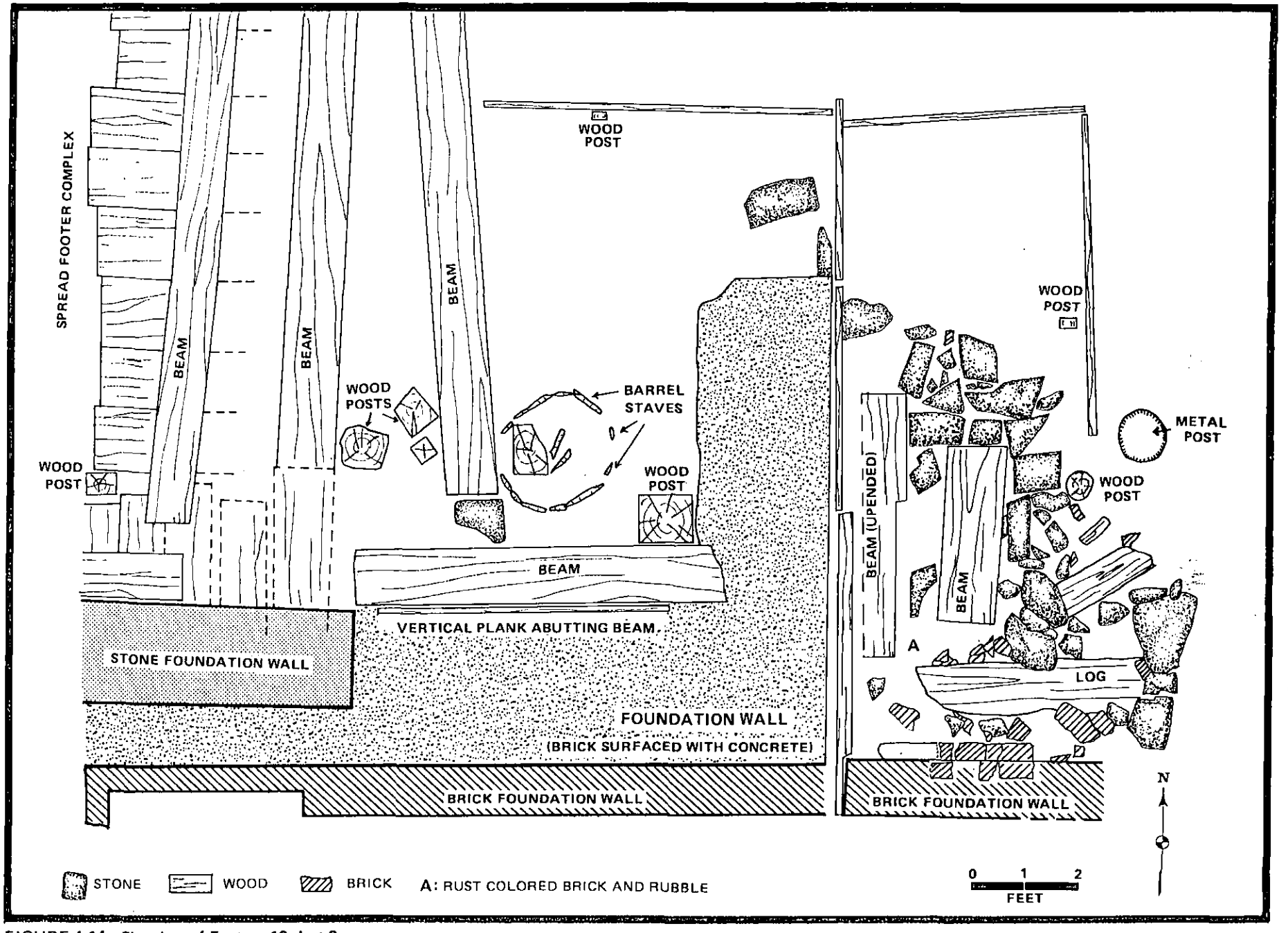


FIGURE 4.14: Planview of Feature 18, Lot 6.

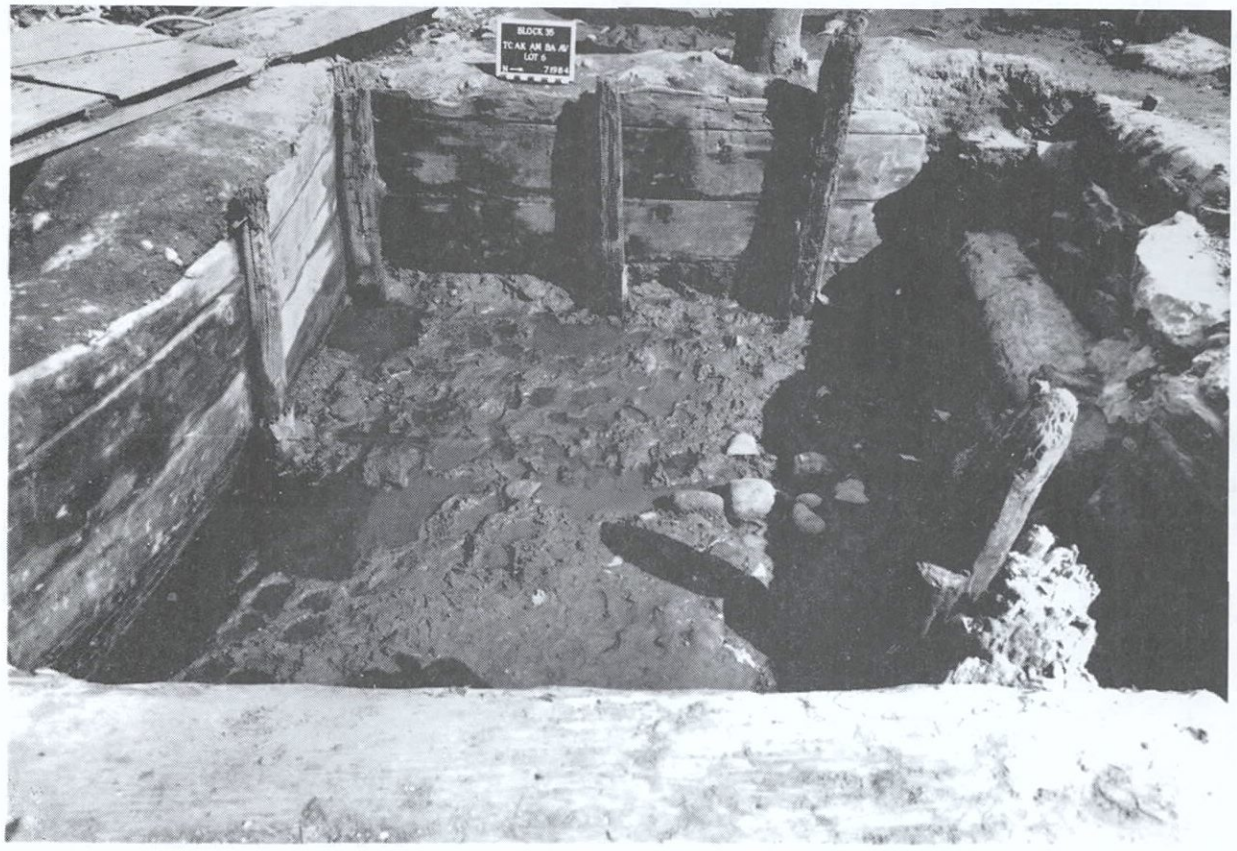


PLATE 4.10: Interior of Feature 18 Looking East.

PLATE 4.11: Interior of Feature 18 Looking South.

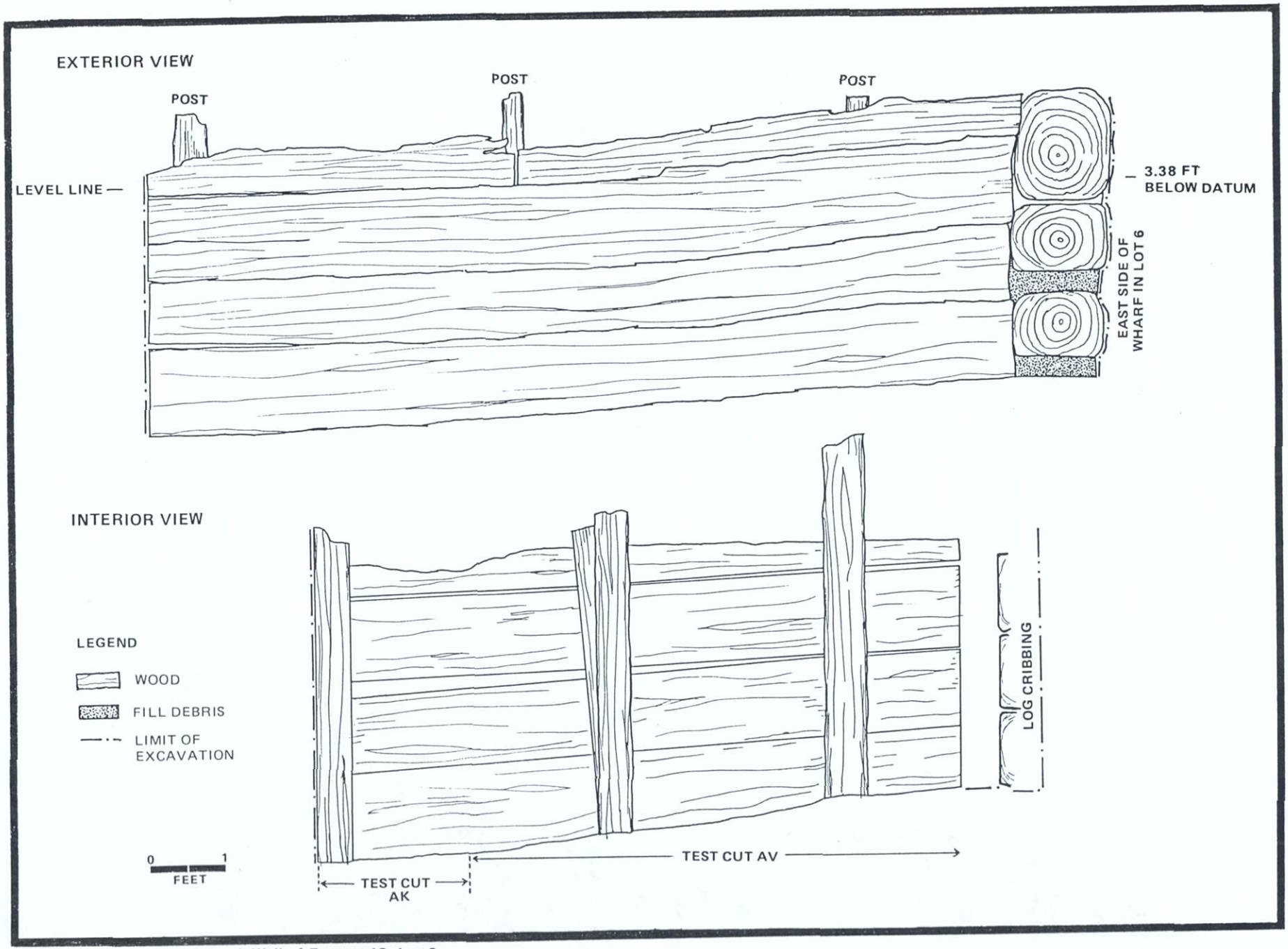


FIGURE 4.15: Profile of North Wall of Feature 18, Lot 6.

eastern third of the box-like structure, excluding the area already excavated as Test Cut AK. The stratigraphy in Test Cut AV was comparable to that in the adjacent Test Cut AK, including a surficial shale rubble deposit overlying a dense cultural deposit that in turn rested on gray sands.

The remainder of the box's interior fill was excavated by Test Cut BA, which occupied roughly the middle third of the feature (see Figure 4.1). To facilitate excavation, the surficial shale rubble deposit was removed from Test Cut BA without screening. The ceramic/organic deposit was most dense in the northern third of the unit, where it occurred in a context of black organic soils. Excavation proceeded until the gray sand was exposed across the entire floor of the unit. Test Cut AM was integrated with BA in an attempt to fully expose the lowermost structural elements of the feature.

The bottom of the lowermost plank on the north wall of the feature was within 0.3 foot of the floor of Test Cut BA. The lowermost plank along the east wall had been fully exposed by Test Cuts AV and AK. Along the north wall, the plank walls extended from approximately 2.8 to 6.5 feet below mean sea level. The interior support posts along the north and east walls extended above the uppermost intact planking, making it apparent that the box had been truncated by later construction. No floor to the box-like structure was encountered.

Two bulk samples, Test Cut CC and Test Cut CM, were taken from the landfill soils beneath the fills within the confines of the feature. Test Cut CC was a 100-gallon sample, while Test Cut CM was a 50-gallon sample. These samples have been treated as landfill soils and subjected only to rough-sort tabulation. The ceramics tabulated from these contexts include creamware, pearlware, white salt-glazed stoneware, other stoneware, Oriental export porcelain, and coarse earthenware, suggesting that the box was constructed sometime after 1780.

Based on the field results, a total of 11 provisional depositional units can be defined for the various fills excavated from Feature 18 (also, see Appendix 3):

Depositional Unit	Description/Interpretation
6F11	Overburden
6F12	Gray/pink shale
6F13	Wood chips and organics
6F14	Black clay and mortar
6F15	Gray sand/organic interface
6F16	Dark brown silty sand
6F17	Gray sands

6F18	Red sands
6F19	Reddish brown silty sands
6F20	Test Cut AN--barrel and fills
6F21	Miscellaneous

Ceramics, glass, and faunal and floral materials from Depositional Units 6F11, 12, 13, 14, 15, and 20 were subjected to a more intensive level of analysis than most of the Assay Site artifact assemblage. This was done in order to make this important feature more accessible to future researchers, especially given the size and complexity of its assemblage. These particular depositional units were selected because, based on the field investigation, they appeared to represent the primary occupational deposits within the feature, while the other depositional units contained landfill soils and/or non-organic deposits. The methods and results of these analyses are presented below, organized by artifact class.

Ceramics

The ceramic sherds were laid out by context and then sorted by type (e.g., red-bodied slipware, shell-edged pearlware, etc.) and were mended within each context. Time constraints did not permit extensive cross-mending between contexts, but obvious cross-mends were noted on the cataloging records. Once all of the contexts were laid out and sorted, the Minimum Number of Vessels (MNV) was calculated by looking at all of the sherds of each type and decoration and comparing them to one another in order to determine which were unique. This technique was not ideal, but it did provide at least comparable relative numbers of vessels. A total of 8,505 sherds were analyzed, resulting in an MNV count of 575. (See Appendix 11 for a complete listing.)

Information about the type/subtype, decoration, form, and functional group for each sherd or identical group of sherds was recorded on the computer coding sheets. In addition, for those sherds which were given an MNV count, information about percentage of vessel completeness and amount of wear was coded. Appendix 10 contains a complete printout of all of the sherds within the analyzed depositional units from Feature 18.

Although it was not possible to conduct extensive cross-mending of the ceramics within the feature, some cross-mends, especially in the pearlwares and red-bodied slipwares, were obvious. All of the contexts within DU 6F13 cross-mend. Contexts from 6F13 also cross-mend with DUs 6F11, 12 and 14.

The percentage of completeness of the vessels within the feature varied, but some vessels were discarded intact. Variable 6 on the printout (Appendix 4) indicates this characteristic ("1" is 25% or less; "2" is 26-50%; "3" is 51-75%; "4" is 76-99%; "5" is completely mendable; and "6" means the vessel was intact in situ).

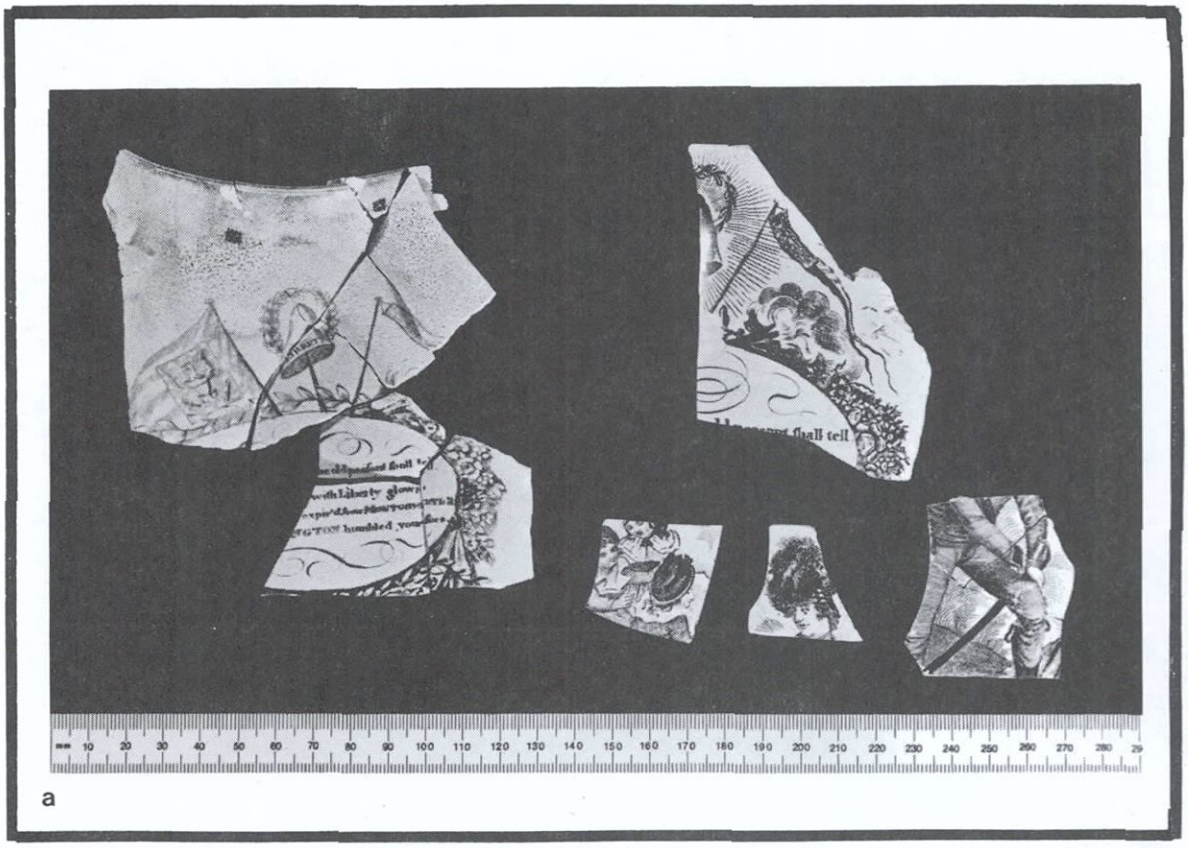
Even without extensive cross-mending, over 30 percent of the vessels were more than 50 percent complete. This supports the conclusion that the deposit accumulated fairly rapidly and does not represent redeposited fill (cf. Louis Berger & Associates, Inc. 1987a for discussion of process for determining fill types). In particular, the shell-edged plates, slipware "pie plates," and chamber pots were relatively intact; and it is highly probable that, given additional time for cross-mending, more vessels would be reconstructible.

Most of the vessels exhibit wear (cut marks, fork scratches, stir marks, etc.). Some of the creamware and pearlware plates have very heavy wear and appear to have been intensively used. The slipware "pie plates" also exhibit extensive wear patterns, and even some of the porcelains show stir marks in the teacups and scratches on some of the plates. The only group of vessels with no wear whatsoever is a number of underglaze blue handpainted pearlware cups and saucers (motif #510). It is likely that these teawares were never used and, given their large number (MNV 22) and completeness, it is possible that they are not part of the domestic assemblage(s) in Feature 18.

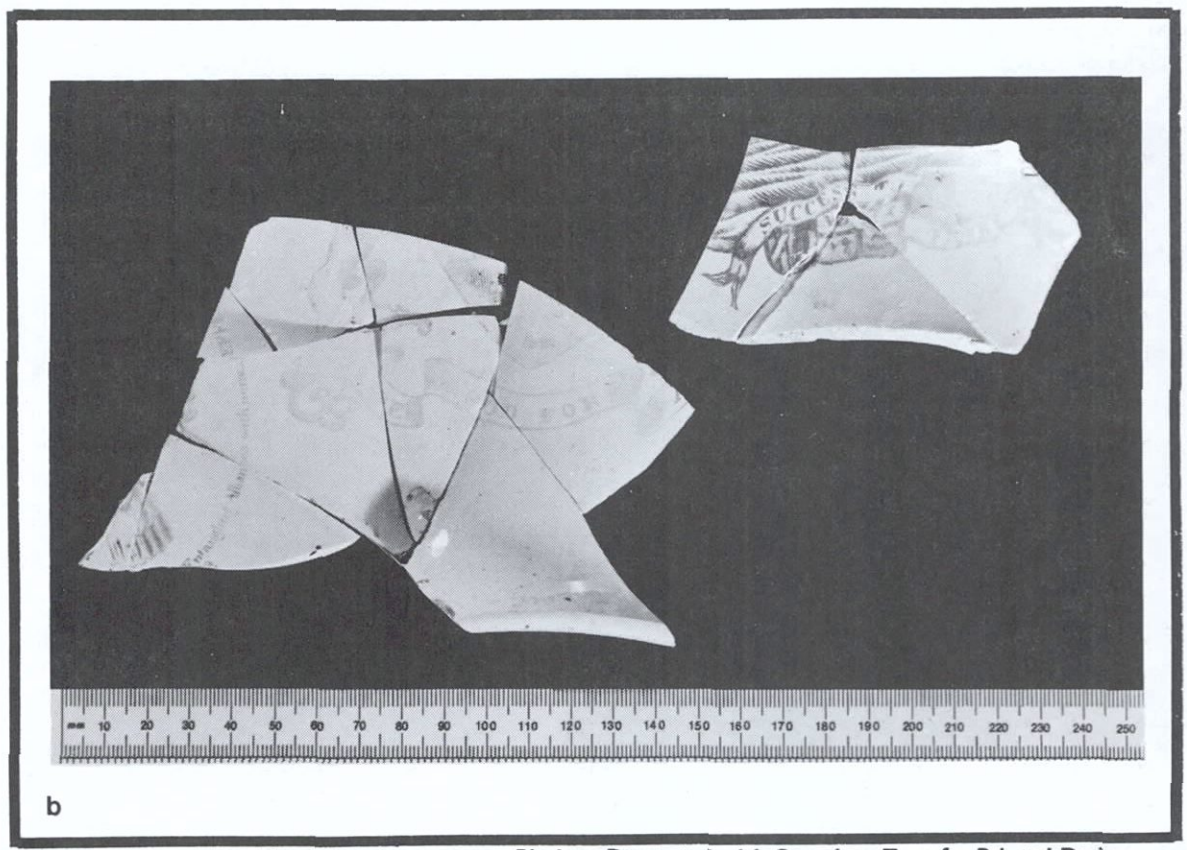
The Mean Ceramic Date for the deposit in Feature 18 is 1800 (Appendix 9). The ceramic Terminus Post Quem for the deposit is 1802. This date is found on a brown overglaze transfer-printed creamware pitcher, from DU 6F13, which has the inscription "[Friends]hip with all Nations--Entangling Alliances with none--JEFFERSON" "Anno Domini 1802" (the "2" is partially broken off but no other number appears to fit the remaining lines) (Plate 4.12b). Other scenes on this pitcher have the mottos "SUCCESS TO TRADE" under an incomplete scene and "PRAISE GOD FOR ..." under a shield which contains a wheatsheaf and which is guarded by a rampant deer. Campbell quotes Nelson's 1980 statement that pitchers of this body shape (baluster) were popular in the United States from 1790 to 1810 (Campbell 1984:101).

The first two motifs on this vessel are also seen on a pitcher recovered from the Place Royale excavations in Quebec (Campbell 1984:page 100 and Figure 89). However, the Place Royale vessel is printed in overglaze green (perhaps a brown variant?), over-painted in red and yellow. The Quebec vessel dates to 1804, and is more complete. The full "SUCCESS etc." motto can be read as "SUCCESS TO TRADE, WBTX No 17 ..." On the Quebec pitcher, this motto is under a sailing vessel flying an American flag. The third motif on the Quebec vessel refers to English political issues while the motif on the New York vessel consists of a deer, etc. These motifs may thus have been varied for different ceramic markets.

Vessels with impressed makers' marks include a partial Corlears Hook mark (Thomas Commeraw 1797-1820) on a stoneware jar, "BB 6" on a creamware platter (possibly Baddeley and Baddeley, circa 1784-1806), "Herculaneum" (1793-1841) on at least six creamware and



a



b

PLATE 4.12 a and b: Sherds from Creamware Pitchers Decorated with Overglaze Transfer-Printed Designs. The sherds in 12b mend to form the "Jefferson/Friendship" pitcher. In 12a, the vessels at the left and upper right have the same patriotic motif.

pearlware plates, and "Wedgwood" on a creamware plate. Smith (1970:108) states that marking wares with the factory name "Herculaneum" began in 1796. He also hypothesizes that the numbers under the name "might denote the year after 1800" (Smith 1970:108). If this is so, the numbers "3" and "8" under the mark might indicate dates of 1803 and 1808. However, it is also possible that these numbers indicate vessel sizes, since all of the 8s are on 10" plates and the possible "3" is on an 8" plate. There are also a variety of unidentifiable small impressed marks (bull's-eyes, a heart, the letter L, dots in a square, and other less precise figures) on some of the pearlware plates. These are probably potters' marks (Towner 1978:224-225). Such marks are difficult to identify, but Towner has one impressed heart associated with a Wedgwood mark (Towner 1978:224). Painted decorators' marks are also present on some shell-edged and hand-painted pearlwares.

The "Fuel Bearer and Sweeper" underglaze blue porcelain motif, on at least three plates within the Feature 18 assemblage, is dated by Forbes (1982 #28) to 1770-1805 (Plate 4.13). The "Two Birds" motif, which is on at least six plates, is dated 1770-1795 (Forbes 1982 #12). "Two Birds" was one of the motifs which were used as the basis for the Willow pattern transfer-print (Plate 4.14). Feature 18 also contains monogrammed porcelain vessels with the letters "JE," possibly the initials of John Elsworth, who occupied Lot 7 between 1798 and 1800 (Plate 4.15). These vessels are very similar to a saucer illustrated in Schiffer (1980:81) dated 1790-1810.

Table 4.3 summarizes the ceramic vessels from Feature 18. The ceramic types and subtypes are listed along the left-hand column and the forms appear at the top. All of the porcelains, except for the two English soft-paste teacups, are Oriental export. Several of the forms require some explanation. "Large Teacups" refers to teacups which are larger than the common teacup diameter of approximately 3-1/2 inches, but smaller than vessels defined as "Small Bowls" (which are generally 5 to 6 inches in diameter). None of the teacups in Table 4.3, with the exception of one porcelain vessel with neoclassical decoration, have handles. "Coffee Cups," as illustrated in Howard (1984), are taller (ca. 2-1/2 inches) and narrower (ca. 2-1/4 inches) than teacups and always have handles. "Large Saucers" have diameters over 6 inches. "Coffee Pots" are distinguished from "Tea Pots" by their greater height, often pear-shaped bodies, and, frequently, a pedestal foot. "Dishes" are serving vessels, either round or oval, which are deeper than soup plates but shallower than bowls. They most commonly have a narrow brim and might have functioned as baking dishes. "Pans," however, almost certainly functioned as baking dishes; they have straight or slightly flaring sides and no brim. "Shallow Bowls," as present in the Feature 18 assemblage, are small vessels, slightly larger and deeper than saucers, with narrow brims. They might have been used as dessert or condiment vessels. "Pie Plates" are round, oval, or rectangular shallow dishes with

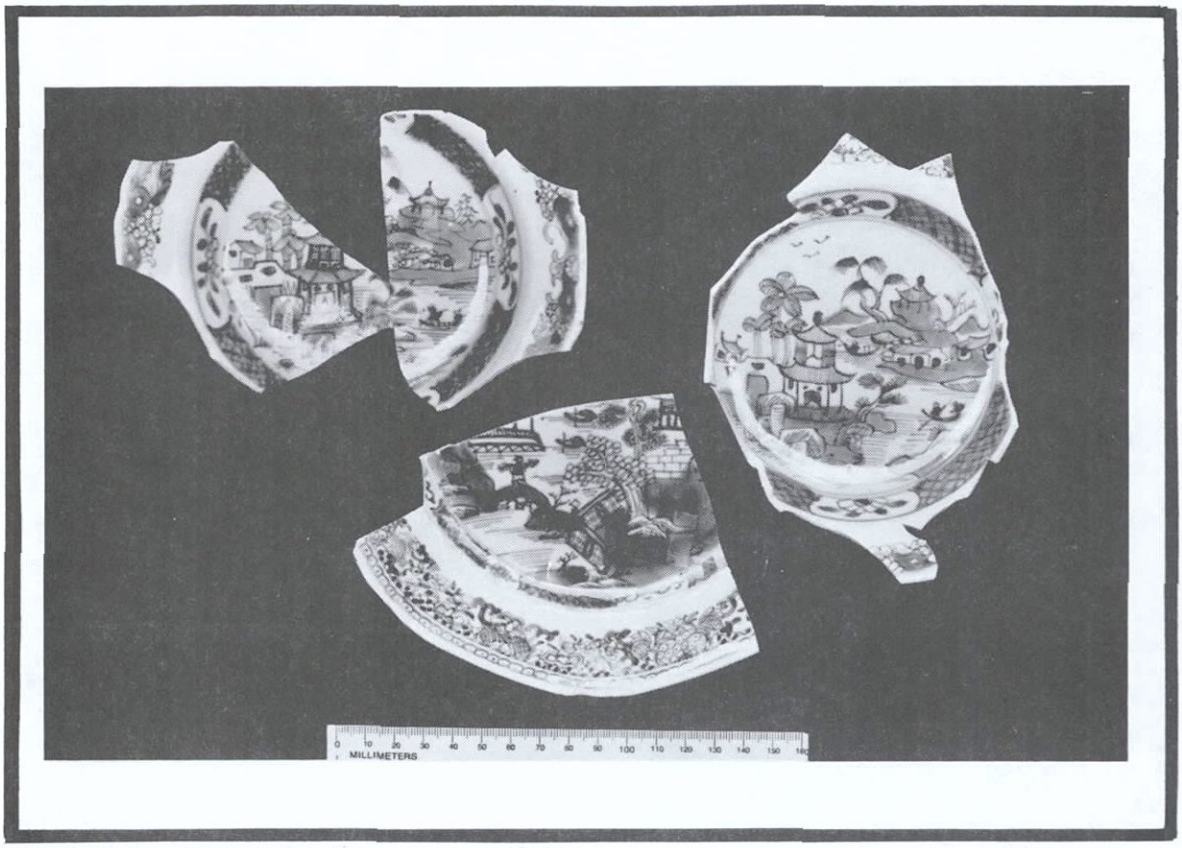


PLATE 4.13: Chinese Export Porcelain Underglaze Blue Shallow Bowls and Plate. The Plate in the middle shows the "Fuel Bearer and Sweeper" Motif. The motif on the bowls is unidentified.

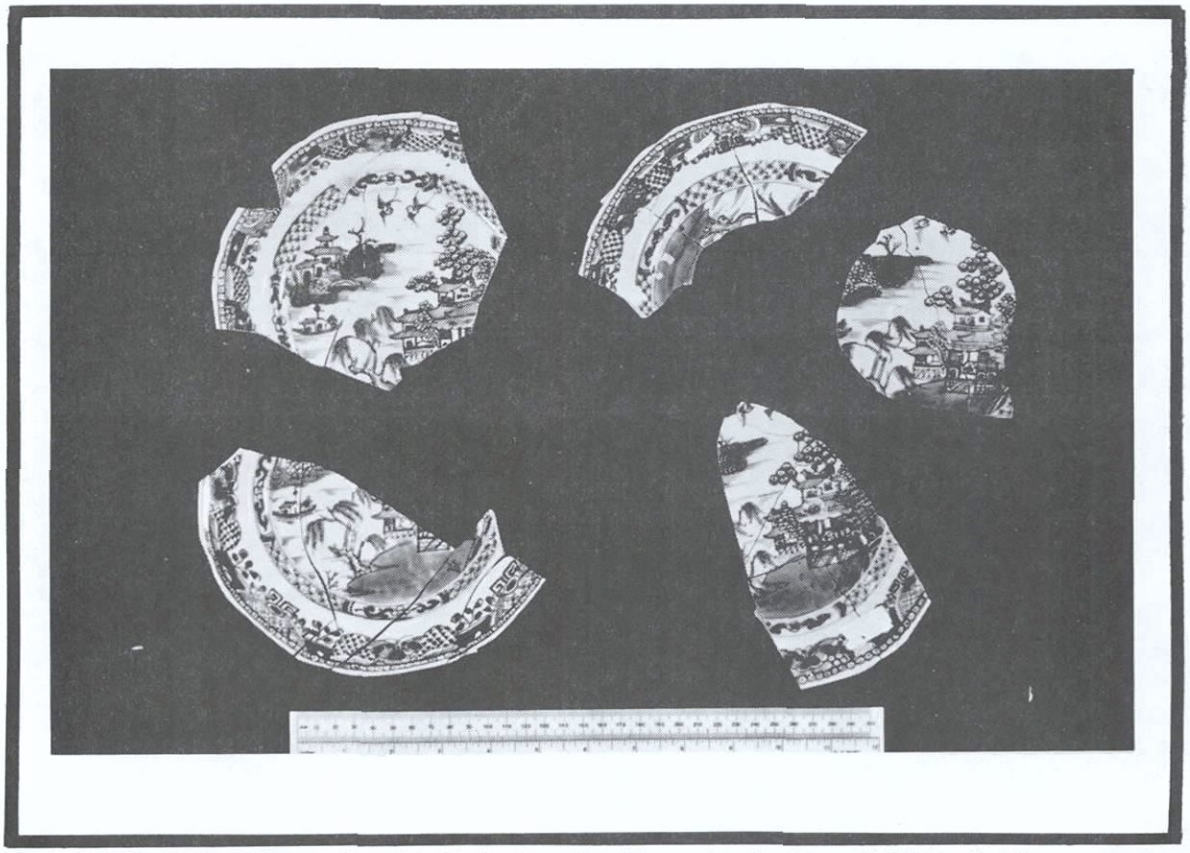


PLATE 4.14. Chinese Export Porcelain Underglaze Blue Plates with the "Two Birds" Motif. There are at least 6 plates with this design.

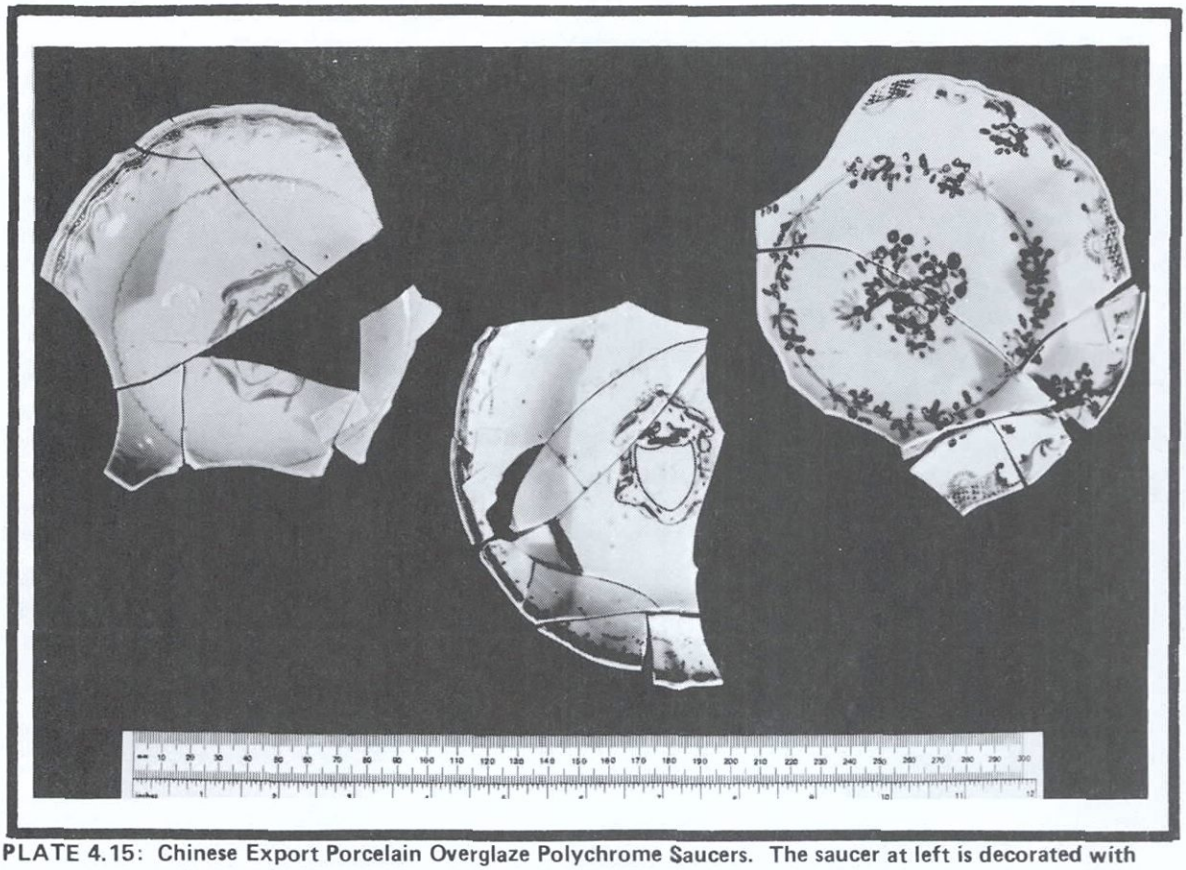


PLATE 4.15: Chinese Export Porcelain Overglaze Polychrome Saucers. The saucer at left is decorated with red and gold; the central vessel is in gold, black and discolored enamels and has the initials "JE" in the shield; the right saucer is in red and discolored (probably blue) enamels.

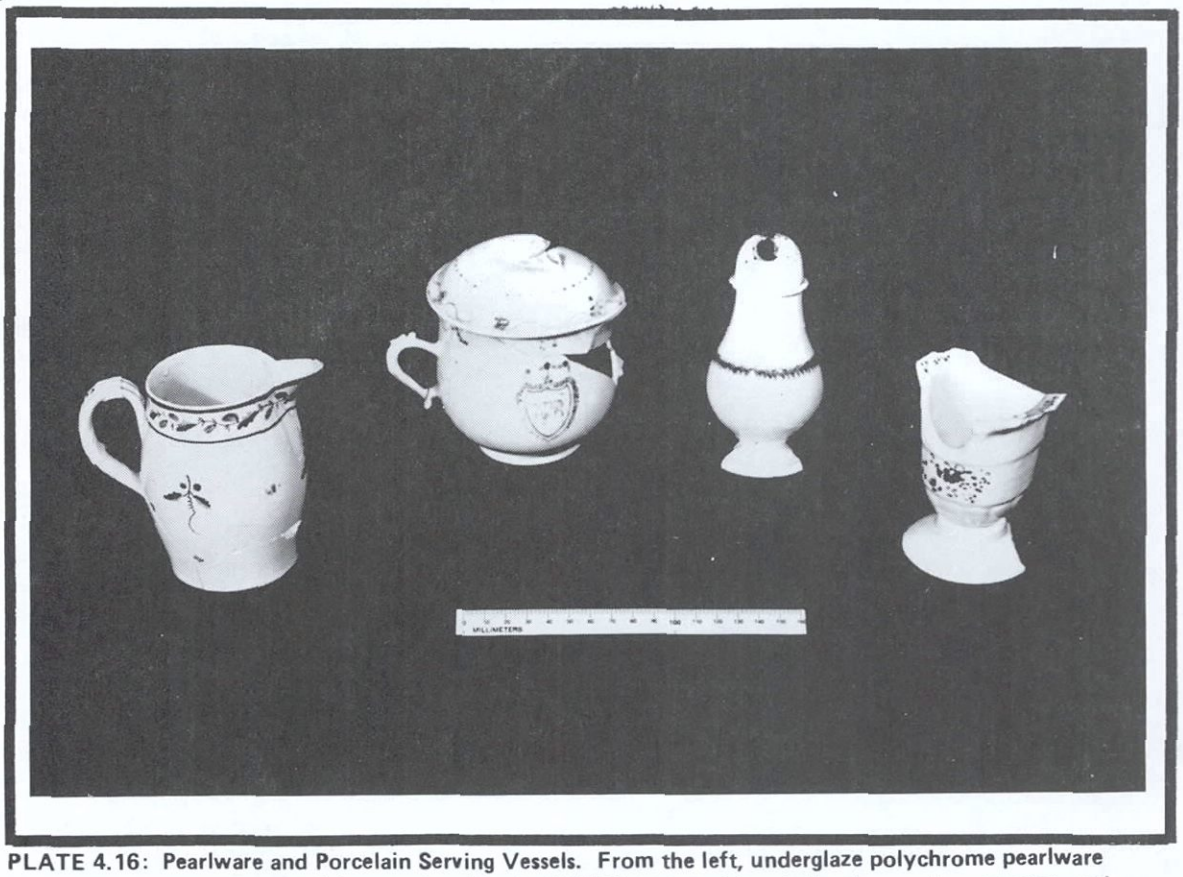


PLATE 4.16: Pearlware and Porcelain Serving Vessels. From the left, underglaze polychrome pearlware creamer, porcelain sugar bowl in the "CVB" pattern, blue shell- edge pearlware castor, and overglaze enameled porcelain helmet-shaped creamer.

TABLE 4.3 - CERAMIC VESSEL FORMS FROM FEATURE 18

	TEACUP	LG TEACUP	COFFEE CUP	SM SAUCER	LG SAUCER	SAUCER GEN	SM MUG	TEA POT	COFFEE POT	CREAMER	SUCRIER				ROW TOTAL
CREAMWARE-PLAIN							1								1
SHELL EDGE															0
EMBOSSED															0
TRANSFER PRINT							2								2
PEARLWARE-GR SHELL EDGE															0
BL SHELL EDGE															0
EMBOSSED	3					1		1							5
BLUE PAINTED	1			3		2									6
MOTIF 510	3			19											22
BROWN PAINTED	3														3
POLYCHROME	10	4		8	2	2				2					28
MOTIF 511	3			1											4
MOTIF 512	11			10		2									23
PLAID															0
TRANSFER PRINT	3	1		4		1									9
DIPPED											1				1
OVERGLZ PAINTED	1					1		1							3
CLOBBERED															0
SPATTERED															0
PORCELAIN-NEOCLASSICAL	19			19	1	9					1				49
CVB	8			12							1				21
SEPIA LANDSCAPE	4	2			6	1									13
ARMORIAL	2			2											4
JE			1	3											4
BIRD W/ SPRIG	5			2											7
MOTIF 133 (C)	1		2	3						1					7
PSEUDO ARMORIAL				2											2
MISC UNDGLZ BL	1			1											2
FUEL BEARER															0
TWO BIRDS															0
ENG TRANS.PRINT	2														2
REDWARE-UNGLAZED															0
BROWN GLAZED									1						1
BLACK GLAZED															0
SLIP-DECORATED															0
OTHER RNGD ENS-THIN REDBD															0
ENGINE TURNED								3		1					4
JACKFIELD TYPE								1							1
DELFTWARE															0
STONEWARE-RED ENG TURNED								1							1
BLACK BASALTS								1							1
CASTLEFORD								1							1
OTHER															0
COARSE STONEWARE-PLAIN															0
BLUE GRD															0
BROWN															0
COLUMN TOTALS :	80	7	3	89	9	19	3	9	1	4	3	0	0	0	
SUB TOTAL :	227														

TABLE 4.3 (Continued)

	PLATTER	PLATE-10"	PLATE-9"	PLATE-8"	PLATE-7"	PLATE-6"	PLATE-6EX	SOUP PLATE							ROW TOTAL
CREAMWARE-PLAIN	5	3	1	2				5							16
SHELL EDGE			1		3			1							3
EMBOSSED															0
TRANSFER PRINT															0
PEARLWARE-GR SHELL EDGE	1	7	16	1	25		2	13							65
BL SHELL EDGE			2												2
EMBOSSED															0
BLUE PAINTED					1										1
MOTIF 510															0
BROWN PAINTED															0
POLYCHROME															0
MOTIF 511															0
MOTIF 512															0
PLAID															0
TRANSFER PRINT															0
DIPPED															0
OVERGLZ PAINTED															0
CLOBBERED															0
SPATTERED															0
PORCELAIN-NEOCLASSICAL		1													1
CVB				1											1
SEPIA LANDSCAPE															0
ARMORIAL															0
JE															0
BIRD W/ SPRIG															0
MOTIF 133 (C)						1									1
PSEUDO ARMORIAL															0
MISC UNDERGLZ BL			2	3			5								10
FUEL BEAKER			3												3
TWO BIRDS				5		1									6
ENG TRANS.PRINT															0
REDWARE-UNGLAZED															0
BROWN GLAZED															0
BLACK GLAZED															0
SLIP-DECORATED															0
OTHER RFWD ENG-THIN REDWD															0
ENGINE TURNED															0
JACKFIELD TYPE															0
DELFTWARE															0
STONEWARE-RED ENG TURNED															0
BLACK BASALTS															0
CASTLEFORD															0
OTHER															0
COARSE STONEWARE-PLAIN															0
BLUE DEC															0
BROWN															0
COLUMN TOTALS :	6	11	25	12	27	2	7	19	0	0	0	0	0	0	
SUB TOTAL :	109														

TABLE 4.3 (Continued)

	MUG	JUG	PITCHER	PORRINGER	DISH	SM BOWL	BOWL	SHLW BOWL	TUREEN	EGG CUP	SAUCE BOAT	CASTER	DRAINER	LADLE	ROW TOTAL
CREAMWARE-PLAIN	2	6	2		8	9		3	2				1	1	34
SHELL EDGE					1				1						2
EMBOSSED		1									1				2
TRANSFER PRINT		4													4
PEARLWARE-GR SHELL EDGE											1				1
BL SHELL EDGE											1	1			2
EMBOSSED			3				2								5
BLUE PAINTED															0
MOTIF 510															0
BRONX PAINTED															0
POLYCHROME			2			2	3			1					8
MOTIF 511															0
MOTIF 512															0
PLAID		2													2
TRANSFER PRINT							1								1
DIPPED	1	2					1								4
OVERGLZ PAINTED						3									3
CLOBBERED									2						2
SPATTERED						1									1
PORCELAIN-NEOCLASSICAL															0
CVB						1									1
SEPIA LANDSCAPE															0
ARMORIAL															0
JE															0
BIRD W/ SPRIG															0
MOTIF 133 (C)															0
PSEUDO ARMORIAL															0
MISC UNGLZ BL								4							4
FUEL BEARER															0
TWO BIRDS															0
ENG TRANS.PRINT															0
REDWARE-UNGLAZED															0
BROWN GLAZED															0
BLACK GLAZED				1											1
SLIP-DECORATED															0
OTHER RFND ENG-THIN REDSD															0
ENGINE TURNED															0
JACKFIELD TYPE															0
DELFTWARE															0
STONEWARE-RED ENG TURNED															0
BLACK BASALTS															0
CASTLEFORD															0
OTHER	1														1
COARSE STONEWARE-PLAIN		1													1
BLUE DEC		2													2
BROWN															0
COLUMN TOTALS :	4	18	7	1	9	16	7	7	5	1	3	1	1	1	
SUB TOTAL :	61														

TABLE 4.3 (Continued)

	PAN	JAR	PIPKIN	"PIE" PLATE	BOTTLE	CHAMBER POT	WASH BASIN	OINT. POT	TOYS	FLOWER POT	FLW POT SCR	FIGURINE	MK BOTTLE	ROW TOTAL
CREAMWARE-PLAIN	1				X	12	1	1	X					15
SHELL EDGE					X			1	X					0
EMBOSSED					X			X	X					0
TRANSFER PRINT					X			X	X					0
PEARLWARE-GR SHELL EDGE					X			X	X					0
BL SHELL EDGE					X			X	X					0
EMBOSSED					X			X	X					0
BLUE PAINTED					X			X	X					0
MOTIF 510					X			X	X					0
BROWN PAINTED					X			X	X					0
POLYCHROME					X			X	X			1		1
MOTIF 511					X			X	X					0
MOTIF 512					X			X	X					0
PLAID					X			X	X					0
TRANSFER PRINT					X			X	X					0
DIPPED					X			X	X					0
OVERGLZ PAINTED					X			X	X					0
CLOBBERED					X			X	X					0
SPATTERED					X			X	X					0
PORCELAIN-NEOCLASSICAL					X			X	X					0
CVB					X			X	X					0
SEPIA LANDSCAPE					X			X	X					0
ARMORIAL					X			X	X					0
JE					X			1	X					0
BIRD W/ SPRIG					X			X	X					0
MOTIF 133 (C)					X			X	X					0
PSEUDO ARMORIAL					X			X	X					0
MISC UNGLZ BL					X			X	X					0
FUEL BEARER					X			X	X					0
TWO BIRDS					X			X	X					0
ENG TRANS.PRINT					X			X	X					0
REDWARE-UNGLAZED					X			X	1	11	6			17
BROWN GLAZED		3	1		X	8	1	X	1	1				15
BLACK GLAZED					X	2		X	X					2
SLIP-DECORATED				14	X			X	2					16
OTHER RDWD ENG-THIN REDBD					X	1		X	X					1
ENGINE TURNED					X			X	X					0
JACKFIELD TYPE					X			X	X					0
DELFTWARE					X			1	X					1
STONEWARE-RED ENG TURNED					X			X	X					0
BLACK BASALTS					X			X	X					0
CASTLEFORD					X			X	X					0
OTHER					X			X	X					0
COARSE STONEWARE-PLAIN					1			X	X					1
BLUE DEC		2			X			X	X					2
BROWN		4			X			1	X				7	11
COLUMN TOTALS :	1	9	1	14	1	23	2	2	3	12	6	1	7	0
SUB TOTAL :	82													
TOTAL :	499													

coggled edges, often decorated with slip trailing. The above definitions are based on Towner (1963) and Howard (1984).

The teawares from Feature 18 are made of pearlware and porcelain. The porcelains are more numerous and include at least three sets (i.e., matching pieces in more forms than simply cups and saucers) as well as several styles of matching cups and saucers. With the exception of one cup and one saucer and the two English soft-paste cups, all of the decorations are over the glaze. The CVB (Courtlandt VanBeuren) monogrammed set has a delicate neo-classical floral design typical of the 1785-1810 period (Howard 1984:passim) and the initials CVB within a medallion (Plates 4.16 and 4.17). The set includes cups, saucers, an almost complete sugar bowl with lid, a plate or tray, and a small bowl which might be a slop bowl. The armorial design (Plate 4.18) has not been identified, but it is not the VanBeuren arms as illustrated in their family history (Peckham 1913:frontispiece).

The Sepia Landscape design set is the second largest porcelain set within the feature assemblage. The saucers in this set are larger (6" diameter) than those in the other sets, and there appear to be at least two sizes of cups in this set. The design has discolored and disappeared, but originally it was probably a reddish brown. The third set, referred to as "133 C," has a distinctive polychrome floral swag around the rim and includes a helmet-shaped creamer (see Plate 4.16).

The remainder of the porcelains consists of matching cups and saucers or unmatched pieces (see Table 4.3). The "JE" monogrammed porcelain coffee cup and saucer might be associated with the tenure of John Elsworth, as noted above, but they were found in the same contexts as the Courtlandt VanBeuren (CVB) porcelains. The overglaze-decorated porcelain vessels which are listed in Table 4.3 as plates of various sizes are likely to be serving plates or trays for teapots.

The majority of the pearlware teawares are handpainted, with underglaze polychrome small-scale floral and geometric designs (polychrome; motif #511--blue and brown asterisks with an oval "eye" border; and motif #512--small-scale floral swags beneath a broad yellow band) (Plate 4.19). The designs on the overglaze handpainted vessels are in the same general styles but their colors cannot be determined since they have discolored to dark brown or have disappeared leaving only shadows. The 22 vessels with the underglaze blue motif #510 are the most numerous representatives of a single design, but, as discussed above, they might not be part of the domestic assemblage (see Plate 4.19). If they are part of the same assemblage as the other teawares, they were most probably discarded soon after they were purchased or else were stored and not used.

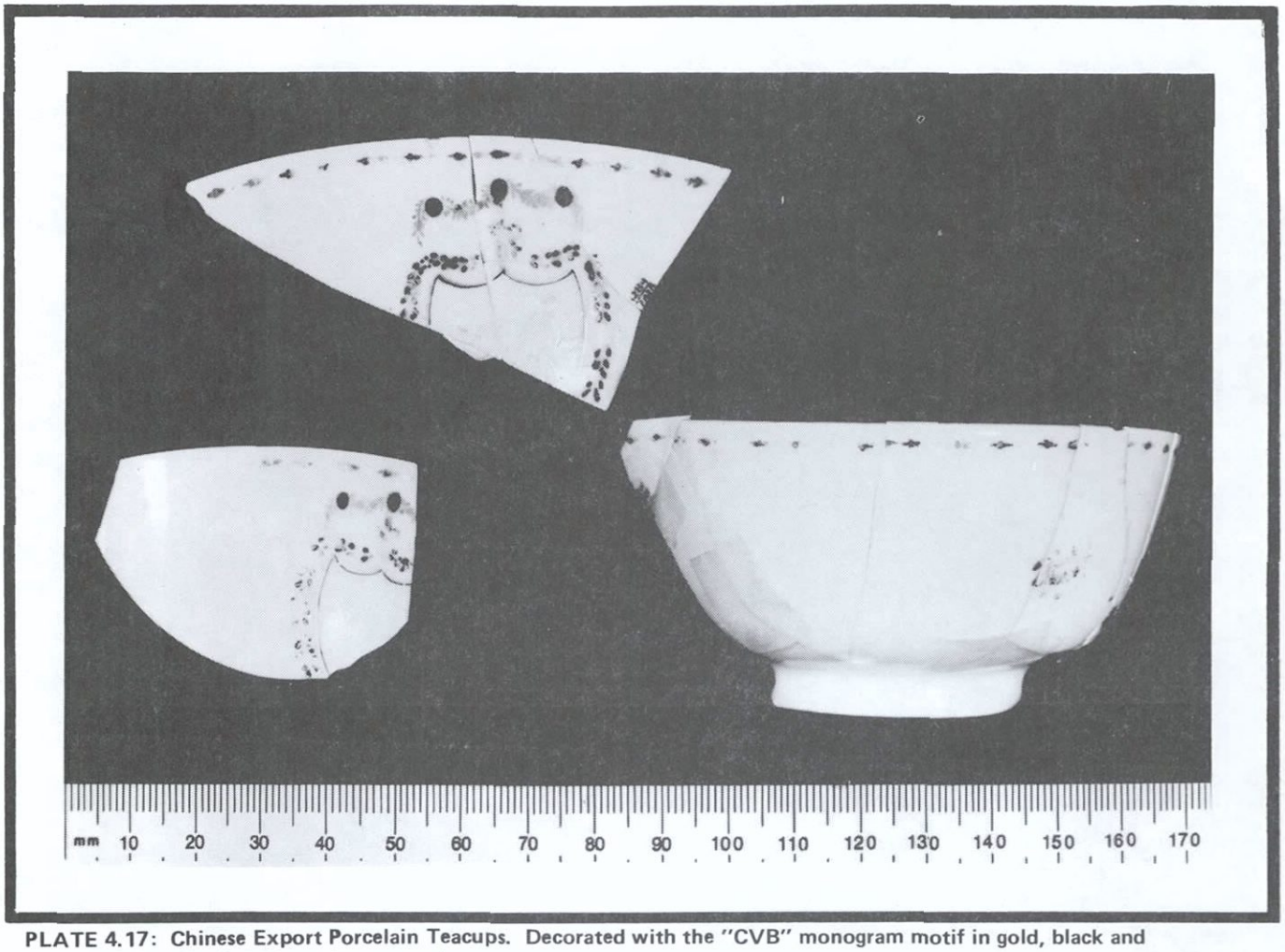


PLATE 4.17: Chinese Export Porcelain Teacups. Decorated with the "CVB" monogram motif in gold, black and *discolored overglaze* enamels.

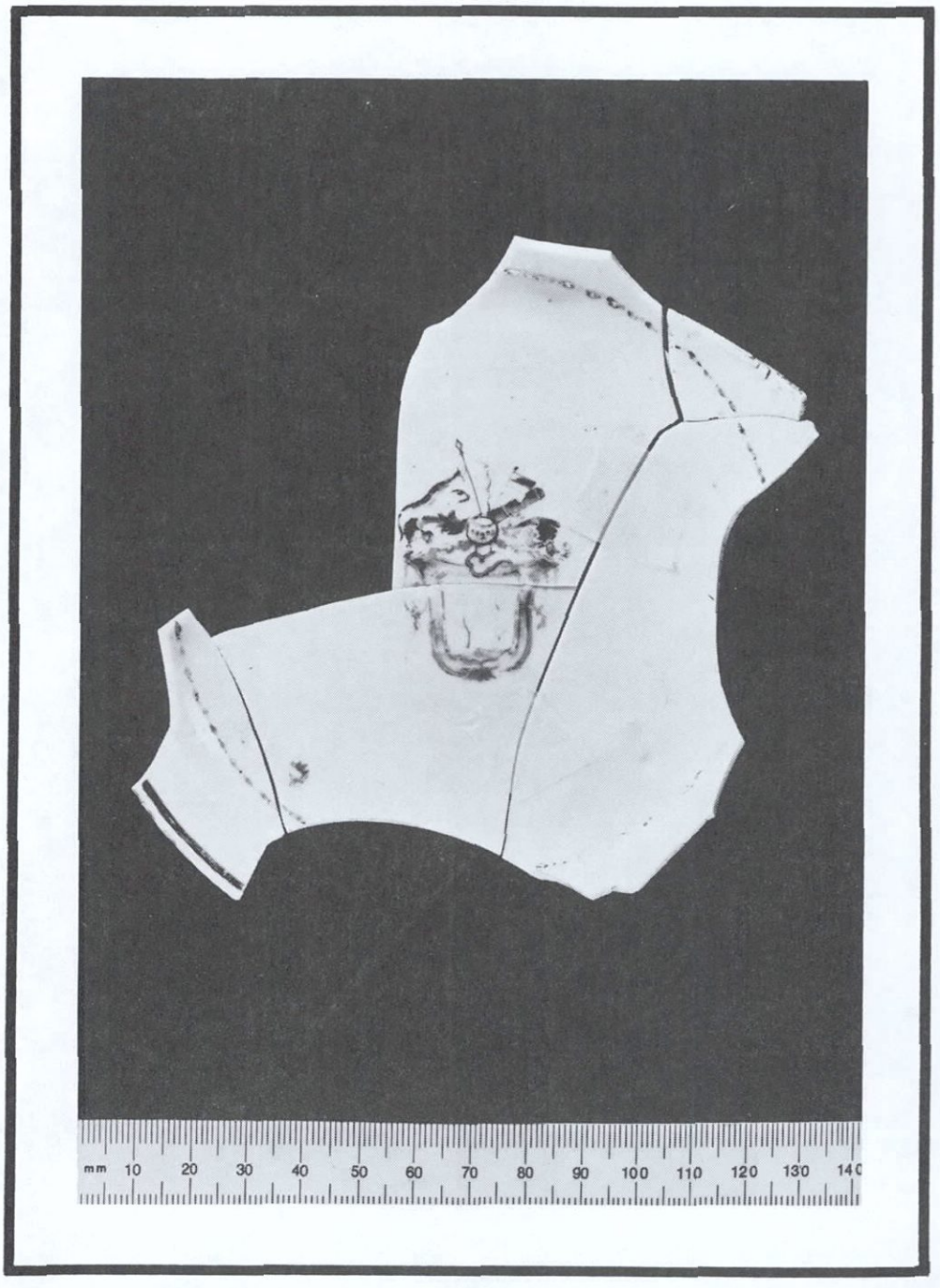


PLATE 4.18. Chinese Export Armorial Porcelain Saucer. The colors include overglaze black, gold, white, red and discolored blue. The design in the shield is two trees without leaves and the flag at upper right is possibly that of the Netherlands.

In addition to the pearlwares and porcelains, there were several teapots made of other ceramic bodies. A fragmentary teapot of Castleford type stoneware was present, as was an almost complete teapot of Black Basalts decorated with mourning figures (Plate 4.20).

The tablewares include creamwares, shell-edged pearlwares, and underglaze blue porcelains (Plate 4.21). The majority of the plates are green shell-edged pearlwares. The majority of the serving vessels, however, are plain creamwares. Many of the earthenwares have heavy wear and some of the porcelain plates show wear. If parts of the Feature 18 assemblage are associated with John Elsworth, who ran a boarding house in Lot 7, the wear on these plates could be accounted for by their frequent use in this establishment. If, however, the deposit is the result principally of deposition from the Courtlandt VanBeuren household, the wear patterns indicate long-term use.

The food storage and preparation vessels are, except for one creamware pan, coarse earthenwares and stonewares. The most numerous are slip-decorated red-bodied "pie plates." These vessels in general show a great deal of wear. The decorations vary from single to triple slip trails with feathering, loops, etc., on different vessels (Plate 4.22a and b). One vessel has the word "Absalom" as part of the design. It is possible that this is an indication of Connecticut manufacture, since the styles of the decorations resemble those from Norwich where Absalom Day ran a pottery from circa 1793/96 to after 1824 (Winton and Winton 1981:8).

There are quite a few (23) chamber pots in this assemblage: twelve are plain creamware (including one unusual stool pot), eight are red-bodied with brown glaze (some of these have dark brown streaks and blotches in the glaze as a simple decoration), two have black glaze on coarse red bodies, and one has a black glaze on a thinner, finer red body. Some of the red-bodied vessels show wear on top of their rims as if they normally had a lid, and some of both the creamware and red-bodied pots show circular wear marks on their interiors, as if they were cleaned and scrubbed.

The ceramic toys are redwares, and include at least one miniature slipware pie plate and two round, deep vessels with handles (see Plate 4.22b; Plate 4.23). There is also a figurine consisting of a tiny fragment of polychrome pearlware which appears to be a piece of a cocker spaniel's ear.

Glass

In addition to the coding of attributes described previously (see Chapter II), Minimum Number of Vessel (MNV) counts were calculated for the glass tablewares from Feature 18. For the majority of

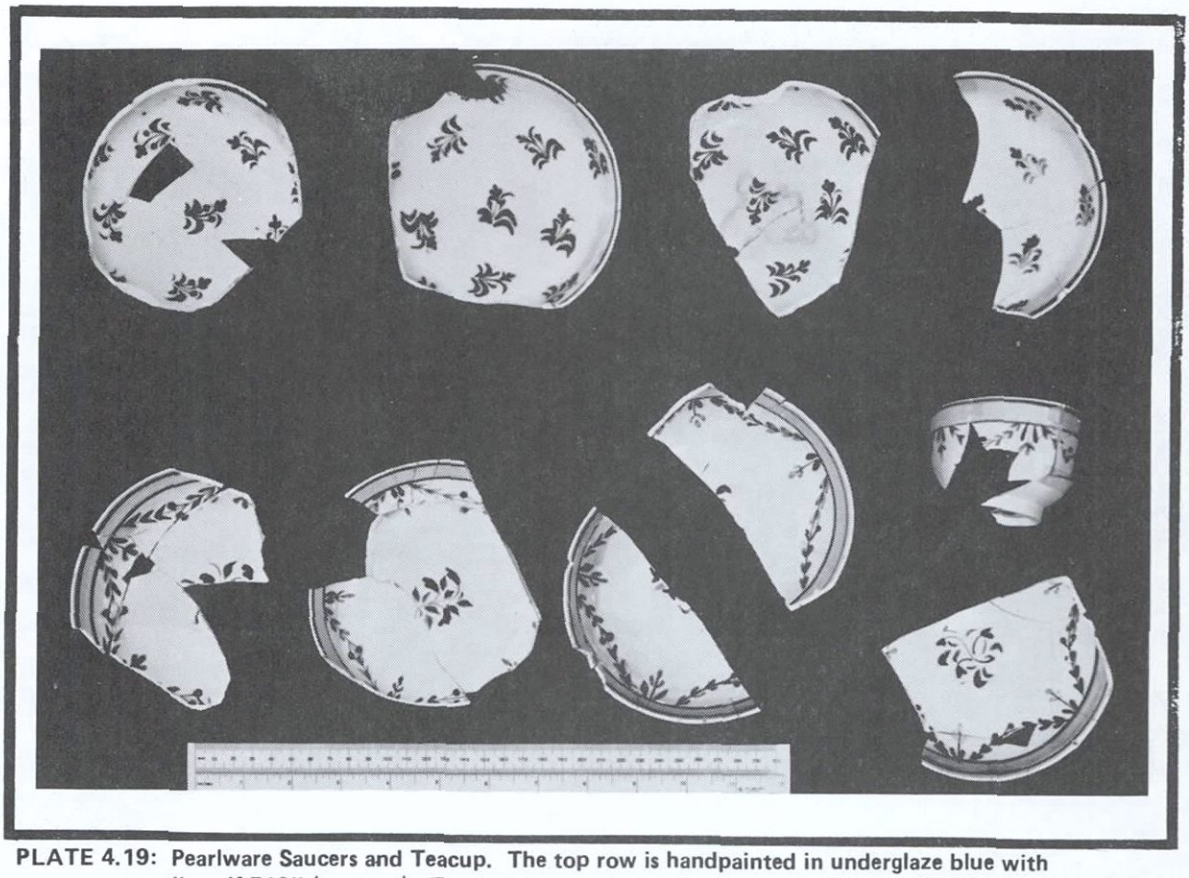


PLATE 4.19: Pearlware Saucers and Teacup. The top row is handpainted in underglaze blue with "motif 510" (see text). The bottom vessels are handpainted with "motif 512" in underglaze polychrome (green, brown, orange and blue) under a broad yellow band. Both motifs show individual painter's variations.

PLATE 4.20: Unmarked Black Basalts Teapot with Classical Mourning Figures.

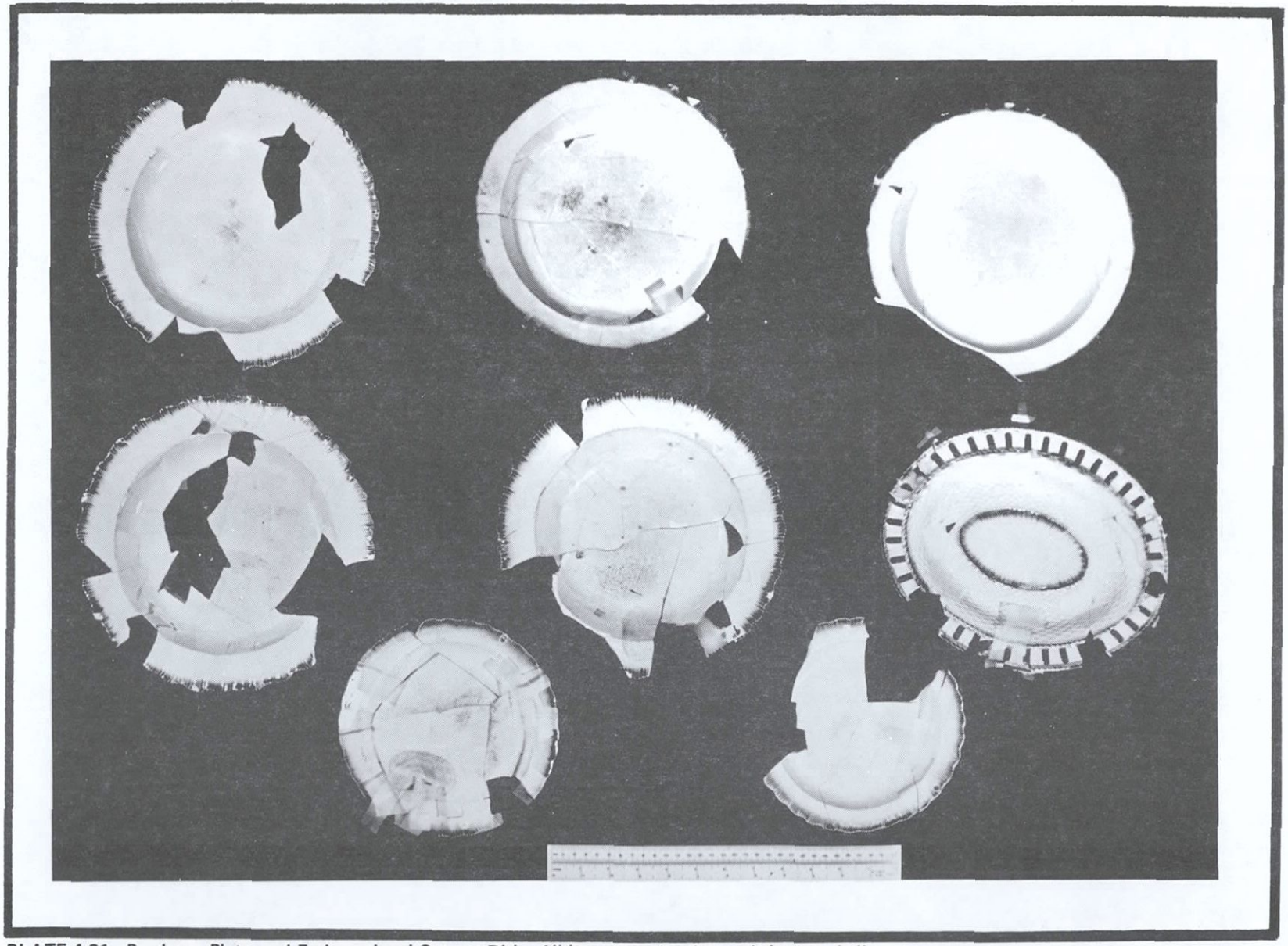
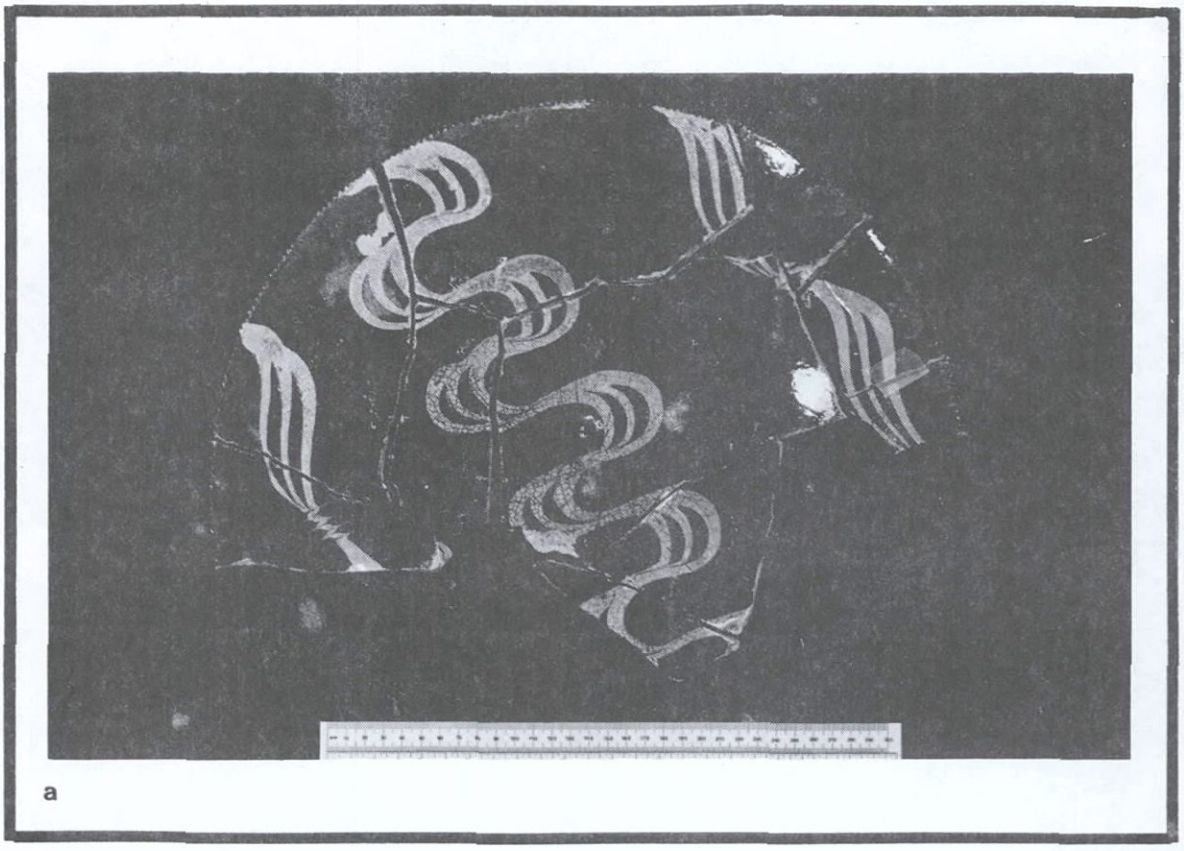
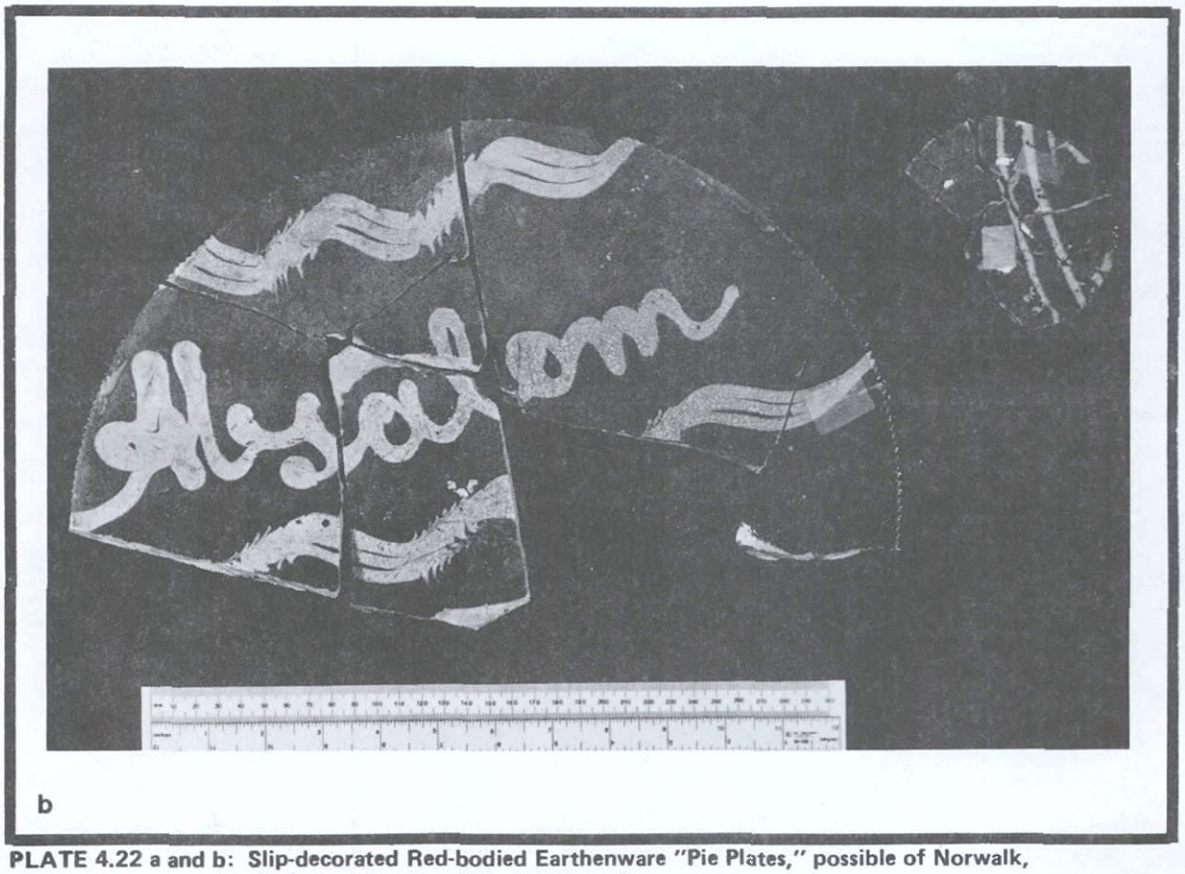


PLATE 4.21: Pearlware Plates and Embossed and Cut-out Dish. All have green borders and the two shell-edged plates at left are marked "Herculaneum."



a



b

PLATE 4.22 a and b: Slip-decorated Red-bodied Earthenware "Pie Plates," possible of Norwalk, Connecticut, manufacture. *The small vessel is probably a toy.*

PLATE 4.23. Lead Glazed Red-bodied Earthenwares. These hollowware bases are probably from porringers or small chamber pots. The two on the left are small-sized toys.

forms (i.e., tumblers, mugs, etc.), MNVs were primarily defined by counting the number of bases in the assemblage. MNVs for the footed glass forms (i.e., stemwares) were defined by counting the number of feet. All whole bases and feet were set aside while fragments were grouped by form and pontil type (when evidenced) and mended to the fullest extent possible within each provenience. Cross-mends were first made between all proveniences in a given excavation unit and then systematically attempted between proveniences of other units. This was done to decrease the chance of multiple counting of vessels that may have had their bases/feet crossing more than one level or stratum in a given unit and/or more than one level or stratum between units. An MNV of "one" was assigned to each whole base/foot. As a general rule, single fragments and those mending to form only a partial base/foot were assigned an MNV of "one" if the pontil type could be discerned and/or a 50 percent or above level of completeness was achieved. When a base cross-mended between two or more proveniences, the MNV was assigned to the stratum and level containing the greatest number of fragments. When the number of fragments was equal, the MNV was assigned to the stratigraphically higher provenience.

In several instances, the absence of vessel bases or lower ratio of bases to other vessel parts required an alternate approach to MNV determination. In these cases, MNV counts were variously scored with finishes or other vessel parts.

A total of 90 distinct tablewares were identified in the Feature 18 assemblage (Appendix 12). The majority are drinking vessels originating in DU 6F13. Fifty-three are tumblers or other non-stemmed drinking vessel forms, 31 are stemwares, and six fall into a miscellaneous tableware category. The most prominent of the identifiable tumbler forms is of a cut, paneled variety. There are nine vessels of this type appearing in at least two different sizes; some are plain while others exhibit two elaborately cut and engraved floral and band rim decorations (see motifs #6016 and #6021 in Appendix 4) (Plate 4.24). Five vessels are mold-blown tumblers in the Stiegel tradition with sunken panels and engraved rim decorations (see motif #6000 in Appendix 4). Several of these tumblers exhibit a rough, grayish ring surrounding their solid pontil impressions, possibly indicating a European origin (Spillman 1982:Plate 43 commentary).

Two cut, basal fluted tumblers are also present in the collection. One cut and engraved decorated rim (see motif #6015 in Appendix 4) is associated with this tumbler type. Thirty-five additional tumblers are represented by bases that remain unidentified as to specific form. Disassociated rim and body fragments in the assemblage, however, indicate a variety of different types probably included in this count. Among these are simple undecorated as well as decorated tumblers (motif #6018 in Appendix 4) and at least one form engraved with a "vine" rim border (motif #6005) and one multi-color enameled form with a bird motif in the Stiegel tradition

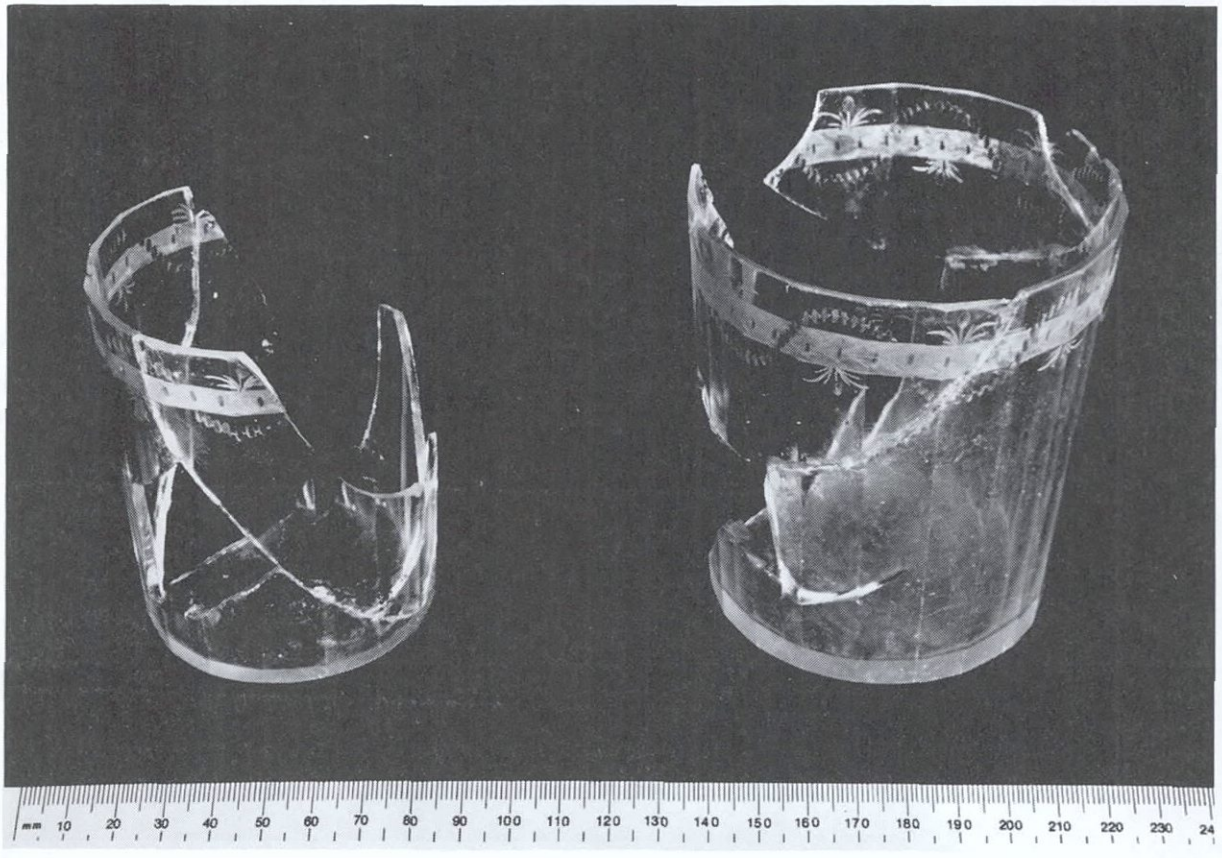


PLATE 4.24: *Set of Matching Paneled, Cut and Engraved* Tumblers from Feature 18

(Plate 4.25). Other non-stemmed drinking vessels include a handled cup with threaded decoration and a mug with an unidentified Stiegel-type body engraving.

The stemwares in the collection include 15 bridge fluted drinking forms exhibiting at least two different cut and engraved rim decorations (see motifs #6014 and #6015 in Appendix 4), nine plain drawn stems (Plate 4.26), and one short-stemmed form with a centrally placed, flattened knob. The bridge fluted stemwares, which are of English origin, date from 1760 to 1810 (Haynes 1970:284-289); the plain drawn stems date from 1780 to 1805 (Noel Hume 1974:190-191). Six additional stemwares, represented by foot and stem fragments, include at least one English hexagonally faceted form in a probable diamond (or variant) pattern dated 1760 to 1810 (Haynes 1970:284-289) as well as additional numbers of the types described above.

The six vessels in the miscellaneous tableware category include two unidentified forms, a bowl, and three decanters; two of the latter are represented by flanged finishes with ground bores and one, of Irish origin, is represented by an intact, fluted base embossed with "PENROSE WATERFORD" on its underside, dated 1783 to 1851 (Mehlman 1982:73).

MNVs were not calculated for the bottles, but English wine/liquor forms generally datable to the 1780 to 1820 period dominate the Feature 18 assemblage. One wine/liquor bottle, judging from its overall body shape and finish treatment, dates between 1770 to 1800. One mendable bottle appears to be of Dutch origin and has been tentatively dated to the second quarter of the eighteenth century. Other wine/liquor forms include case bottles of varying sizes. Food bottles include aquamarine glass flacons for storage, and a fairly large number of mustard forms embossed "LONDON," dated 1800 to 1900 (O> R> Jones 1983: 81).

Pharmaceutical forms are predominantly represented by vials in a variety of shapes and sizes. Patent/proprietary medicines include small, straight-sided "ESSENCE OF PEPERMENT" (sic) forms. All of the specimens in the collection are notable due to the mold-maker's error (note the misspelling of "peppermint") and the orientation of the embossment from the base toward the finish.

Based on this analysis of the glass assemblage, the Feature 18 deposits have a Terminus Post Quem (TPQ) of 1800.

Small Finds

The small finds within the feature exhibit the full range of artifact groups and classes established by South (1977) and modified by LBA. The architectural group is predominantly window glass (58%) and miscellaneous building material (13%). Nails and architectural hardware have a surprisingly low frequency.

PLATE 4.25: Enameled, Multi-color Stiegel-Type Tumbler Fragment from Feature 18

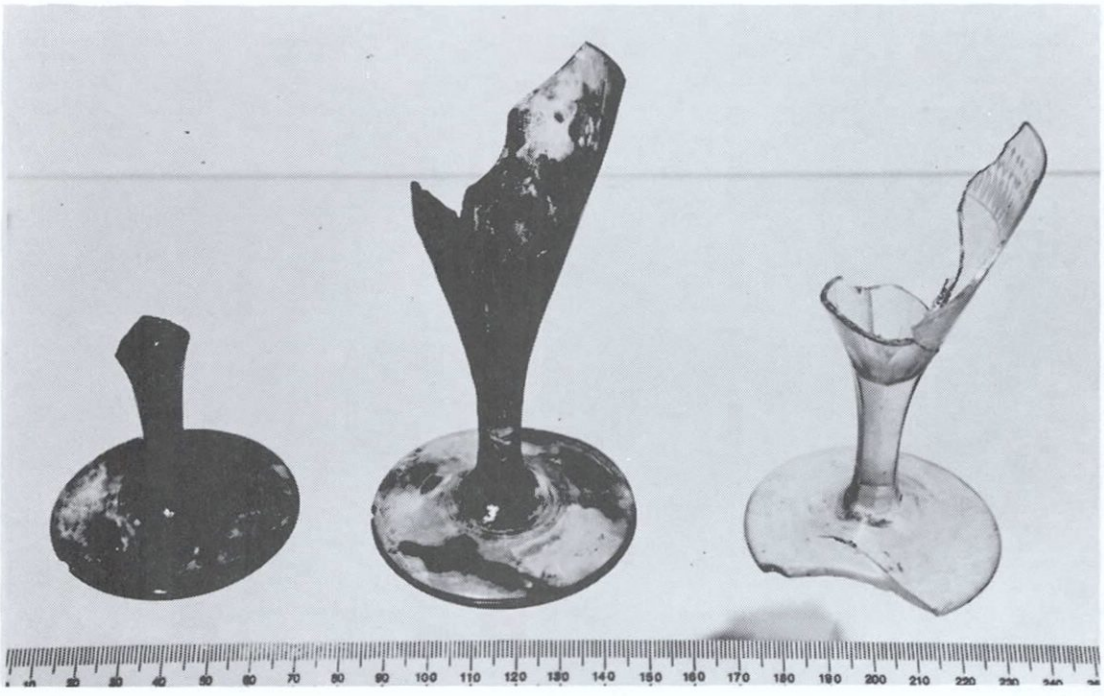


PLATE 4.26: Stemwares from Feature 18: Hexagonally Faceted Stem, Plain Drawn Stem, Bridge Fluted Stem with Cut Motif

Certain types of small finds artifacts suggest that part of the Feature 18 assemblage may be associated with the Thomas Ming cooperage. The feature contains a large volume of wood chips exhibiting cut and saw marks. No systematic attempt was made to identify the wood species represented among the chips, but the presence of birch and oak barks was noted. In addition, there are several tool handles which may have come from the cooperage. The small finds assemblage also contains five pulleys which may be associated with Ming, or may have come off ships that docked along the wharves.

Domestic items within the small finds assemblage include a large number of buttons and pins, a red-painted fan, a silver alloy pendant stamped "GW" (Plate 4.27), toys, shoe buckles (Plate 4.28), and silver spoons. Several of the metal artifacts exhibit makers' marks and place of origin marks; however, these marks have not been identified. There are also several wooden items, including scrub brushes, spoons, a veneered box, and finials.

There appears to be a connection between Feature 18 and the riverbottom deposits below and around the feature, based on a comparison of the small finds from these two contexts. Though a linkage was not systematically measured between these two deposits (e.g., through ceramic cross-mending), they both contain similar artifacts. For example, both the riverbottom soils and Feature 18 have the same type of elaborate shoe buckles (see Plate 4.28), silver flatware, pulleys, and wooden tools. Also, the riverbottom deposit contains a Sheffield plate with the embossment "GW," while the Feature 18 assemblage has a silver pendant also with this "GW" embossment (see Plate 4.27; Plate 4.29). This connection between these two contexts will be explored further below.

Faunal

Feature 18 produced a large, complicated faunal assemblage, comprised of fish, mammal, bird, reptile, and crustacean species. The total number of bone specimens present is over 10,000 (Table 4.4 and Appendix 13). Fish species include salmon, sturgeon, cod, seatrout, porgy, and sheepshead, as well as a few others which were unidentifiable. Domestic mammal species consist of cow, pig, and sheep, as well as cat; and nondomestic mammal species include rodents, such as mouse and rat, and rabbit. Bird species consist of chicken, turkey, duck, goose, grouse, pigeon, and sandpiper; while the reptile and crustacean species include box turtle and crab. Shell was not speciated; however, a bulk weight by provenience was calculated.

The faunal remains within Feature 18 are well preserved. This level of preservation permitted a high degree of species identification, in addition to reccordation of butcher marks and

PLATE 4.27: Silver Pendant, 1½"x 1", Pre-dates 1800. Front side, geometric floral design; back side stamped "GW."

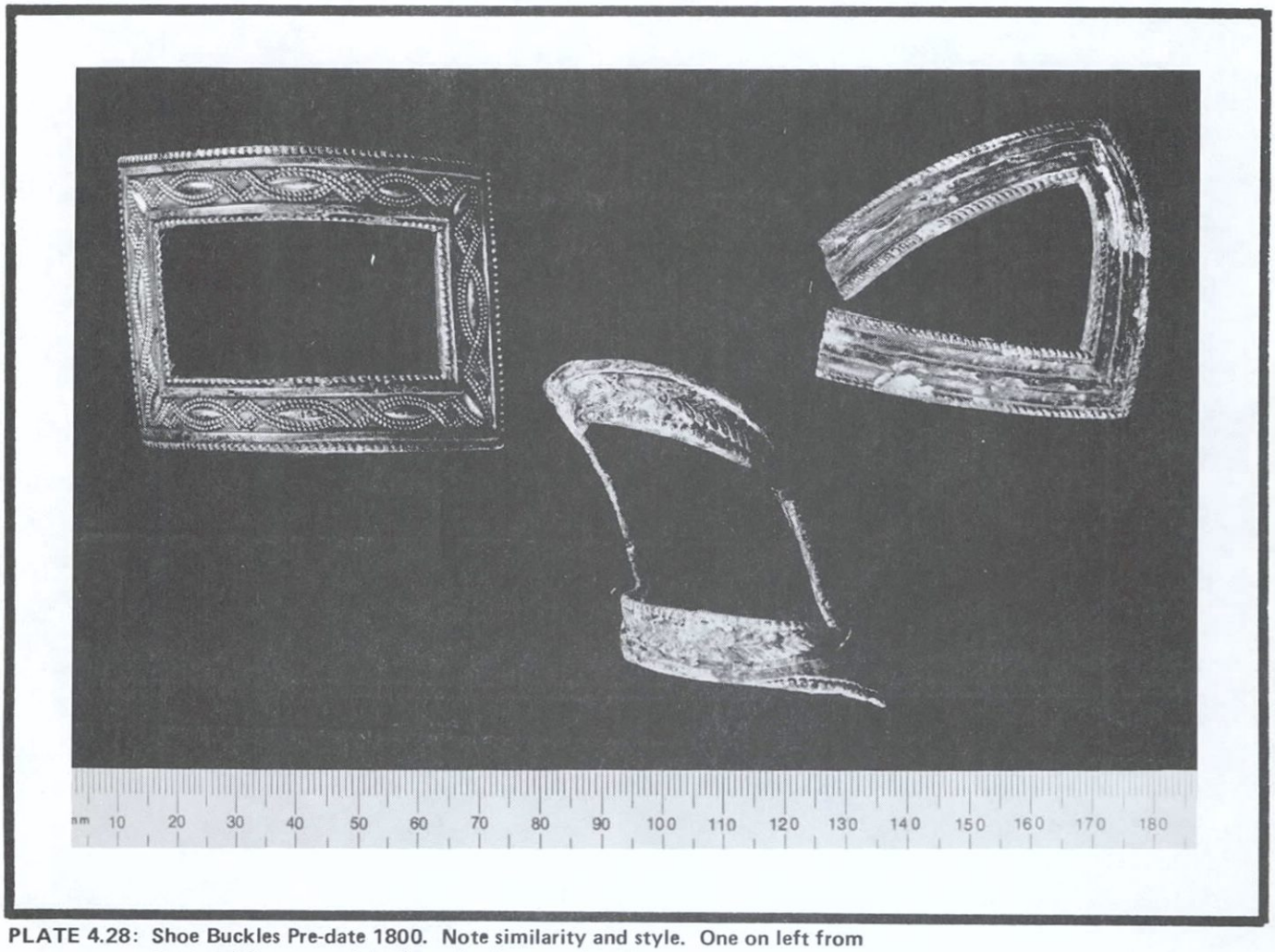


PLATE 4.28: Shoe Buckles Pre-date 1800. Note similarity and style. One on left from Feature 18, two on right from riverbottom deposit.

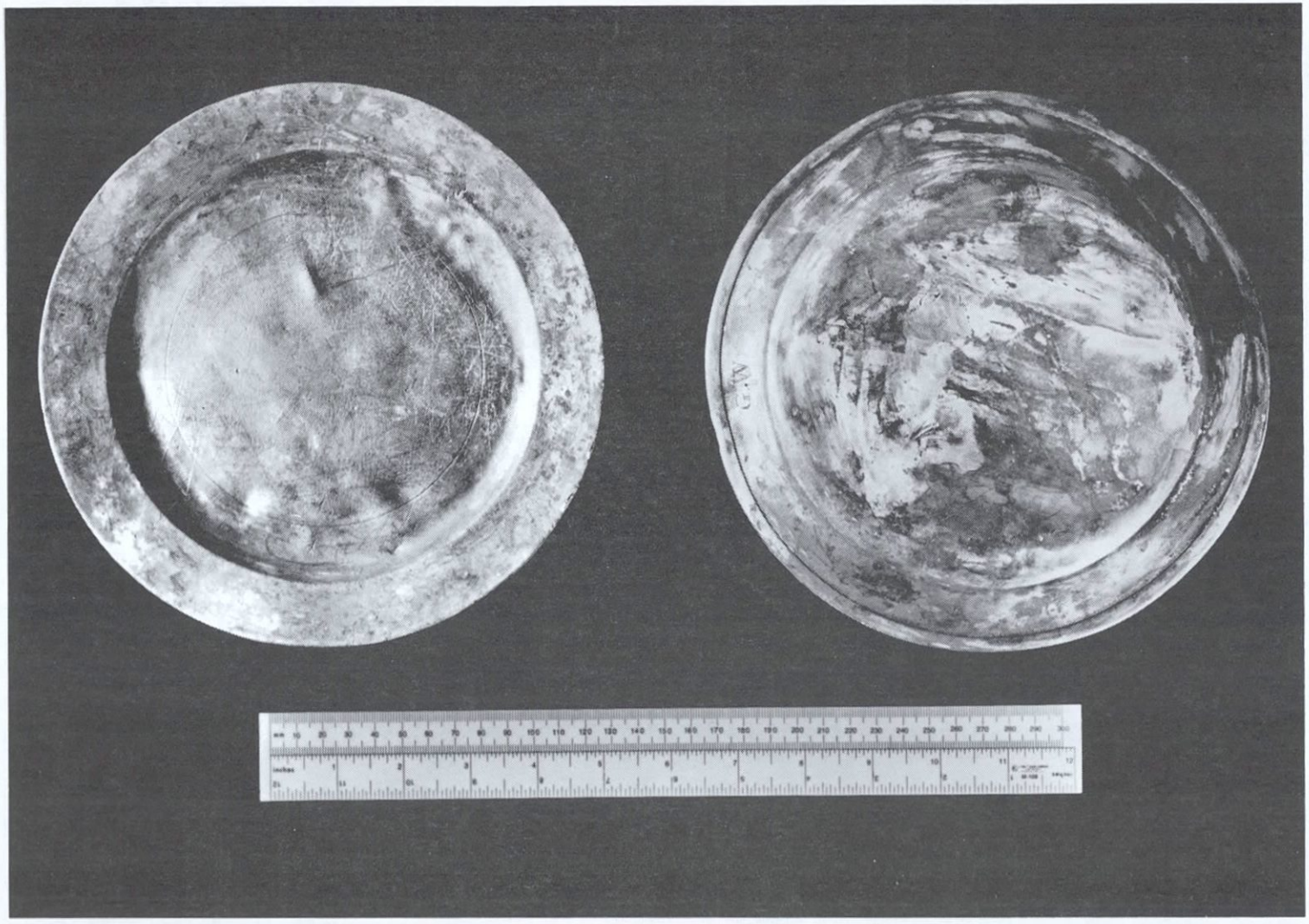


PLATE 4.29: Sheffield Plate, 8½" Diameter, Pre-dates 1800. Front side exhibits heavy wear; back side stamped "GW"

TABLE 4.4

FEATURE 18
FAUNAL SPECIES LIST

CLASS/SPECIES	COUNT	% NISP	% CLASS
MAMMAL			
COW	493	16	
PIG	229	7	
SHEEP	218	7	
CAT	393	13	
RABBIT	1	<1	
MOUSE	11	<1	
RAT	384	13	
RODENT	15	<1	
SUBTOTAL	1744	57	
UNIDENTIFIED	1986		
TOTAL MAMMAL	3730		30
BIRD			
CHICKEN	513	17	
ROOSTER	5	<1	
TURKEY	124	4	
GALLIFORM	82	3	
GOOSE	61	2	
DUCK	222	7	
GROUSE	4	<1	
PIGEON	46	1	
SANDPIPER	2	<1	
SUBTOTAL	1059	35	
UNIDENTIFIED	1376		
TOTAL BIRD	2435		20
FISH			
COD	74	2	
PORGY	2	<1	
SALMON	2	<1	
SEATROUT	56	2	
SHEEPSHEAD	42	1	
STURGEON	3	<1	
SUBTOTAL	179	6	
UNIDENTIFIED	5914		
TOTAL FISH	6093		49
REPTILE			
TORTOISE	5	<1	<1
CRUSTACEAN			
CRAB	56	2	<1
UNCLASSED BONE	59		<1
SUBTOTAL NISP*	3043		25
TOTAL **	12,378		

NISP: Number of Identified Specimens
*Excludes unidentified bone **Includes unidentified bone

gnaw marks. It was also possible to age some of the large domestic mammals. The assemblage's high level of preservation was the result of several factors. First, the bones appear to have had limited exposure to the elements. This is supported by the small amount of gnaw marks exhibited by the faunal remains, indicating that they were rapidly sealed within the feature. Second, the soil deposits within the feature were in a water-logged, anaerobic environment. This type of environment limits bacterial activity. Third, the depth of the deposit most likely kept the bones from suffering the effects of freezing and thawing. Finally, most of the bone is not burned. The small quantities of burned bone present are probably the result of post-depositional factors. This interpretation is based on differential burning of specimens, where one end of a bone is calcined and the other end is charred. The feature contained pockets of charcoal, cinder, and slag, and it is possible that the bone burned when it came into contact with these heating by-products.

Mammal and bird bone was identified as fully as possible, whereas fish was generally speciated by mouth parts. The remaining fish elements were simply counted as "unidentified." Bone modifications such as butcher marks, burning, gnaw marks, and weathering were recorded. Age indicators such as unfused diaphyses and epiphyses were also documented. A preliminary examination was made of cow longbones to check for articulation. No systematic attempt was made to check for articulation among sheep or pig bone; however, when apparent it was noted. Minimum number of individuals (MNI) was calculated for mammal and bird species. MNI calculations were made since whole skeletons and dressed carcasses are present within the faunal assemblage. MNI was based on the count of the most frequently occurring bone by species divided by the number of times that that element appears in a living animal.

Feature 18 contains whole fish and birds, as indicated by the presence of all skeletal parts; and dressed carcasses of large domestic mammals, as determined by the high frequency of meat bearing components and the low frequency of skull and foot elements. The assemblage also includes the entire skeletons of three neonatal calves and one neonatal piglet (Plate 4.30). Several of the large domestic mammal bones can be shown to mend along sawed and chopped edges (Plate 4.31), and also exhibit table cuts consisting of a series of parallel cut marks on the bone's surface perpendicular to its length. In addition, some of these reconstructible elements articulate with each other (see Plate 4.31).

Fish accounts for the greatest percentage of any faunal class within the assemblage. As noted above, fish species were identified on the basis of mouth parts. In some cases other elements were used when it was felt a species would otherwise go unrecorded, e.g., sturgeon scutes. While bone preservation was excellent, some species may not have been identified in this

PLATE 4.30: Feature 18, Neonatal Skulls. Upper left: top of calf skull; lower left: piglet skull; right side view of calf skull.

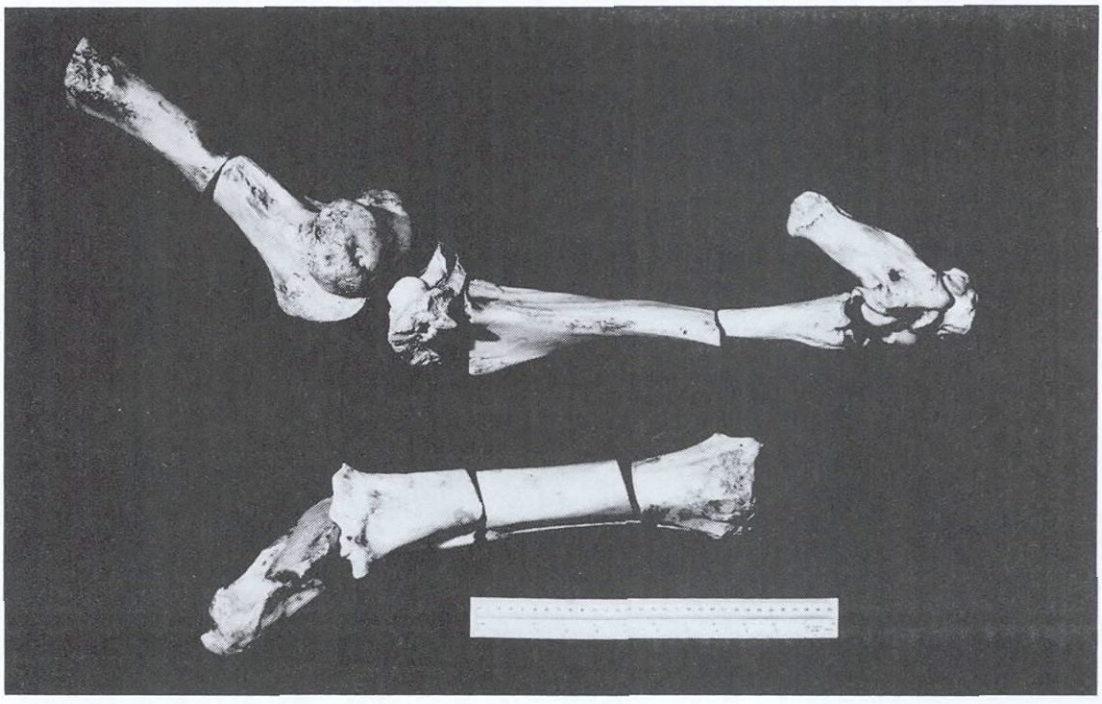


PLATE 4.31: Feature 18, Articulated Cow Forelimb and Hindlimb Exhibiting Multiple Butcher Marks.

analysis because no cranial elements of these species were present. This is suggested by several small vertebrae, noted during tabulation, which may have been herring or sardine. It is possible that the lack of cranial elements may be a result of other factors, such as the purchasing of pickled fish where the heads had already been removed. No MNIs are given for fish as a result of these problems.

The cow bones from the feature are very large, and exhibit a high degree of unfused epiphyses, which suggests that the animals may have been oxen. The size of these bones is typical of the size of cow bone recovered from other eighteenth-century sites in New York City (Amorosi, personal communication 1988). In general, the range of elements within Feature 18 includes longbones, vertebrae and ribs, scapula, and pelvis (Plate 4.32). Metapodial riders such as the calcaneus, astragalus, and carpals/tarsals are also present. Hindlimb sections have an overall higher frequency than forelimb sections (see Appendix 5). The assemblage also includes three calves, between three and six months of age. Elements present consist of skulls and feet.

Cow longbones tend to be sawed into three sections, and in several instances it is possible to mend sawed edges to form whole bones (see Plate 4.31). All of the butcher marks present are saw marks with the exception of those on the vertebrae, which are from cleaving. There is a high frequency of butchering error among the cow bone. These errors take the form of mistakenly sawed and incompletely sawed bones, where the last piece of bone is broken off (Plate 4.33). This pattern of butchering error suggests a rapid processing of meat. Many of the longbones show signs of table cuts, usually in the form of parallel cut marks perpendicular to the length of the bone. Most of the bone sections represent roasts; however, there are several steakbones cut from the sirloin and shoulder blade.

The lack of skull and foot elements, and the butchering pattern described above, indicate that the majority of the cow bones within the feature represent the remains of dressed carcasses. A dressed cow carcass has been skinned and gutted, and the non-meat-bearing parts, such as the head and feet, are removed during the initial butchering. A minimum number of 6 individuals are present, based on the count of proximal tibia sections (Table 4.5). Three calves are also in the assemblage and are represented by all body parts, including skull and toe elements.

Pig bone within the Feature 18 assemblage includes skull and foot elements. The cranial materials consist of a mandible and teeth as well as one sub-adult skull and one neonatal skull (see Appendix 5). One complete mandible shows signs of cut marks across the ascending ramus. There is also a high frequency of phalanges but

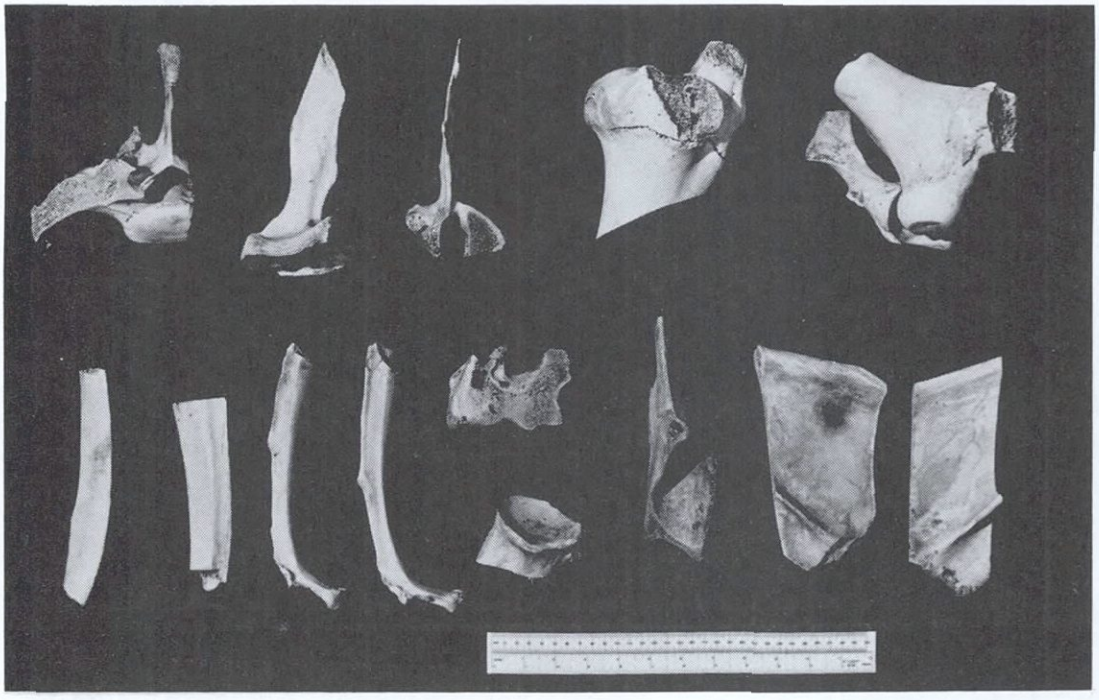


PLATE 4.32: Feature 18, Assemblage of Various Cow Elements Exhibiting Butcher Marks.

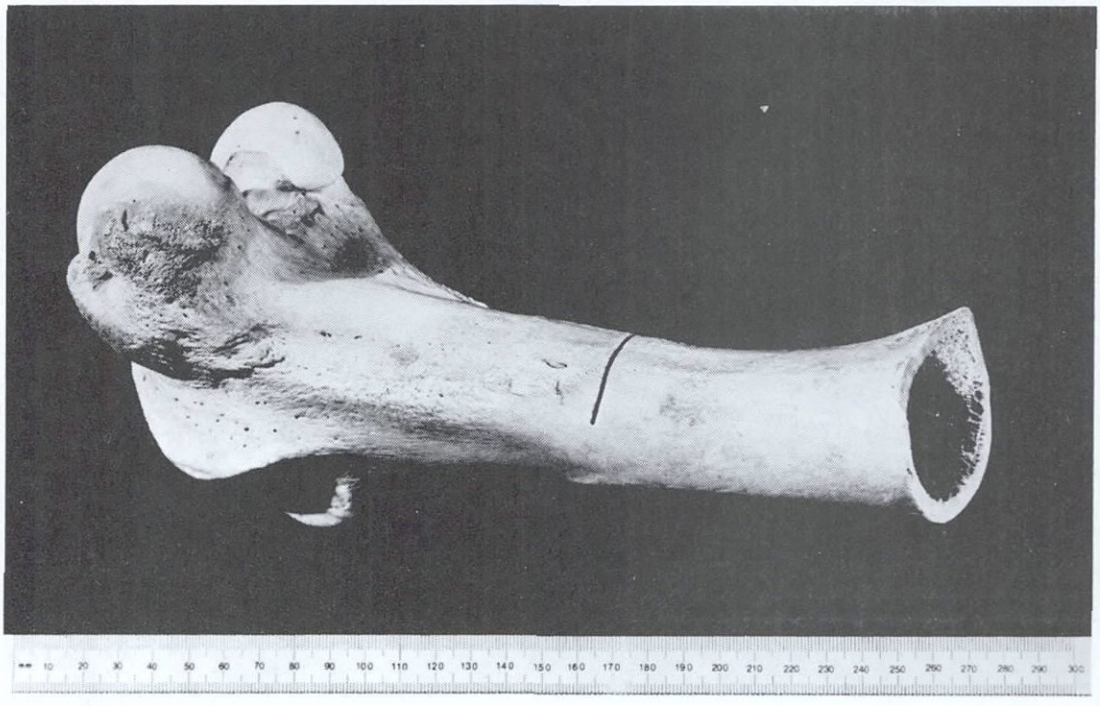


PLATE 4.33: Feature 18, Cow Femur Exhibiting Butchering Error of Mid-shaft.

an unusually low occurrence of metacarpals and metatarsals. Age was not systematically measured; however, unfused elements were coded when encountered. Based on these preliminary observations it appears that the diaphyses and epiphyses of most body parts are unfused. Further, the longbones indicate that all pigs within the assemblage are less than 3-1/2 years old. Many of the longbones are sawed and exhibit table marks.

The feature contains an articulating skeleton of a neonatal piglet with knife marks on the skull. This particular skeleton was spread throughout the various soil deposits within the feature and thus supports the hypothesis that the feature was rapidly filled (see Appendix 5).

Sheep bones include a low frequency of skull and foot elements; but, like cow, exhibit the full range of meat-bearing elements (see Appendix 5). The frequency of butchering marks on sheep bone was lower than for cow and pig, but the former did have table marks. Articulation among sheep bones was not systematically recorded, but it was noted that some of the sheep longbones did articulate.

A preliminary examination of fused versus unfused proximal and distal ends of longbones indicates that the sheep are immature. For example, some of the pelvises are unfused, suggesting an age of less than half a year. It does not appear that there are any mature individuals within the assemblage.

There is a high frequency of small mammals, including cat, mouse, rat, and rabbit. A minimum of six cats are present and they range in age from neonatals to fully mature adults. Rodents consist of rats and mice, with rats being the most frequent.

The feature contains a great variety of domestic and wild birds (see Table 4.4). The complete range of skeletal elements for most species indicates the presence of whole birds; therefore, MNIs are appropriate. There are a minimum of 32 chickens and three roosters (Table 4.6). This ratio of hens to roosters suggests the presence of a chicken coop. Chickens may have been kept on site, probably for eggs, and were consumed as needed. There are in fact 362 grams of eggshell in the feature. There is also a high frequency of ossified trachea, suggesting the presence of old birds.

Turkey is also present though the frequency is not as great as for chicken. Other species present include grouse, duck, goose, and pigeon. These are all birds known to have been exploited for food during this time period (cf. Geismar 1983). It is evident from the number of individuals present that fowl was an important dietary component. The assemblage also includes the skull of one sandpiper. This individual was identified by the presence of a partially whole skull. Longbones from two small species were recovered but were

TABLE 4.5

FEATURE 18
MAMMAL - MINIMUM NUMBER OF INDIVIDUALS (MNI'S)

SPECIES	MNI COUNT	ELEMENT COUNT IS BASED ON
LARGE DOMESTIC MAMMAL		
COW	6	TIBIA - DISTAL PORTION
CALF	3	SKULL - LEFT PARIETAL
PIG	4	TIBIA - PROXIMAL PORTION
PIGLET	1	SKULL - WHOLE
SHEEP	5	SCAPULA - WHOLE
OTHER DOMESTIC MAMMAL		
CAT	5	MANDIBLES - WHOLE
RODENTS		
RAT	12	MANDIBLES - WHOLE
MOUSE	1	FEMUR - WHOLE
OTHER		
RABBIT	1	PELVIS - WHOLE

TABLE 4.6

FEATURE 18
BIRD - MINIMUM NUMBER OF INDIVIDUALS (MNI'S)

SPECIES	MNI COUNT	ELEMENT COUNT IS BASED ON
DOMESTIC BIRD		
CHICKEN	32	CORICOID
ROOSTER	3	TARSOMETATARSUS WITH TALUS
TURKEY	8	CORICOID
EXPLOITED BIRD		
DUCK	14	CORICOID
GOOSE	4	CORICOID
GROUSE	1	CORICOID
PIGEON	6	CORICOID
OTHER		
SANDPIPER	1	SKULL

unidentifiable. However, these longbones are similar to the body size of a sparrow or chickadee.

The large volume of faunal material within Feature 18 suggests a commercial source rather than a domestic one. It is known that John Elsworth occupied Lot 7 from 1798 to 1800 and ran a boarding house at this location. The presence of a piece of monogrammed porcelain bearing his initials ties him to this feature. Based on the identification of reduced, articulated, large mammal skeletons, it appears that on-site secondary butchering took place within the lot. Further, the occurrence of table cut marks on this same bone indicates that this secondary butchered meat was consumed on-site.

The large quantities of bone in Feature 18 represent large amounts of meat. Given that these faunal remains are from an era of limited food preservation technology, the meat that was on these bones had to be consumed quickly, probably by a large number of people. This deduction supports the hypothesis that the feature contains refuse from John Elsworth's boarding house. The volume of whole fish and bird also supports this association with a boarding house.

Floral

The floral assemblage includes fruits, vegetables, nuts, inedible plants and a variety of imported produce (Table 4.7; Appendix 14). The greatest variety of species is among the fruits and nuts, and these also exhibit the highest frequencies. In general, most of the fruits and vegetables are represented by seeds and pits. In the case of strawberries, though, the fruit is actually preserved in a semi-petrified form. Specific fruit varieties were not identified; however, it was noted that more than one variety of peaches and apricots were present.

Frequencies among the floral remains are partially skewed because one seed/pit does not always equal one fruit/vegetable (e.g., one melon produces more than 50 seeds although one peach produces only one pit). Regardless, the floral material from Feature 18 is similar to the faunal remains in that both assemblages are quite large. For example, there are 11,075 cherry pits and 1,673 peach pits, which translates into a large volume of fruit.

The types of produce present make it possible to establish the season when these fruits and vegetables were consumed, taking into account those items which could be stored for long periods of time and those which could not be. Most of the fresh produce ranges in season from early summer to late fall. The latest seasonal fruits present are chestnut and pumpkin, which are harvested during mid-October to early-November (Hillman 1981).

Imported commodities within the floral assemblage include coffee, black pepper, coconut, and sugar cane. The feature also contains inedible local species such as hawthorn spines, pine cones, acorns,

TABLE 4.7

FEATURE 18
FLORAL SPECIES LIST

FRUIT	COUNT
APRICOT	920
CHERRY	11,075
GRAPE	70
MELON	88
OLIVE	227
PEACH	1673
PLUM	74
RASPBERRY	26
STRAWBERRY	4
WATERMELON	2

VEGETABLE	COUNT
CORN	13
GOURD	66
PUMPKIN	271
SQUASH	2167
PEANUT	527

NUT	COUNT
ALMOND	171
BLACK WALNUT	193
BUTTERNUT	44
CHESTNUT	582
FILBERT	465
HICKORY	4088
PECAN	1
TROPICAL NUT	2
WALNUT	18

OTHER CONSUMABLES	COUNT
BLACK PEPPERCORNS	10
COFFEE BEANS	42
SUGAR CANE	1
SUNFLOWER	1

NONCONSUMABLES	COUNT
ACORN	26
BAMBOO	6
BEECHNUT	1
BLACK LOCUST	17
HAWTHORN	3
PINE BRISTLE	1
SEAWEED	4
STRAW	-
THISTLE	1

and black locust seeds. Hawthorns were cultivated as hedges in England, and were also used for wooden handles (Columbia Encyclopedia 1963).

Function of Feature 18, and Sources of Fill

Wall (personal communication, 1988) believes that this box-like feature, and others like it, were privies. The form and location of Feature 18 suggests that this is the case. The structure is attached to the corner of the north-south wharves and Bache's Wharf (see Figure 4.15), and has no wood bottom. If one assumes that the feature was built while the eastern portion of the block was a docking area, then the waste from within the feature would have washed out into the river. In fact, it appears that the artifacts excavated from within the confines of the box-like structure are similar to the artifacts recovered from the river-bottom deposits under the feature. This artifact distribution suggests that the feature never had a bottom, and thus items thrown into the feature would sink down into the riverbottom soils. Refuse was continually thrown into the feature, resulting in the eventual filling of the privy. As will be discussed below, this filling process also involved a feature in Lot 7.

There is documentation that supports the hypothesis that privies were built on the East River wharves. In 1797, John Oothout, Health Commissioner, made several reports on the conditions around the wharves in the city. In one of these reports he recommends the building of "a few Public Necesarry Houses at convenient places on the East and North Rivers, to prevent offensive practices of seaman and strangers sitting down at so many improper places..." (Committee on Piers and Wharves, Common Council, June 5, 1797, quoted in GCI 1983a:11). Feature 18 may have been one of these public privies that were eventually used for disposing of trash from occupations along the two wharves.

The artifacts in the privy suggest that the feature was filled with refuse from at least three sources. These include the Ming cooperage, the Courtlandt VanBeuren household, and John Elsworth's boarding house. Thus, materials from both Lots 6 and 7 were deposited within the privy. The early development of Lots 6 and 7 is ambiguous. However, it is clear that Bache owned Lot 6 and the estate of Paul Richards owned Lot 7. Bache and Steven Richards were the executors of P. Richards' estate, and thus controlled the leasing of Lot 7. This lot was leased first to a cooper named Thomas Ming, who is known to have had a cooperage (Ming lived across the street from his shop). There is confusion though about the exact location of the cooperage. The Ming cooperage is the key indicating that something unusual is happening between Lots 6 and 7. Looking at the directories for the years 1789 to 1799, the cooperage jumps between Lots 7 and 6 until 1795, when Ming is finally on Lot 7. It seems unlikely that Ming would be moving his cooperage. This confusion in the documents may be because Bache

controlled, but did not own Lot 7, but also owned Lot 6. It is possible that because of Bache's involvement with both lots, the occupants of the lots could use the privy for trash disposal. It should be noted that artifacts from the Courtlandt VanBeuren household are also present in the wooden privy in Lot 7; thus trash also moved from Lot 6 into Lot 7.

Feature 18 contains mixed, unstratified refuse deposits from at least one household (VanBeuren,) a boarding house (Elsworth) and a cooperage. Thus, in order to use the artifacts from the feature in any future analyses, such as research on late eighteenth- and early nineteenth-century consumer behavior, these multiple refuse sources must be factored into these analyses.

2. Lot 7

Lot 7 was one of the most intensively excavated lots within the site. Two features, a stone-lined privy (Feature 19) and a wooden privy (Feature 28), were fully excavated (see Figures 4.7 and 4.11). In addition, extensive excavations were carried out in the open rear yard area, as testing had indicated that this lot had the best preserved yard deposits of any of the tested lots.

During the Deep Testing program, the landfill deposits within Lot 7 were sampled by TTW (Section 4) as well as by Test Cut A. Excavations were also carried out on the cobb wharf that partially occupied Lot 7. The landfill excavations and recordation of the cobb wharf have been described earlier.

The backyard testing program began with the machine excavation of recent rubble deposits above the floor of the most recent building, followed by removal of the floor. Backhoe scraping and hand clearing revealed an early rear building wall that defined the extent of the mid-nineteenth-century backyard area. Shovel clearing in the yard area exposed square flagstone pavement in the northern portion of the rear yard, whereupon Test Cut U, a 2x5-foot unit, was placed along the northern lot line, covering the western portion of the flagstone pavement. Test Cut T, a 2x12-foot trench, was placed along the rear lot line extending to approximately one foot south of the pavement (see Figure 4.1).

Feature 19

Test Cut U, a 2x5-foot unit, was placed along the northern lot line, covering the western portion of the flagstone pavement. Test Cut T, a 2x12-foot trench, was placed along the rear lot line extending to approximately one foot south of the pavement (see Figure 4.1). A portion of a circular stone wall, later determined to be a privy, was exposed beneath the pavement in Test Cut U. Test Cut V, a 3.5x5-foot unit, was laid out immediately to the west of Test Cut U, in order to excavate the remainder of the flagstone pavement and to test for a builder's trench associated with the

privy shaft. A portion of the privy was also sampled in the northern end of Test Cut T. As testing proceeded in Test Cuts T and U, an assemblage of domestic artifacts in an organic matrix was recovered, indicating that the feature had been used as a privy.

After the identity of the privy had been established, another unit, Test Cut U2, was placed to the east of Test Cut U, to determine the horizontal extent of the feature. Test Cut U2 was excavated to the same depth as Test Cut U, but flooding temporarily prevented excavation from proceeding to the bottom of the privy shaft. When excavation was resumed, the northern section of the privy, comprising Test Cuts U and U2, was excavated as Test Cut U3. The remainder of the privy fill, i.e., the southern section that had not been sampled by Test Cut T, was excavated during mitigation. First, the southeast quadrant was removed as Test Cut U4, and then the small area remaining in the southwest quadrant was removed as Test Cut U5. Finally, the entire floor area was taken down a single level as Test Cut U6.

The privy had been somewhat disturbed by construction of a stone foundation wall, which was thought to be the foundation of an outbuilding. The privy was oval, with maximum interior dimensions of 5.0x7.5 feet (Figure 4.16). The privy shaft extended to a maximum depth of approximately 3 feet, and consisted of dry-laid stone (Figure 4.17).

Field notes indicate that many of the excavated contexts within the privy contained large amounts of rock and brick rubble. There were also some isolated deposits of organic material noted during excavation, possibly representing occupational deposits within a fecal matrix. Excavation of the privy advanced below the lower extent of the shaft, into the underlying landfill deposits.
Four provisional depositional units may be defined for Feature 19 (also, see Appendix 3):

Depositional Unit	Description/Interpretation
7F1	Underlying landfill soils
7F2	Construction of the privy shaft
7F3	Mixed privy fills
7F9	Profile cleaning, TC U4

Depositional unit 7F1 is tentatively classified as landfill soils. Comparison of both the mean ceramic date and the TPQ date for this unit tends to support this interpretation (Table 4.8). Construction of the privy shaft (7F2) is represented by the soils excavated from the privy walls as the shaft was dismantled. The fact that both units have an identical ceramic TPQ suggests that a builder's trench was dug into the landfill, and that these excavated soils were then redeposited into the trench during the construction of the stone privy.

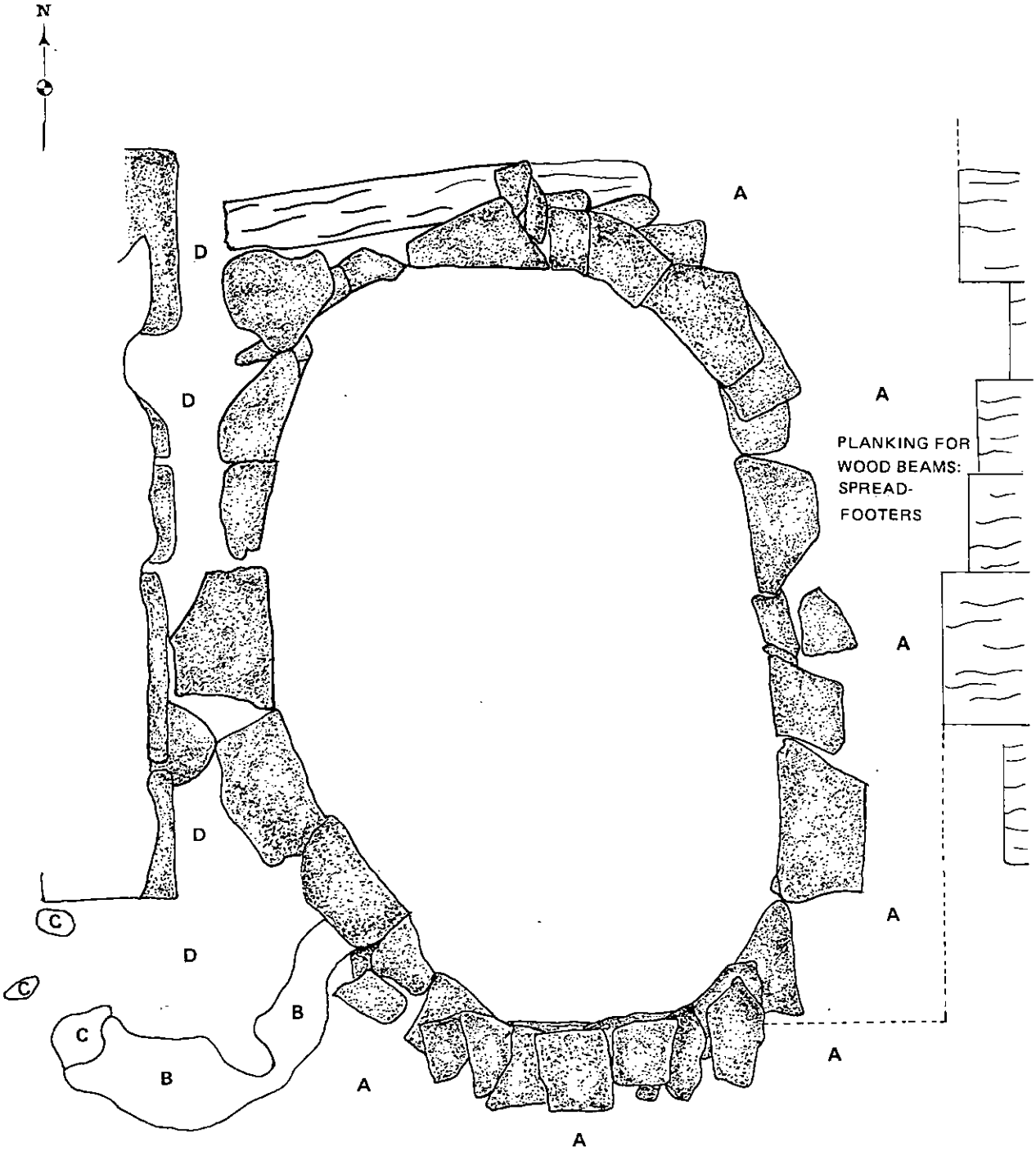


FIGURE 4.16: Planview of Feature 19, Lot 7.

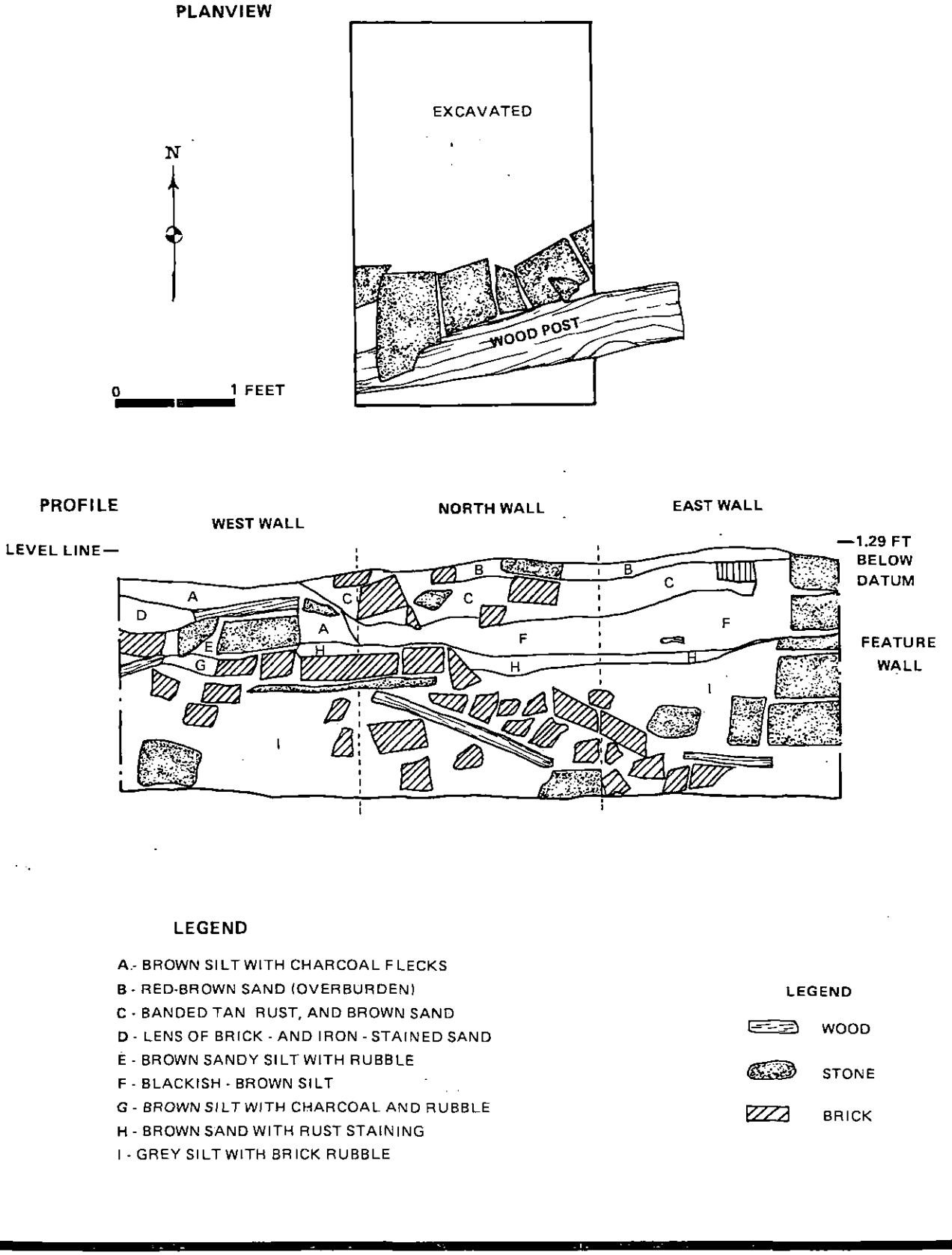


FIGURE 4.17: Profile and Planview of Feature 19, Lot 7

TABLE 4.8

DATING OF DEPOSITS, LOT 7 PRIVY (FEATURE 19)

DEPOSIT	MCD	CERAMIC TPQ	OTHER TPQ
7F1--Landfill	1789.8 (n=41)	1795	1780
7F2--Privy Construction	1778.2 (n=76)	1795	1685
7F3--Privy Fills	1795.5 (n=625)	1825	1857
7F9--Misc. Cleanup	1823.1 (n=4)	1820	--

Using the field records, it was not possible to distinguish separate deposits within the privy fills, so that the majority of the fills have been lumped into Depositional Unit 7F3. Since the feature fill was excavated within six separate test cuts, reconstruction of the stratigraphy (Appendix 3) is quite complex. While the vertical relationships within test cuts is relatively clear, the stratigraphic relationship between contexts in different test cuts is, more often than not, uncertain. The profile cleaning of Test Cut U4 (context 748) was given a separate depositional unit, as it was not possible to assign these materials to any particular excavation stratum or level.

The TPQs obtained from the ceramics and other artifacts suggest that it may be possible to distinguish some temporal differences within the privy fill. In the lowermost excavation contexts, whitewares provide a post-1820 deposition date; and there is no diagnostic glass with a beginning manufacturing date later than 1780. The MCDs for contexts in the upper portion of the privy are somewhat later than those for the lower contexts, and there are a number of tumblers and bottles that date to 1850 or later, thereby indicating that the upper fills were deposited, or disturbed, during the second half of the nineteenth century.

In terms of overall artifact frequency, the Feature 19 privy deposit represents an assemblage of moderate size. The distribution of artifacts according to major artifact groups is given below:

GROUP	COUNT	PERCENTAGE
Kitchen	1,742	25.9
Architecture	2,711	40.3
Furnishings	1	0.0
Arms	1	0.0
Clothing	38	0.6
Personal	65	1.0
Pipes	182	2.7
Activities	77	1.1
Faunal	1,907	28.4
TOTALS	6,724	100.0

The domination of the Architecture group is attributable to a large amount of rubble (wood, brick, rock, etc.) in the assemblage, and this accounts for more than one-third of the total assemblage. The Kitchen group is predominantly ceramics, including various creamwares, pearlwares, redwares, Oriental export porcelain, white salt-glazed stonewares, utilitarian stonewares, delftwares, whitewares, etc. Overall, roughly one-quarter of the ceramic sherds are larger than two inches in length, a slightly lower proportion than that of the aggregate feature assemblages within Block 35. The size index, broken down according to the provisional depositional units, is as follows:

Depositional Unit	Size Index	Sample Size
7F1	0.11	45
7F2	0.12	104
7F3	0.26	949
7F9	0.5	4

The curved glass from Feature 19 contains fewer than 700 sherds, and the assemblage is, overall, quite fragmentary. Vessel forms represented in the assemblage include paneled tumblers, wine/liquor bottles, pharmaceutical bottles, and various stemware forms. The date ranges represented by the diagnostic glass are generally indicative of a mid- to late nineteenth-century deposition for the privy fills, but there are a few late eighteenth- and early nineteenth-century forms as well.

The Furniture, Arms, and Clothing groups are only minimally represented in the assemblage, and the latter group is comprised exclusively of fasteners and shoes. The Personal group includes, principally, ceramic and glass items related to personal hygiene and medicines. The Activities group includes sewing and household-related items. Dietary refuse in the deposit includes 1,907 bone elements, 11.183 kg of macrofloral material, and 1.018 kg of shell.

It is difficult to link the privy fills with a particular household given the dates derived from the preliminary analysis. Interpretation of the stratigraphy within the privy fill cannot be reliably accomplished without ceramic cross-mending.

Feature 28

The wooden privy in the rear of Lot 7 was first exposed in Test Cut T, a 2x12-foot trench which was opened during the backyard testing program. Two upright planks were encountered in the middle of Test Cut T, and, as excavation proceeded, another set of planks was exposed, approximately 4.5 feet south of the first, at the end of Test Cut T. The two sets of planks appeared to define the northern and southern walls of a structure, and as a result, an additional unit, Test Cut T2, was placed to the west of Test Cut T in an attempt to determine the extent and function of the structure. During testing, limited excavation was carried out in Test Cuts T and T2.

During data recovery, excavation of Test Cuts T and T2 was continued, and five additional units (Test Cuts T3, T4, T5, T6, and AS) were placed in the rear yard area (see Figure 4.1). Ultimately, a box-like structure, enclosed on three sides, was exposed in the area immediately south of Test Cut T (see Figure 4.5). The northern wall of this structure was formed by the planks at the southern end of Test Cut T, while the southern wall was formed by planks that extended from the cobb wharf. Excavation in this area was complicated by the presence of plank spread-footer complexes and foundation walls that were removed only after excavation had proceeded well into the refuse deposits enclosed within the privy. Since the more recent architectural remains were not removed at the outset of data recovery, the deposits within the privy, enclosed in an area measuring approximately 4.5x6 feet, were excavated in several small sections and balk. As a result, reconstruction of the stratigraphy for this deposit is difficult.

The northern wall of the privy was exposed in Test Cut T2, but at a lower depth, as it had apparently been truncated by later construction. After the top of the plank wall was exposed in Test Cut T2, the unit was excavated in sections defined by the plank wall. Test Cut T5 was placed to the south of Test Cut T. After the east wall of the privy was exposed, the spread footers and foundation beams surrounding this unit were removed and the unit was expanded, but excavated in sections defined by the north-south plank wall. Test Cut AS, placed to the south of T2 and west of T5, exposed the southern wall of the privy. The southern wall extended east from the wharf, beyond the north- south wall exposed in Test Cut T5, for a distance of nearly 10 feet.

Four provisional depositional units may be defined for the deposits within Feature 28 (also, see Appendix 3):

Depositional Unit	Description/Interpretation
7F10	Basal gray sands--landfill
7F11	Organic soils
7F12	Brown sands with mortar and rubble
7F13	Light brown/yellow sands
7F14	Overburden/spread footers

The lowermost deposit (7F10), the basal gray sands, appears to represent riverbottom or landfill, based on their soils characteristics. Depositional Unit 7F11 includes the contexts immediately above the basal gray sands, and this unit accounts for nearly nine-tenths of the total feature fill. The upper three units (7F12, 7F13, and 7F14) represent deposits that appear to have been disturbed by more recent construction episodes.

While dominated by Kitchen and Architecture group artifacts, the assemblage contains appreciable representations of Clothing, Personal, and Activities group items as well. The abundance of shoes, clothing fasteners, and pharmaceutical, hygiene-related, and sewing items in Feature 28 suggests similarities with Feature 18 in Lot 6. It would appear that the major difference between the two features is related to the large amount of window glass in the Lot 7 deposit.

GROUP	COUNT	PERCENTAGE
Kitchen	4,806	46.2
Architecture	4,726	45.6
Furnishings	17	0.2
Arms	11	0.1
Clothing	242	2.3
Personal	287	2.8
Pipes	117	1.1
Activities	184	1.8
TOTALS	10,406	100.1

Dietary refuse is well represented and, in fact, constitutes the bulk of the material recovered from the feature. A total of 15,056 bone elements, 2.429 kg of macrofloral material, and 6.345 kg of shell were recovered from the deposit. Dietary material in the feature fill includes a large amount of butchered mammalian species, fish bone, mollusc (oyster, clam, crab), and a variety of floral remains including black walnut, peach pits, cherry and melon seeds, peanut shell, and coffee beans.

The ceramic assemblage is dominated by pearlwares and creamwares, but also includes stonewares, redwares, Oriental export porcelain, delft, etc. The ceramic assemblage from Feature 28 contains at least one pseudoarmorial porcelain sherd which appears to be part of the "CVB" monogram set recovered from Feature 18 in Lot 6. While no sherds exhibiting the "CVB" monogram have been identified

in the Lot 7 box assemblage, the pseudoarmorial pattern does suggest that the Lot 7 box contains refuse from the VanBeuren household. The MCDs for both features are quite comparable, as both exhibit a clustering of dates in the last decade of the eighteenth century. A summary of the deposit dates for Feature 28 is presented in Table 4.9.

TABLE 4.9

DATING OF DEPOSITS, LOT 7 PRIVY (FEATURE 28)

DEPOSIT	MCD	CERAMIC TPQ	OTHER TPQ
7F10--Basal Sands/Landfill	1797.3 (n=102)	1800	1780
7F11--Organic Soils	1795 (n=2,048)	1820	1800
7F12--Brn. Sand/Mortar/Rubble	1796.0 (n=415)	1810	1750
7F13--Lt. Brn./Yellow Sand	1791.1 (n=2)	1762	--
7F14--Overburden/Sp. Footers	1801.3 (n=8)	1800	1780

Using the ceramic sherd size index, the fills recovered from Feature 28 are the least fragmentary of any of the excavated features. Nearly 40 percent of the ceramics from this feature were larger than two inches in length. The size indices for the various depositional units are as follows:

Depositional Unit	Size Index	Sample Size
7F10	0.40	110
7F11	0.42	2,432
7F12	0.25	503
7F13	1.00	2
7F14	0.09	11

The curved glass assemblage also exhibits some similarity to the Lot 6 box, particularly in terms of tableware forms. While there is a similarity in forms, the glass from Feature 28 was more fragmentary. The Lot 7 feature contains bridge fluted, hexagonally faceted and plain drawn stemware, Stiegel type tumblers, "London" mustard bottles, and wine/liquor bottles dating from 1780-1820.

Additional vessel forms include a diamond-patterned salt cellar, an unidentified tableware with a gilded decoration, a milk glass finial to an unidentified tableware, and a wine bottle dating to 1670-1700.

This feature stands out by virtue of its integrity, the variety of household items in the assemblage, and the excellent representation of dietary refuse. Without cross-mending, it is not possible to determine whether the deposit represents a gradual or rapid deposition. Lacking cross-mend analysis, however, the deposit can be discussed only in terms of the provisional depositional units defined above.

Datable items within the fills clearly indicate that the deposit dates after 1820. The McCormick household occupied Lot 7 from 1817 to 1827; however, the lot was characterized by mixed use and multiple occupations during this period. During the period 1828-1832, the lot was occupied by W. Chamberlain, and the lot was vacant in 1833-1834. Given the dates from the feature fill, deposition during McCormick's or Chamberlain's occupation is most likely. However, the recovery of the pseudoarmorial porcelain, and the overall content of the feature's refuse, also indicate an association with the occupant(s) of the adjacent Lot 6.

Clearly, extensive ceramic and glass cross-mending is necessary between the Feature 18 and 28 deposits in order to more clearly define the source(s) of the refuse within the Lot 7 wooden privy. It is also recommended that the riverbottom soils beneath both of these feature be included in this cross-mend analysis. Based on the results of this and subsequent analyses (e.g., MNV counts, faunal analyses, etc.) it will be possible to determine what research issues may be addressed with the artifacts from Feature 28.

3. Lot 8

During the deep testing phase, the cellar floor and rear wall of a structure were exposed in TTW. Deposits on the floor of the structure (Feature 25) suggested that it was a warehouse that had burned during the 1835 fire. Rather than delay the excavation of TTW, two units (Test Cuts K and P) were placed outside the trench to examine the deposits associated with the burnt warehouse. Test Cut K, a 3x3-foot unit, revealed a sequence of building demolition rubble directly overlying a massive wooden beam and plank floor. Test Cut P, a 2x5-foot unit, was placed three feet to the south of Test Cut K. A thin stratum of reddish brown sand with charcoal was uncovered beneath the modern demolition rubble in Test Cut P, directly above the plank floor (Figure 4.18). This stratum may represent material in the warehouse at the time of the fire.

Backyard testing began with the removal of twentieth-century demolition debris. The most recent basement floor was exposed, then removed, and hand clearing was begun. A rear building wall

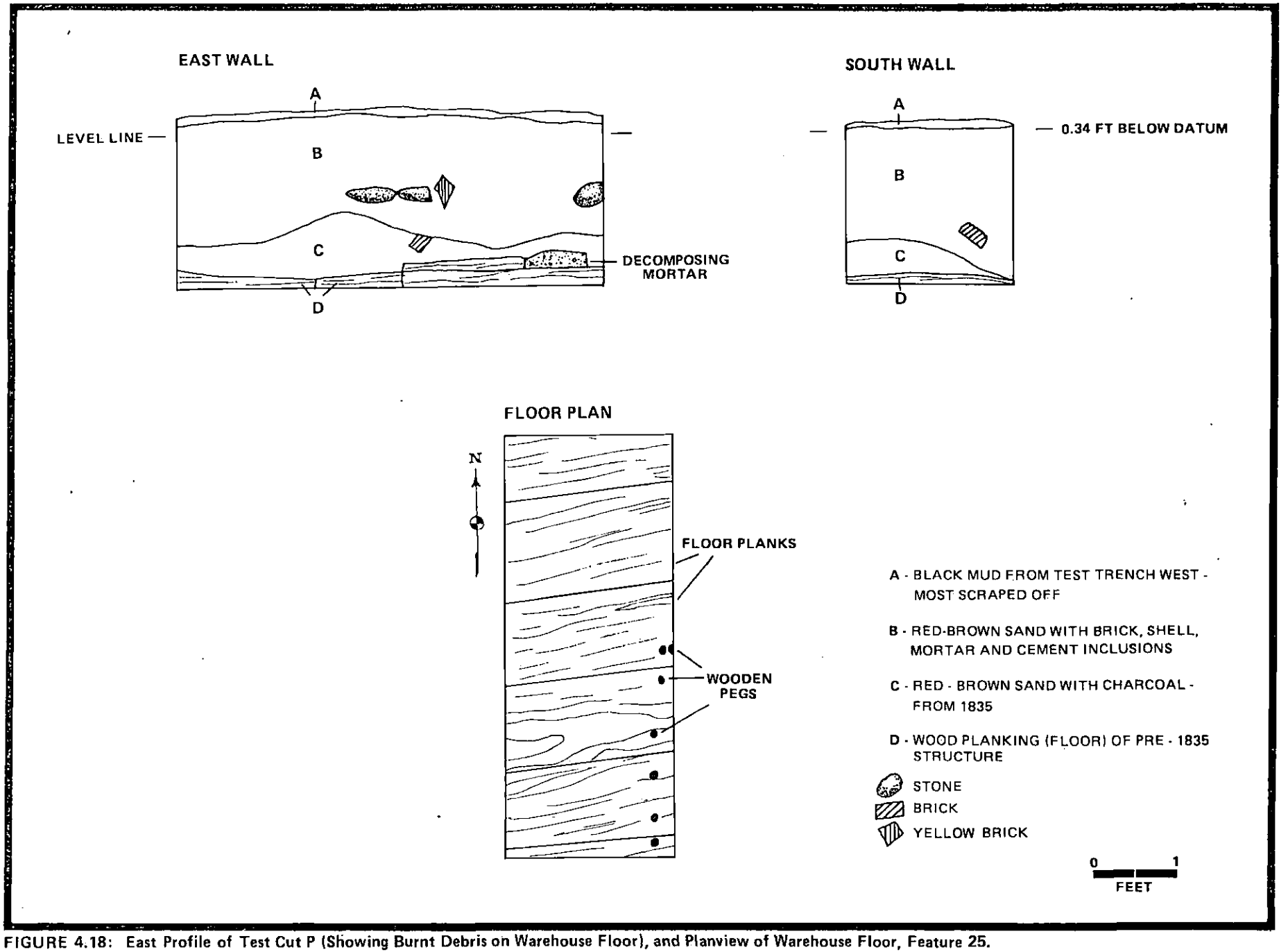


FIGURE 4.18: East Profile of Test Cut P (Showing Burnt Debris on Warehouse Floor), and Planview of Warehouse Floor, Feature 25.

was exposed beneath the most recent basement floor, thereby defining the extent of the nineteenth-century rear yard area. Three test cuts (E, M, and W) were excavated in Lot 8 during the backyard testing program, resulting in the identification of two features, a circular, stone-lined privy and a wooden bulkhead.

Test Cut E, a shovel test, was placed approximately 17 feet from the rear lot line and roughly equidistant from the side lot lines. This test was excavated through 1.5 feet of rubble and was discontinued when wood was reached. Excavation of Test Cut E was followed by machine removal of the rubble deposits in the rear of Lot 8, which led to the exposure of sections of the north-south cobb wharf complex and a bulkhead.

After removal of the modern demolition rubble, Test Cut M, a 2x15-foot unit, was laid out along the rear lot line and adjacent to the exposed rear building wall. No intact, stratified yard deposits were found in this unit; however, a circular, stone-lined privy (Feature 20) was exposed in the northern end of the trench. The western section of the privy was sampled in Test Cut W during the testing phase, while the remainder of the privy was excavated during the mitigation phase.

Feature 20

The privy was first exposed in the northern end of Test Cut M, a narrow trench that extended from the Lot 8 yard area across the center of the privy shaft. Test Cut M was excavated partially into the privy fills, then the entire western section of the privy was excavated as Test Cut W. During data recovery, the remaining fills in the eastern half of the privy were excavated as an extension of Test Cut W.

In plan, the privy shaft was oval, with maximum interior dimensions of approximately 6x7 feet (see Figure 4.11; Figure 4.19). The privy walls were made of dry-laid stone, and the surviving portion of the shaft appears to have measured less than two feet in depth.

The uppermost fill deposits contained a large amount of rubble. In addition, a timber pile related to a later building foundation had penetrated the privy fills.

Four provisional depositional units may be defined for this feature (also, see Appendix 3):

Depositional Unit	Description/Interpretation
8F5	Construction of the privy shaft
8F6	Lower privy fills--possible landfill
8F7	Upper privy fills
8F9	Overburden

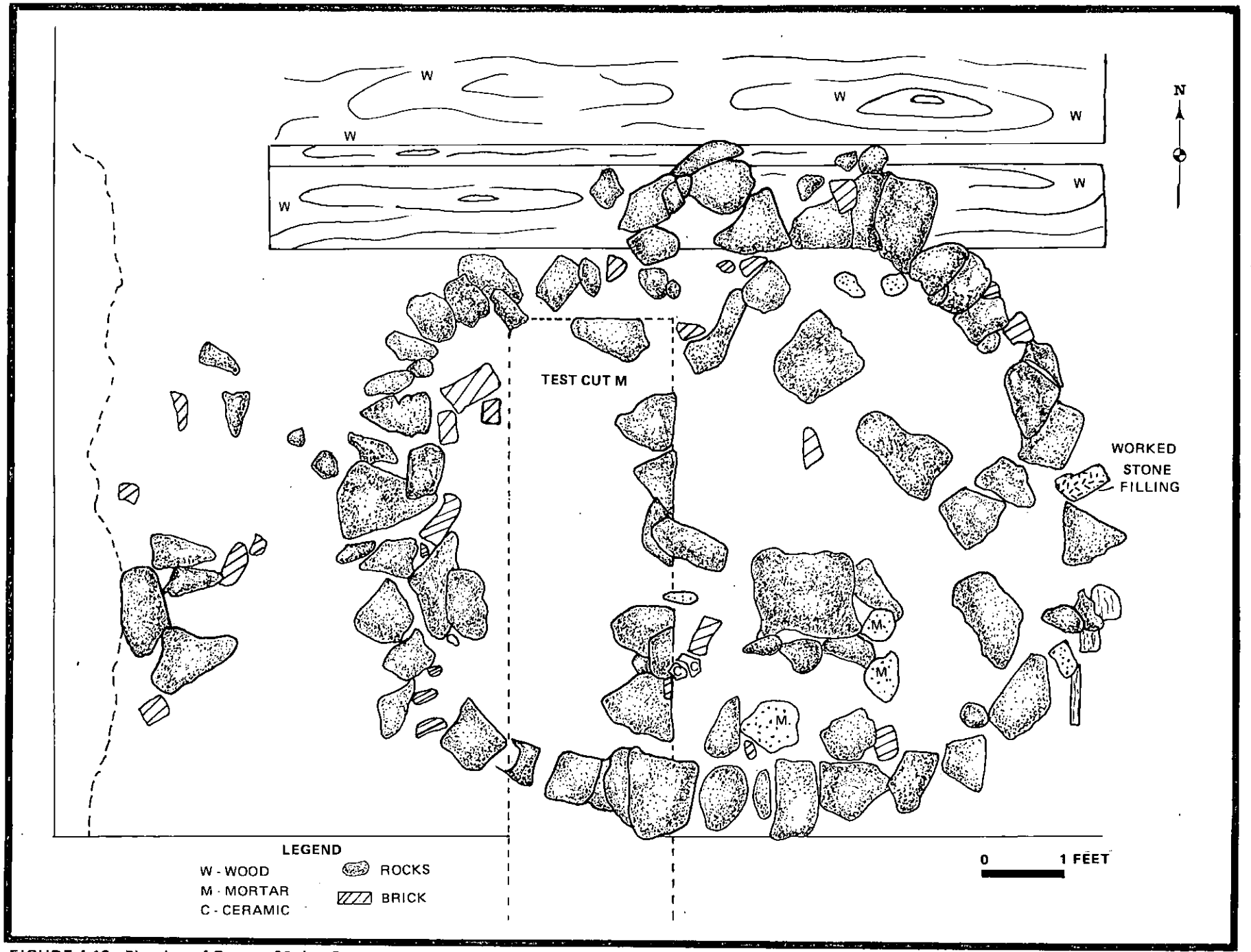


FIGURE 4.19: Planview of Feature 20, Lot 8.

The overall dating of the four depositional units, as indicated in Table 4.10, exhibits a somewhat disordered temporal sequence. Contexts associated with the actual construction of the privy (8F5) include the wall stones themselves as well as soil excavated

TABLE 4.10

DATING OF DEPOSITS, *LOT* 8 PRIVY (FEATURE 20)

DEPOSIT	MCD	CERAMIC TPQ	OTHER TPQ
8F5--Privy Shaft Construction	1744.5 (n=7)	1762	--
8F6--Lower Feature Fills (Landfill?)	1790.4 (n=348)	1840	1745
8F7--Upper Feature Fills	1821.8 (n=207)	1827	1821
8F9--Overburden	1842.9 (n=84)	1835	--

between the stones as the shaft was dismantled. Relatively little material was recovered from this context, and the post-1762 construction date, indicated by the recovery of creamware sherds, is incorrect given the historically documented dates for the block's landfilling.

The lower privy deposit, 8F6, includes five contexts comprised primarily of gray to black sands. While the field records do not indicate this explicitly, it appears from the profiles and depth measurements that these contexts may represent landfill deposits beneath, and therefore earlier than, construction and use of the privy. However, the dating of the lower deposits does not support this interpretation, as ceramic TPQs from each of these five contexts place the date after 1820. The most recent TPQ (1840) for the lower privy fills is provided by an ironstone sherd recovered from the second lowest stratum. It must be concluded then that the lower fill (8F6) cannot represent "primary" landfill material exclusively, but it may contain a mixture of occupational refuse and landfill.

The upper privy fill deposits (8F7) were characterized by the presence of large amounts of rubble, and they appear to have been disturbed by construction that occurred after the privy was

abandoned. Installation of the intrusive timber pile occurred during the period represented by this depositional unit. Deposition of the upper privy fill no earlier than the third decade of the nineteenth century is firmly established by the presence of embossed pearlware, shell-edged pearlware, sponged pearlware, various whitewares, yellowware, and a number of wine/liquor bottle sherds that post-date 1820/1821. The overburden deposits (8F9) clearly post-date the privy fills, based on the mean ceramic date, and this later date is attributable to the much greater representation of whitewares.

A broad variety of ceramic wares were recovered from the privy fills, including creamware, pearlware, whiteware, ironstone, various coarse earthenwares, delftware, yellowware, various stonewares (white salt-glazed, brown-bodied, gray-bodied, non-salt-glazed, Rhenish, Westerwald, etc.), Oriental export porcelain, and hard-bodied porcelain. Overall, the ceramic assemblage associated with this feature is quite fragmentary, as only 15 percent of the sherds were larger than two inches in maximum length. Ceramic sherd size indices for each of the depositional units are listed below:

Depositional Unit	Size Index	Sample Size
8F5	0.25	8
8F6	0.07	398
8F7	0.23	271
8F9	0.25	101

The lower privy fill (8F6) is the most fragmentary, which is somewhat unexpected since the field records indicate that the upper fill (8F7) was dominated by rubble. A construction episode after abandonment of the privy, represented by the intrusive timber pile, may account for some disturbance to the lower fill. It is tempting to speculate that the upper fill represents material that was removed from the privy when the pile was installed, then immediately redeposited with rubble. Since no ceramic cross-mending has been undertaken, there are no data to support this hypothesis.

The curved glass assemblage from the Lot 8 privy is also quite fragmentary and contains few datable items. The greatest concentration of datable material was recovered from Depositional Unit 8F7, which contained a few sherds datable to 1780-1820 and post-1820/21. Vessel forms represented were predominantly wine/liquor bottles and unidentified bottles. Fragments of carboy/demijohn/bulk bottle forms, an olive oil bottle and a vial were also present. The earliest date is exhibited by a wine/liquor bottle with a finish dating to 1745-1765, which was recovered from the lower fill deposit.

The contexts associated with this feature contain an unusually high representation of Kitchen group artifacts (73%). Curiously, the overburden deposit (8F9) exhibits the highest Kitchen group representation. The Clothing, Personal, Tobacco Pipes, and Activities are also well represented. Organic material in the feature included 236 bone elements, 471 gm of macrofloral, and 3.931 kg of shell.

There were two relatively stable occupations on Lot 8 during the early nineteenth century--Thomas Delves (1802-1808) and Condit/Richards and Scott (1828-1843). After 1843, the lot occupation was more complex (see Appendix 2). The privy fills cannot be assigned to Delves since deposition did not occur before the 1820s. The 1840 TPQ for the lower fill is based on a single ironstone sherd, and this might be explained by installation of the timber pile. Otherwise, a post-1820 deposition for the lower fill is firmly established by a number of sponged pearlware and plain whiteware sherds. The privy fills may be associated with the Condit & Scott occupation; however, further research on the feature would be required to confirm this association.

Feature 25

As noted above, two units (Test Cuts K and P) were placed outside TTW to examine the deposits associated with a burnt warehouse. Test Cut K, a 3x3-foot unit, revealed a sequence of building demolition rubble directly overlying a massive wooden beam and plank floor. Test Cut P, a 2x5-foot unit, was placed three feet to the south of Test Cut K. Beneath the modern demolition rubble and directly above the plank floor was a thin stratum of reddish brown sand with charcoal that appeared to represent material in the warehouse at the time of the fire. No additional excavation was done on the warehouse floor given that it was too severely disturbed by subsequent constructions (Henn and Wall to Baugher, May 16, 1984).

Two depositional units have been defined for the deposits excavated in Test Cuts K and P (also, see Appendix 3):

Depositional Unit	Description/Interpretation
8F1	Rubble and overlying floors
8F2	Burnt deposits

The assemblage associated with the burning of the warehouse is quite small (707 artifacts), a result of the fact that most of the test cuts contained architectural features. Both depositional units are dominated by architectural items, primarily flat glass and miscellaneous building materials. Kitchen group items comprise 36 percent of the burnt deposits, somewhat greater than the overlying rubble (10%); these items include ceramics, bottle glass,

and curved glass. Other items in the assemblage include two pipe fragments, miscellaneous hardware, a writing implement, a machine part, and heating by-products. A small amount of shell (232 gm) was recovered from the two units, primarily from the burnt deposits. One gram of macrofloral material was also recovered from this deposit.

The datable items within the assemblage consist of nine ceramic sherds. The rubble deposit included two creamware sherds, while the burnt deposits included creamware, pearlware, and gray salt-glazed stoneware. The Mean Ceramic Date for the burnt deposit, based on seven datable sherds, is 1826. The ceramic sherd size index for the burnt deposit (8F2) is 0.31, based on a count of 59. Only two ceramic sherds, both of which were small, were recovered from the rubble deposit.

4. Lot 9

Lot 9 was one of the most intensively excavated lots within the Financial Square archaeological project. The principal focus of the excavations on Lot 9 was the recovery of deposits associated with a grocery that had burned in the Great Fire of 1835.

During the deep testing phase of fieldwork, floor areas of two buildings that had presumably burned in the 1835 fire were identified in the northern portion of TTW. These deposits were recognized immediately as potentially significant and, rather than delay the excavation of the deep trench, small hand-excavated units were placed outside the trench to recover a sample of the burnt deposits on Lots 8 and 9. Test Cut D, a 3x3-foot unit, was placed in the central portion of Lot 9 to recover a sample of the floor deposits while excavation of TTW proceeded. Beneath the modern pavement and demolition rubble, four principal stratigraphic units were observed during excavation of Test Cut D. These were (1) the brick basement floor of the most recent structure on Lot 9, (2) a deposit of construction rubble that was used apparently as a substratum for the concrete basement floor, (3) burnt deposits that represented materials in the grocery at the time of the fire, and (4) a wooden floor of the structure that perished in the 1835 fire. During the mitigation phase of fieldwork, a large sample of the burnt deposits was recovered by the excavation of a number of 5x5-foot units placed in checkerboard pattern, in addition to other selected test cuts (see Figures 4.1 and 4.20).

The initial plan for data recovery was to consist of a 50 percent sample of the deposits, utilizing stratified random selection of units within a grid of 5x5-foot squares. Excavation of a full 50 percent sample was not feasible, however, because portions of the building either had been destroyed by the excavation of TTW or had been disturbed by backfilling of the trench. Five units (Test Cuts BD, BE, BF, BG, and BH) were initially selected at random, then nine additional units (Test Cuts BI, BJ, BK, BL, BM, BN, BO, BP,

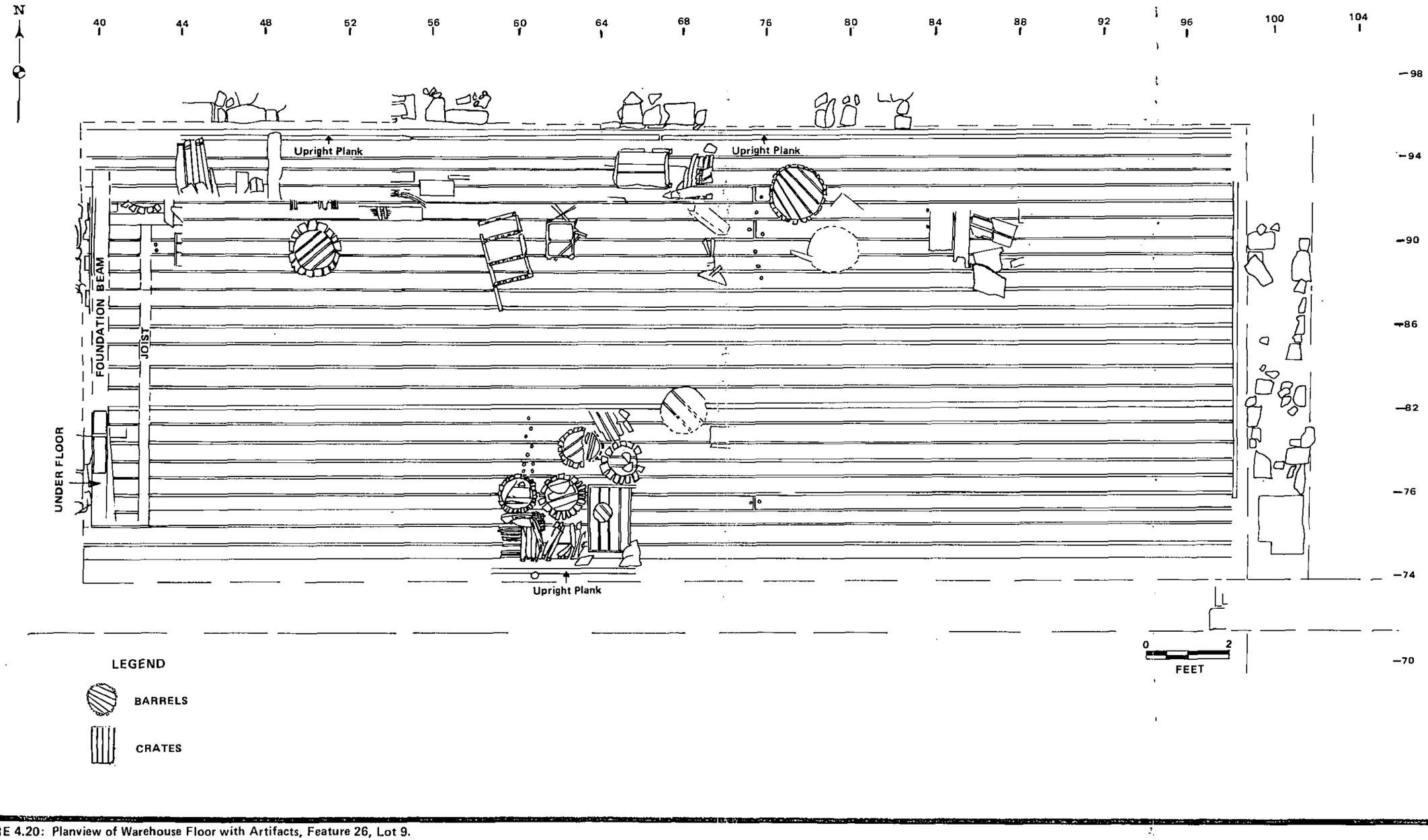


FIGURE 4.20: Planview of Warehouse Floor with Artifacts, Feature 26, Lot 9.

and BQ) were selected to complete a checkerboard pattern. Some units were excluded from excavation because of evidence that they would contain massive column supports rather than occupational debris associated with the grocery. For this reason, Test Cut BE was the only unit excavated along the centerline of the grocery floor.

Finally, a few additional units (Test Cuts BR, BS, BT, and BU) were excavated, based on various criteria. A two-foot southern extension of Test Cut BN, designated Test Cut BU, was made to more fully expose a wooden frame object identified in Test Cuts BK and BN; the wooden frame was subsequently designated Test Cut BR. After portions of a barrel were exposed in Test Cuts BD and BL, Test Cut BS was excavated to fully recover the contents of the barrel. Test Cut BI was extended 3.3 feet to the south in order to examine the construction details at the side wall of the burnt building and to more fully expose a wooden crate in the southeast corner of the unit. Test Cut BT was extended east from Test Cut BI and its southern extension, in order to increase the sample of materials from the wooden crate and a barrel that was partially exposed along the east wall of Test Cut BI (Plate 4.34).

Six provisional depositional units may be defined for the Lot 9 warehouse (see Appendix 3):

Depositional Unit	Description/Interpretation
9F1	Underlying landfill
9F2	Pre-1835 warehouse construction
9F3A	Burnt warehouse deposits--1835
9F3B	Warehouse-rubble
9F5	Post-1835 construction
9F6	1984 construction disturbance

A few of the units (Test Cuts BH, BI, and BJ) excavated within the Lot 9 warehouse were advanced through the burnt plank floor into the underlying fill deposits, and these are subsumed in Depositional Unit 9F1. Depositional Unit 9F2 includes materials that may date to an earlier (i.e., pre-1835) period of the building's use or construction. Specifically, this unit includes contexts recovered from a narrow space, between the stone foundation wall and the interior wooden wall boards. It has been suggested (Diana Wall, personal communication 1987) that these deposits might represent a somewhat earlier deposit than the other materials within the warehouse, given their stratigraphic relationship to the main architectural features of the warehouse. However, the dates of 9F2 (Table 4.11) do not support this interpretation.

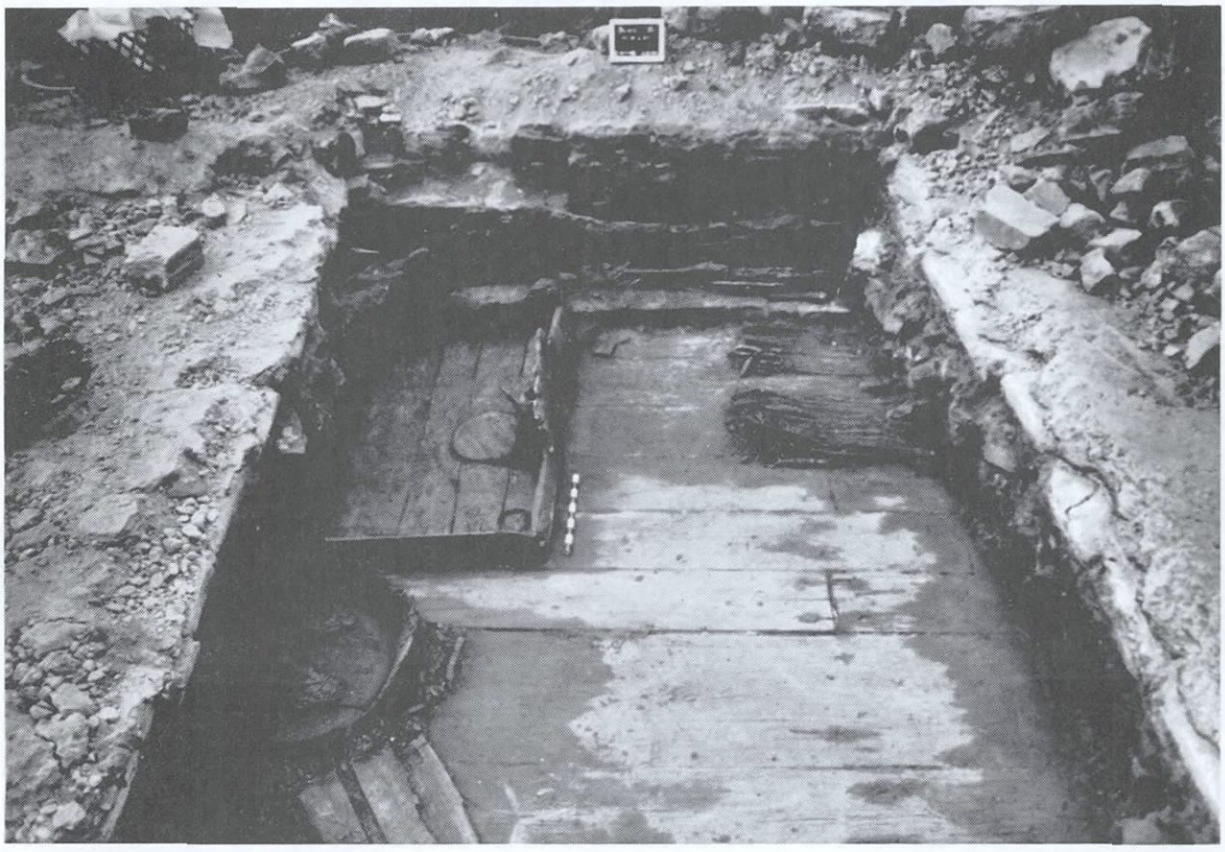


PLATE 4.34: Feature 26, Warehouse Floor with Crates and Barrels.

TABLE 4.11

DATING OF DEPOSITS, LOT 9 WAREHOUSE (FEATURE 26)

DEPOSIT	MCD	CERAMIC TPQ	OTHER TPQ
9F1--Landfill	1780.9 (n=26)	1780	1760
9F2--Pre-1835 Construction	1811.6 (n=100)	1827	1660
9F3A--Burnt Deposits	1798.4 (n=65)	1827	1821
9F3B--Warehouse Rubble	1827.5 (n=20)	1820	1821
9F5--Post-1835 Construction (Note: 1835 date based on documented fire)	1797.3 (n=3)	1780	--
9F6--1984 Disturbance	--	--	--

The material that was present in the warehouse at the time of the fire is included in Depositional Unit 9F3A. This depositional unit comprises almost all of the material associated with this feature, and it includes a wide variety of bottles (Plate 4.35), pipes, foodstuffs, and other items. In some test cuts, rubble deposits were above the burnt deposits and beneath the later floors; these deposits have been assigned to Depositional Unit 9F3B. Both 9F3A and 9F3B appear to represent material in the warehouse at the time of the fire, the difference being that 9F3A appears to be a purely in situ deposit, while 9F3B represents contexts that may have been disturbed or displaced during the destruction or reconstruction of the building. The content and dating of these units are similar, and all three may through further research be treated as a single depositional unit.

The series of brick and concrete floors above the burnt deposits (9F3A) and rubble (9F3B) are subsumed in Depositional Unit 9F5. Depositional Unit 9F6 includes a few contexts along the walls of the warehouse that had been disturbed by construction of the slurry wall. These units contain relatively little material, and they provided little dating information.

PLATE 4.35: Feature 26, Warehouse Floor with Crate Filled with Wine Bottles.

The Lot 9 warehouse deposits are relatively poor in ceramics, both in terms of overall frequency and size. The ceramic assemblage is dominated by stonewares and redwares although there were some delftware, creamware, pearlware, yellowware, and whiteware sherds as well. The ceramic sherd size index for the feature indicates a somewhat lower than average fragmentation, although there are significant differences between the various depositional units. Sherd size indices for the various depositional units are as follows:

Depositional Unit	Size Index	Sample Size
9F1	0.40	43
9F2	0.13	152
9F3A	0.27	153
9F3B	0.47	30
9F5	0.17	6
9F6	NA	0

Depositional Unit 9F3A was subjected to a more detailed level of artifact analysis than the other DUs in this feature because it represented the primary warehouse deposit. This detailed analysis was specifically performed in order to address Research Question No. 4. The focus of this analysis was on the warehouse's glass artifacts and floral remains.

The warehouse deposits contain an extraordinarily large amount of bottle glass. Although there are many intact vessels in the collection, most of the glass is extremely fragmentary, exhibiting the effect of burning to varying degrees.

The majority of vessel forms fall into the wine/liquor bottle category. These include a large number of French wines with seals embossed "LEOVILLE," as well as wine/liquor bottles of dark olive green glass embossed "H. RICKETTS & CO / GLASS WORKS BRISTOL" on their bases with "PATENT" across the shoulders. Manufactured in England, they are datable by the Ricketts' patent to post-1821 (O. R. Jones 1983a:175). Occurring in similar numbers are unembossed bottles, dark olive and grass green in color, datable by their three-piece mold type to post-1821 (Jones and Sullivan 1985:30). Additional undated wine/liquor forms are present in the collection.

Several small bottles that appear to be of the beer, ale, stout, or porter variety are present in small numbers, as are carboy, demijohn, and/or bulk bottle forms. Food-related bottles include olive oils. One partial olive oil bottle seal reads "BEYS...C FILS AINE/HUILE/D'OLIVE/SURFINE/CLARIFIE/BORDEAUX." Pharmaceutical vials and a fair number of unidentified bottles occur in aquamarine and amber glass.

The concentrations of certain forms suggest a distinct pattern of distribution across the warehouse floor. The French "LEOVILLE" bottles, for instance, appear to cluster in the extreme northwest quadrant of the warehouse; the Ricketts bottles concentrate directly east of this assemblage.

The floral component of the warehouse consists of a great variety and number of species, including fruits, vegetables, and nuts and spices (Appendix 17). Coffee, grapes, and black pepper are present in large quantities within the feature (Plate 4.36). The grapes and coffee are concentrated in the center of the warehouse along the south side of the lot and fan out to the northwest. Black pepper is concentrated in the front of the warehouse, at the west end in Test Cut BH, fanning eastward to TC BK. Thus, two areas of concentration are present, one in the front of the warehouse, the other in the center of the warehouse. Several units produced no floral remains; others contributed less than one percent to the total floral assemblage.

The coffee, grapes, and black pepper are all charred and exhibit the greatest frequency of all floral materials recovered. The grapes consist of carbonized fruit, not raisins, or seeds. This type of preservation is unique among historical archaeological sites. The presence of grapes is surprising because the date of the fire is December 7, 1835. This is late in the season for grapes; however, grapes used for late harvest wines are left on the vine as late as the first week in December. The longer grapes remain on the vine the higher the sugar content. Late harvest wines are characterized by a high sugar content and are used as dessert wines (Taylor Wines, personal communication 1988). Wine has been made in Manhattan since the time of Peter Stuyvesant (Joseph 1985). It is possible that the grapes in the warehouse may have been for the local winery market.

Large quantities of osier basketry fragments with reed handles were found in association with the grapes. These are wide-mouthed, double-handled baskets, and may have been used for carrying and/or storing the grapes.

Black peppercorns were found embedded in a cloth mesh making it difficult to quantify them. Black pepper is a tropical spice grown on the Pacific islands. During the late eighteenth and early nineteenth centuries, pepper was imported from Sumatra. Peppercorns keep for up to a year after they are picked.

Coffee beans were imported from various ports, from Central and South America as well as from Turkey. The beans can be stored for up to ten years, so their presence within the warehouse cannot be used as a seasonal indicator (Hillman 1981).

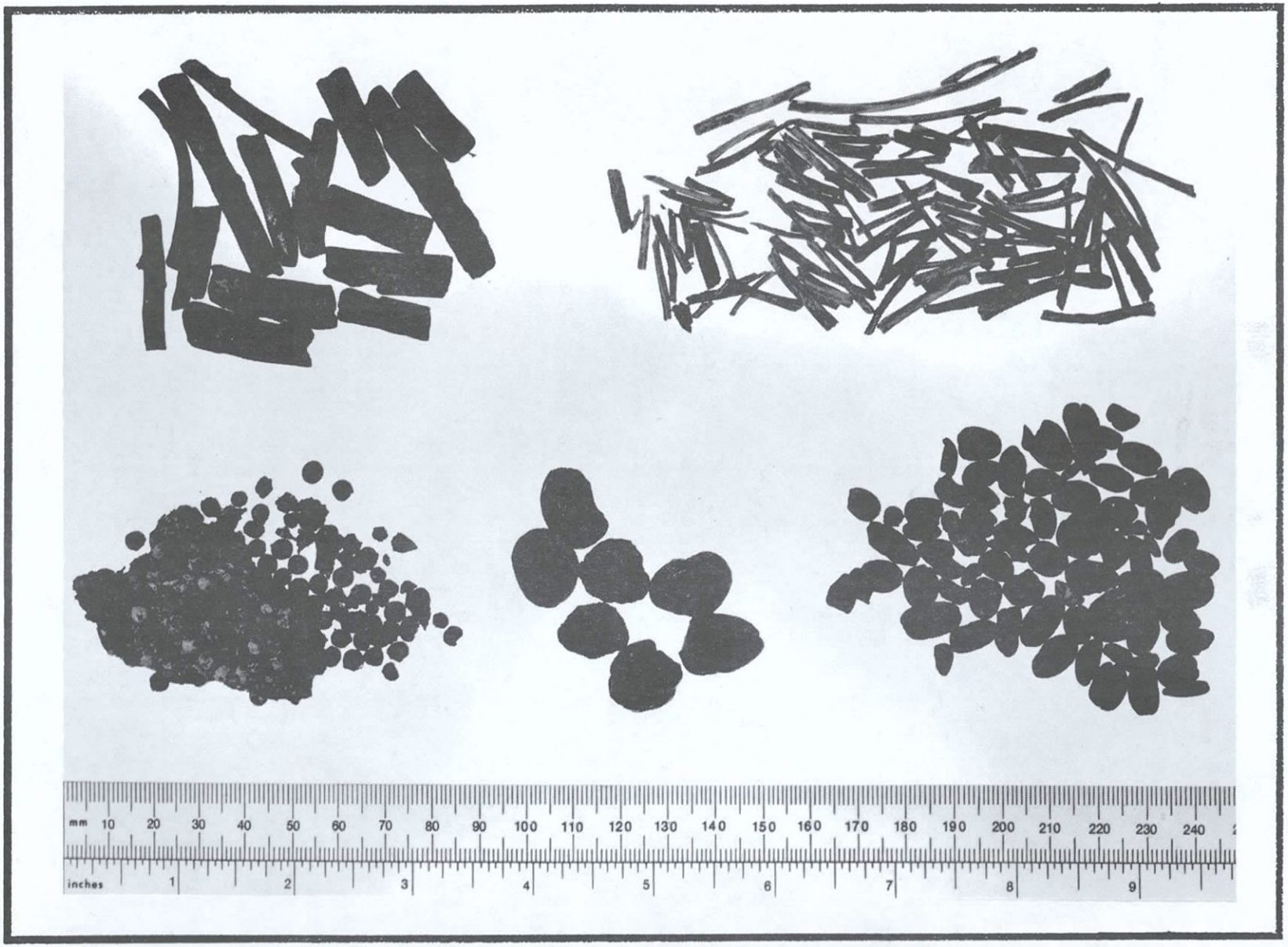


PLATE 4.36: Warehouse Floral Assemblage (Feature 26). Top row: basket fragments; Bottom row: peppercorns, grapes and coffee beans.

A great variety of floral materials (but representing less than one percent of the total Feature 26 floral assemblage) are distributed all across the warehouse floor. It appears that these are stray remains of produce stored in the warehouse some time prior to the fire. These scattered items include pits, seeds, and nutshells. The coffee, grapes, and peppercorns, however, appear to represent produce being marketed from the warehouse at the time of the fire.

The most consistently well-represented small finds are bottle corks. They are found either within bottle necks or adjacent to the bottles on the warehouse floor. Fibrous materials such as cloth, burlap, cotton, packing straw, and rope were also recovered in test cuts within Feature 26. These fibrous materials are concentrated around Test Cut BG near the front of the warehouse. The highest concentration of osier baskets was in TC BT (see Plate 4.36). The occurrence of 14 wrapped handles indicates a count of at least 7 baskets. There are also burnt split-willow twigs in TC BG.

A total of three barrels were found in Test Cuts BI, BG, and BS and only the one in BG had a spigot. It was the general practice for barrels to be made of specific types of wood for holding specific types of goods, e.g., pine for salted fish, oak for wine and beer, and maple for flour (Dupont 1986). However the wood types were not analyzed. Other items of interest in the warehouse include furniture hardware, personal items, tools, and paper. These clustered from the center to the back of the warehouse.

The frequency of faunal material within the warehouse is low (Appendix 16). However, there are two concentrations, one in TC BI and the other in BJ. The composition of the two concentrations differs: TC BI consists of 98 percent bird and 2 percent mammal bone and TC BJ consists of 90 percent mammal, 5 percent bird, and 5 percent fish. All the bone was burned and highly fragmented.

The analysis of the distribution of pipes focused on the relative frequency of pipe bowls rather than stems (Appendix 15). The primary concentration is in the vicinity of TC BN, fanning northeast in a semicircular pattern toward TC BK, TC BP, and TC BL. Pipe bowls make up no more than one percent of the total warehouse floor assemblage.

The analyzed pipe bowls (total, 1,481) from the warehouse were identified through comparison of their characteristics (shapes, type of heel or spur, and angles of bowls to stems) to pipes illustrated in Noel Hume (1970) and Oswald (1961). Six bowl shape groups were identified (Plate 4.37). Four were close to the bowls illustrated in Oswald and were coded as follows: PTE 51 corresponds to Oswald's Type 11b dated 1780-1850; PTE 60 corresponds to his

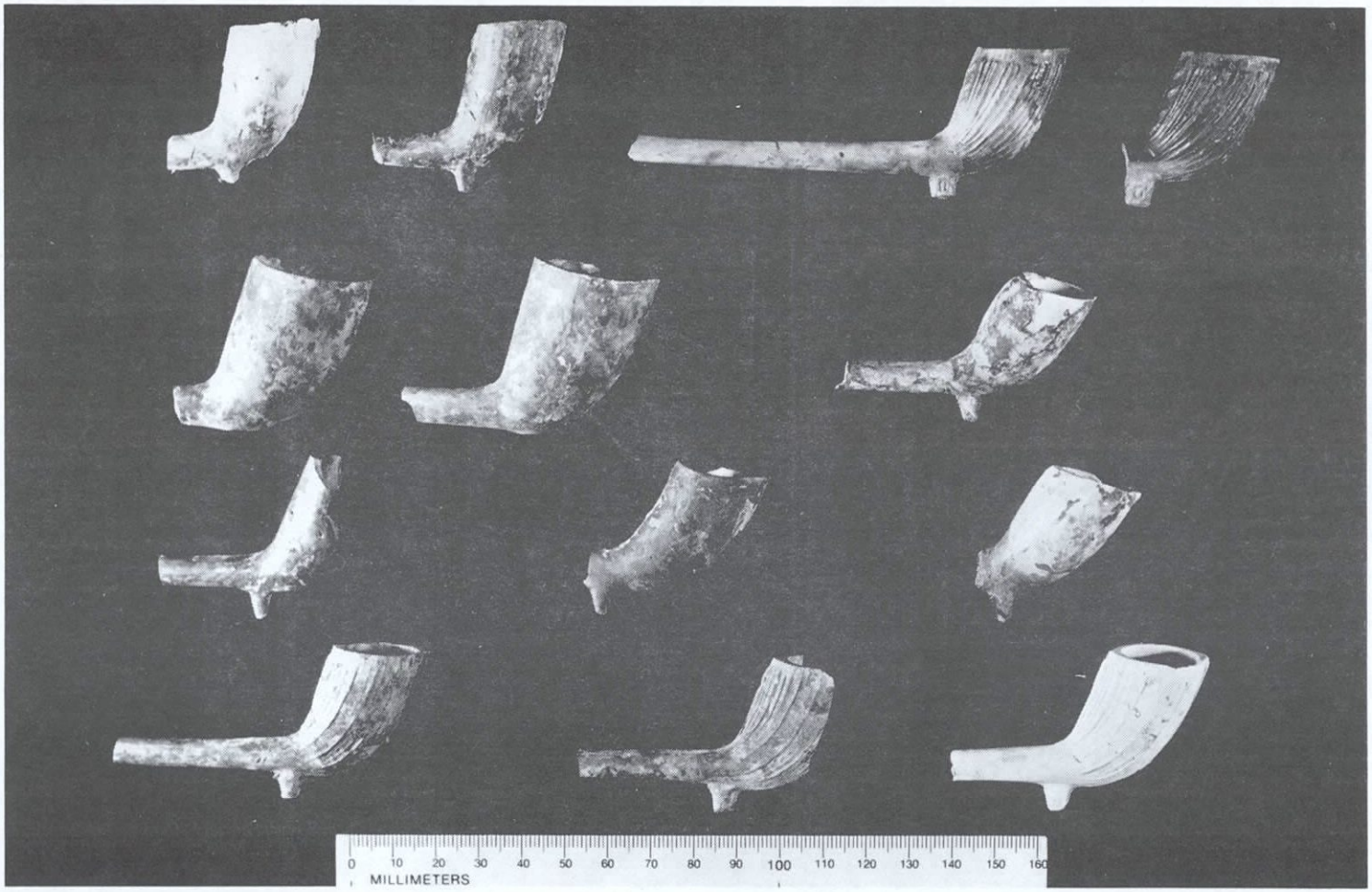


PLATE 4.37: White Clay Pipes, Some Completely Fire-blackened. Top row: PTE 51 with vine motif along seam. PTE 51 with flutes and an "O" on right side of each heel. Second row PTE 62; PTE 61. Third row: Plain PTE 60. Bottom row: PTE 60 with flutes.

Type 12a dated 1820-1870; PTE 61 corresponds to Type 12b, also 1820-1870; and PTE 62 corresponds to Type 12c, 1820-1870 (Oswald 1961:61). Two bowl shapes, PTE 22 and PTE 66, were more problematical. PTE 66 resembles a type illustrated by Noel Hume which he dates 1790-1820 (Noel Hume 1970:303 #25). Since the warehouse assemblage is most probably associated with the 1835 fire, the end date for this type was extended to 1835, but the actual end date for this shape is probably also circa 1870. The ten bowls identified as PTE 22 resemble bowls dated by Noel Hume to 1690-1750 (Noel Hume 1970:303 #19) and by Oswald to 1680-1730 (Oswald 1961:61 Type 9b). These dates are much too early for this deposit and it is likely that the bowls in the warehouse are variants of the PTE 51 shape.

One hundred thirty-two of the bowls coded as PTE 51 or as PTE 95 (fragmentary bowls of unidentifiable shape) had a small letter "O" on the right side of the heel. This mark could not be identified with any available references, nor could it be identified by Byron Sudbury (personal communication 1988). None of the other pipes had makers' marks, but over half (809) of the bowls had some form of decoration. The most common decoration was a simple linear vine (motif 1339) along the front and back seam lines on 311 bowls. Two hundred and seventy bowls had raised curved flutes surrounded by raised thin lines (motif 1317); and an additional 162 bowls were both fluted and had vines along the seams (motif 1320). The latter motif, with the addition of a decorated band around the rim, was on all 31 PTE 66 bowls. The other motifs were also concentrated on either PTE 51 or PTE 60 bowl shapes: motif #1339 occurred on 191 PTE 51 and 9 PTE 60 bowls; motif #1317 was on 23 PTE 51 and 126 PTE 60 bowls; and motif #1320 was on 134 PTE 51 bowls and only 1 PTE 60 bowl (the remainder of the decorations were on fragmentary PTE 95 bowls).

The warehouse did contain a small number of ceramics distributed over the entire floor. TC BJ had the largest concentration of ceramics. Stoneware storage vessels are the most common ware type in this concentration, as would be expected in a warehouse. An association of the burnt deposits with the A. V. Williams and Winant Grocery, the business that occupied Lot 9 in 1835, may be securely established. The extraordinary preservation of the deposits as well as the quantity and variety of materials in the assemblage provide sufficient justification for more intensive analysis of the deposits associated with this structure.

The rear yard area of Lot 9 was also subjected to intensive excavations during both the backyard testing and the mitigation phases of the project. A number of architectural features were identified in this area, but no intact yard deposits were identified. Following the normal testing procedure, the modern pavement and rubble were removed by machine to expose the most recent surviving basement floor. Machine stripping of the rear yard area exposed a small, stone courtyard area at an elevation somewhat

higher than the basement floor. This area was tested by Test Cut C, a 3.25x4-foot unit. Excavation revealed a sequence of mixed soils that had apparently been disturbed by construction of spread-footer complexes beneath the side and rear walls of the building (see Figure 4.11).

Machine stripping in the rear of Lot 9 also revealed a platform of two layers of planks, located directly above a brick basement floor associated with the most recent building. The plank feature was located in the central portion of the building and was interpreted as column support.

After recordation of the plank feature and other architectural details, the cellar floor and spread-footer complexes were removed to facilitate a search for earlier occupational features. Test Cuts J, L, O, and Q were placed in the rear of Lot 9 during the testing phase; however, they did not identify any intact yard deposits or occupational features. Rather, they sampled disturbed yard deposits or landfill. Testing in the rear of Lot 9 did, however, reveal a section of the north-south cobb wharf that extended through Lot 8, as well as a series of planks that extended west from the cobb wharf across the rear of Lot 9.

A deposit of wine bottle glass was exposed in the northern portion of the rear yard, and since it was known that a wine merchant occupied the lot during the early nineteenth century, this context was tested as a possible trash deposit associated with the lot's occupation. The deposit was first sampled by Test Cut J, a 3x3-foot unit. In addition to bottle glass, a large amount of oyster shell, window glass, bone, non-diagnostic materials, and ceramics (including delft, creamware, pearlware, coarse earthenwares, and porcelain sherds) was recovered from Test Cut J. Also, the excavated soils seemed to have been deposited in a pit, which supported the interpretation of the deposit as occupational refuse. During data recovery, an additional series of excavation units (Test Cuts J2, J3, J4, J5, J6, J7, and J8) were placed in the northwest portion of Lot 9 to recover the deposit first sampled by Test Cut J. However, it was concluded after completion of fieldwork that this deposit was attributable to landfilling.

While shovel clearing the area around Test Cut J, a rectangular pattern of stone was exposed, covering an area roughly 4x5 feet. This area was tested as a possible privy by the excavation of Test Cut O. Excavation revealed a series of spread-footer complexes, which suggested that the stone represented the foundation footing rather than a privy (see Figure 4.11).

Test Cut L, a 2x17.8-foot trench, was laid out parallel to the rear lot line in order to sample the builder's trenches associated with the building's two side walls and to test for intact occupational deposits. The test cut was excavated to a depth of 2.9 feet below datum, through four stratigraphic levels consisting primarily of

mixed sands and rubble. No intact yard deposits or occupational features were identified, and it was concluded that the excavation had reached primary landfill deposits.

5. Lot 41

No intact yard deposits were identified during the backyard testing of Lot 41; thus, the excavations on this lot focused primarily on recordation of architectural features and recovery of materials from landfill.

Removal of pavement and demolition debris revealed a deposit of black silt, approximately two feet thick, which had been deposited directly on a basement floor. Beneath the rubble and silt deposits was a basement floor extending across the entire length of the lot. A series of square flagstone footings placed at 10-foot intervals along the length of the floor extended across the center of the lot. At the eastern end of the lot, the floor was penetrated by a 7x11-foot brick shaft, interpreted as an elevator shaft. At the rear of the structure was a massive stone and concrete feature that rested on a platform of three courses of planks. This feature was thought to be a support for some type of machinery.

The floor itself was 1.5 feet thick and consisted of a sequence of two courses of brick between layers of concrete. Removal of the floor revealed spread-footer foundation complexes beneath both side walls and through the central portion of the lot.

Machine excavation continued beneath the basement floor on Lot 41, but no clearly intact occupational deposits or features were identified. A number of test units (Test Cuts H, N, N2, N3, N4, X, X2, and BW) were excavated beneath the basement floor, exposing landfill deposits that pre-date the earliest occupation on the lot.

6. Lot 42

The rear yard area of Lot 42 was extensively excavated during the backyard testing program; however, it was then determined that this area had been severely disturbed. After it was established that no intact deposits existed in the narrow rear yard area, backhoe clearing proceeded toward the front of the lot, and a number of architectural features were identified that were associated with nineteenth- and twentieth-century occupations. Despite extensive testing, the only spatially well-defined occupational deposits on this lot were recovered from a wooden barrel (Feature 16) (Test Cut F), possibly used as a cistern, located near the center of the lot.

Testing began with the machine removal of the surficial pavement and demolition rubble deposits above the basement floor of the most recent structure. Then a sequence of test cuts was placed within the narrow yard area between the back wall of the most recent structure and the rear lot line. For the most part, these units

(Test Cuts B, S, Y, and Z) sampled landfill or disturbed yard deposits, and no intact occupational deposits were found.

A 2x15-foot trench, Test Cut B, was laid in the narrow yard area between the rear lot line and the rear wall of the most recent structure. A small brick structure, identified as a sump or drain, was located in the upper levels of the test cut. Excavation proceeded to a maximum depth of about 7 feet below datum in the center of Test Cut B without identifying any intact occupational deposits or features. A wooden bulkhead structure was exposed at the base of Test Cut B, whereupon the overlying deposits were removed by backhoe to examine this feature. Test Cuts S, Y, and Z were then excavated to determine the extent of the bulkhead. The excavation and recordation of this feature have been described earlier.

Interior portions of the lot were also tested after machine removal of the basement floor, beginning at Test Trench East (TTE) and moving westward toward the rear lot line. During the excavation of TTE, and backhoe scraping, a series of spread-footer complexes were identified along the side lot lines as well as along the centerline of Lot 42. These structural elements extended toward the rear of the lot. They were exposed and recorded after removal of the basement floor (see Figure 4.11). Beneath the spread-footer complex along the Lot 41/42 property line, a row of staggered pilings was exposed and recorded (see Figure 4.7).

Feature 16

A wooden barrel was exposed during machine clearing in Lot 42, approximately 10 feet west of TTE. The remains of the barrel measured approximately 2.5 feet in diameter and 2.8 feet in height, and rested on spread footers. One side of the barrel had been broken outward into the surrounding landfill deposits. The barrel contained a large amount of stone and brick rubble. Given the chronological and material similarities of the individual contexts from the wooden barrel feature, a single depositional unit was defined (42F1), which includes all three contexts excavated from the barrel.

Relatively little cultural material was recovered from the feature fill. The ceramic assemblage consists of eight sherds, including creamware, pearlware, and stoneware. The Mean Ceramic Date for the deposit is 1795.7, based on six datable sherds. No other datable items were identified in the collection. A few wine/liquor bottle and tumbler fragments and a pipe bowl fragment were also recovered. The remainder of the assemblage includes flat glass, nails, building materials, barrel stave and lid fragments, and shell (255 gm).

Approximately 20 feet west of TTE, backhoe excavation revealed a stone foundation wall that rested on wooden ground sill beams and

spread footers. This appeared to be the rear wall of an early nineteenth-century building, located approximately 20 feet from the rear lot line. The wall appeared to have extended the entire width of the lot, but had been partially destroyed by the central spread-footer complex of a later building (see Figure 4.11). While the stone wall of the earlier structure had been destroyed, the ground sills were intact, suggesting that they had been incorporated as foundation elements for the later building. Backhoe cuts were made along the earlier wall to determine whether or not timber piles had been used in the foundation system. The area was then cleared by hand, but no piles were found that could be associated with the early structure.

Backhoe clearing east of the early structure's rear wall exposed an area of burnt wood and blackened soil. This suggested that the structure represented by the rear wall might have burned in the 1835 fire. Test Cut AD, a 2.5x3-foot unit was laid out across the west edge of the burnt deposit in order to obtain a sample of the refuse and examine a vertical profile. Excavation of this unit proceeded to a depth of 2.97 feet below datum and revealed a sequence of relatively thin fill levels that contained brick, burnt wood, mortar, shell, curved and window glass, and pipes as well as very fragmentary ceramic sherds, some of which included pearlware and coarse earthenwares.

7. Lot 43

During the backyard testing phase, machine stripping of the surficial pavement and modern demolition debris demonstrated that the most recent structure on Lot 43 extended the full length of the lot. The exposed basement floor was made of reinforced concrete laid over a substratum of gravel. After the concrete was broken and removed with the backhoe, a large area was examined by backhoe scraping and hand clearing.

At the rear lot line, a pair of wooden foundation beams defined the rear of the most recent structure. Approximately 6.5 feet from the rear lot line, a north-south stone foundation wall was exposed, representing the rear of an earlier structure and a small backyard area. This yard area was sampled by a 2x11-foot trench, Test Cut I. This unit reached a maximum depth of 2.5 feet below datum, and was terminated when spread-footer complexes were exposed on both sides of the trench (see Figure 4.11). One set supported the wooden beams at the rear lot line and the other supported the stone foundation wall from the earlier structure. No intact occupational deposits or features were identified in Test Cut I, as the area had been disturbed by building constructions.

A 6.4x9-foot rectangular brick structure was exposed in the southwest corner of the lot, beneath the reinforced concrete cellar floor. The interior of this enclosure was sampled by Test Cut AA, a 2.2x3.5-foot unit. The Test Cut was excavated to the base of the

structure and revealed large quantities of mortar, glass, and non-diagnostic materials. After Test Cut AA was advanced to a depth of 1.7 feet, the brick enclosure was removed by machine, and a shovel test (Test Cut AB) was advanced for an additional foot through the rubble until a brown silty sand was reached. No additional work was undertaken in this area.

Backhoe clearing also uncovered a single short wooden beam running north-south. (It was somewhat displaced before it was drawn.) Below the beam were 15 wooden pilings, also oriented north-south, in a staggered pattern of two rows (see Figure 4.7).

During the data recovery operations, Test Cut AT was placed along the side lot line of Lots 43 and 44. A series of five pilings were exposed and identified in this unit (see Figure 4.7).

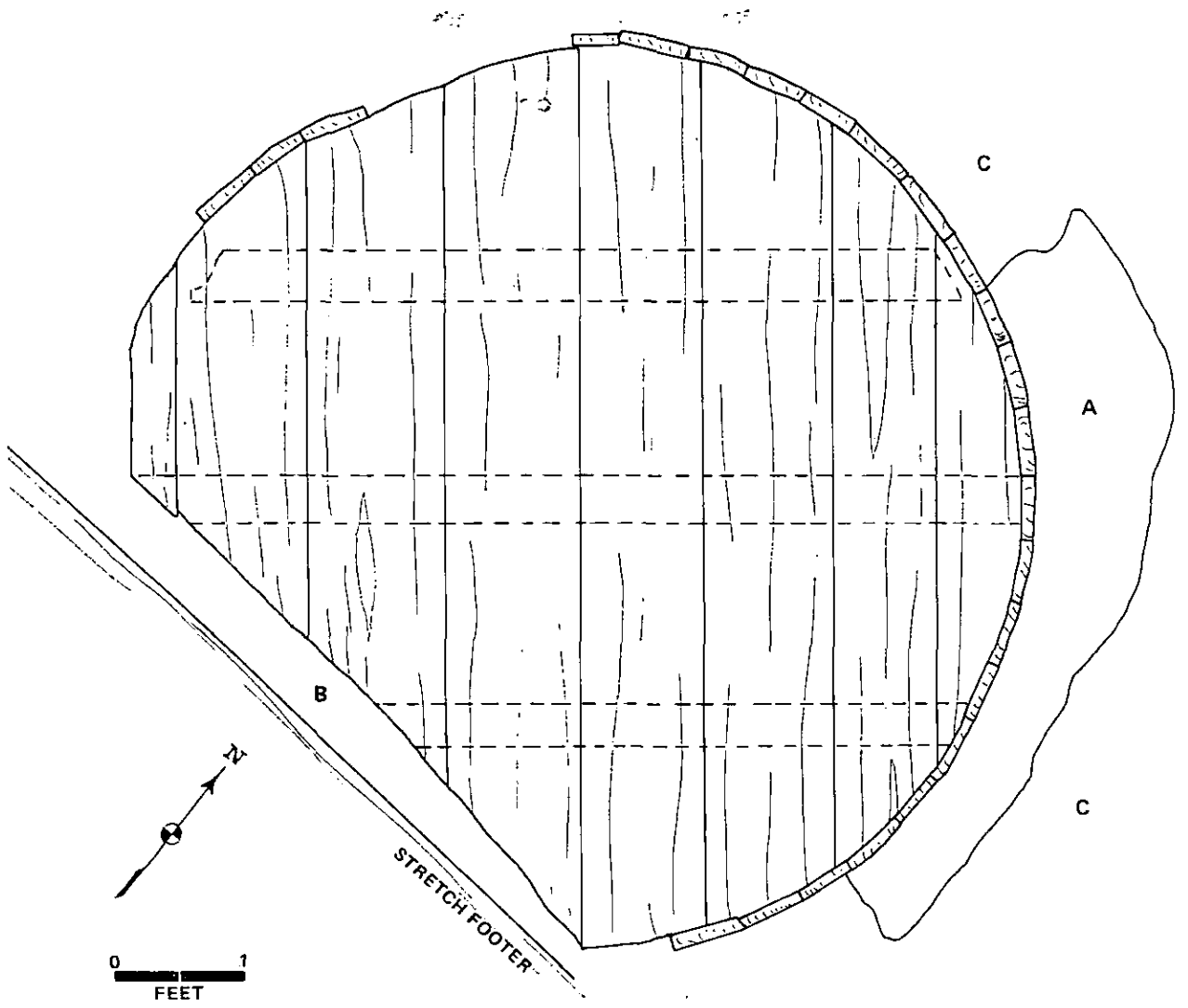
Feature 17

In the central area of Lot 43, a wooden barrel was exposed as the concrete cellar floor was being stripped. During testing, a section was sampled by excavation of Test Cut AH, and the remainder of the barrel fill was excavated by extending Test Cut AH during data recovery. The barrel was quite large, measuring nearly seven feet in diameter, and it included an intact wooden bottom (Figure 4.21). The barrel had been placed in a pit lined with clay, so that it was interpreted as a cistern. The barrel had apparently been truncated by more recent construction on the lot. The stratigraphy within the barrel contained a sequence of mixed fills, with a substantial amount of rubble (Figure 4.22).

Two depositional units have been defined for this feature. The first, 43F1, comprises three contexts that relate to the installation of the feature, including the barrel itself and the clay deposits immediately outside and beneath the barrel. The second depositional unit, 43F2, includes 11 contexts comprising the barrel fill. While there was slight variation in the fills, rubble was found throughout. The field data suggest that a single episode of filling occurred during a construction episode within the lot.

Installation of the barrel occurred after 1820. This date is based on a ceramic TPQ provided by an embossed pearlware sherd from the pit surrounding the barrel. A fairly substantial number of ceramics were recovered from the barrel fill contexts, and these provide a Mean Ceramic Date of 1794.8 based on 332 datable sherds. Filling of the barrel occurred after 1835, based on the ceramic TPQ for the context which rested directly on the barrel's floorboards.

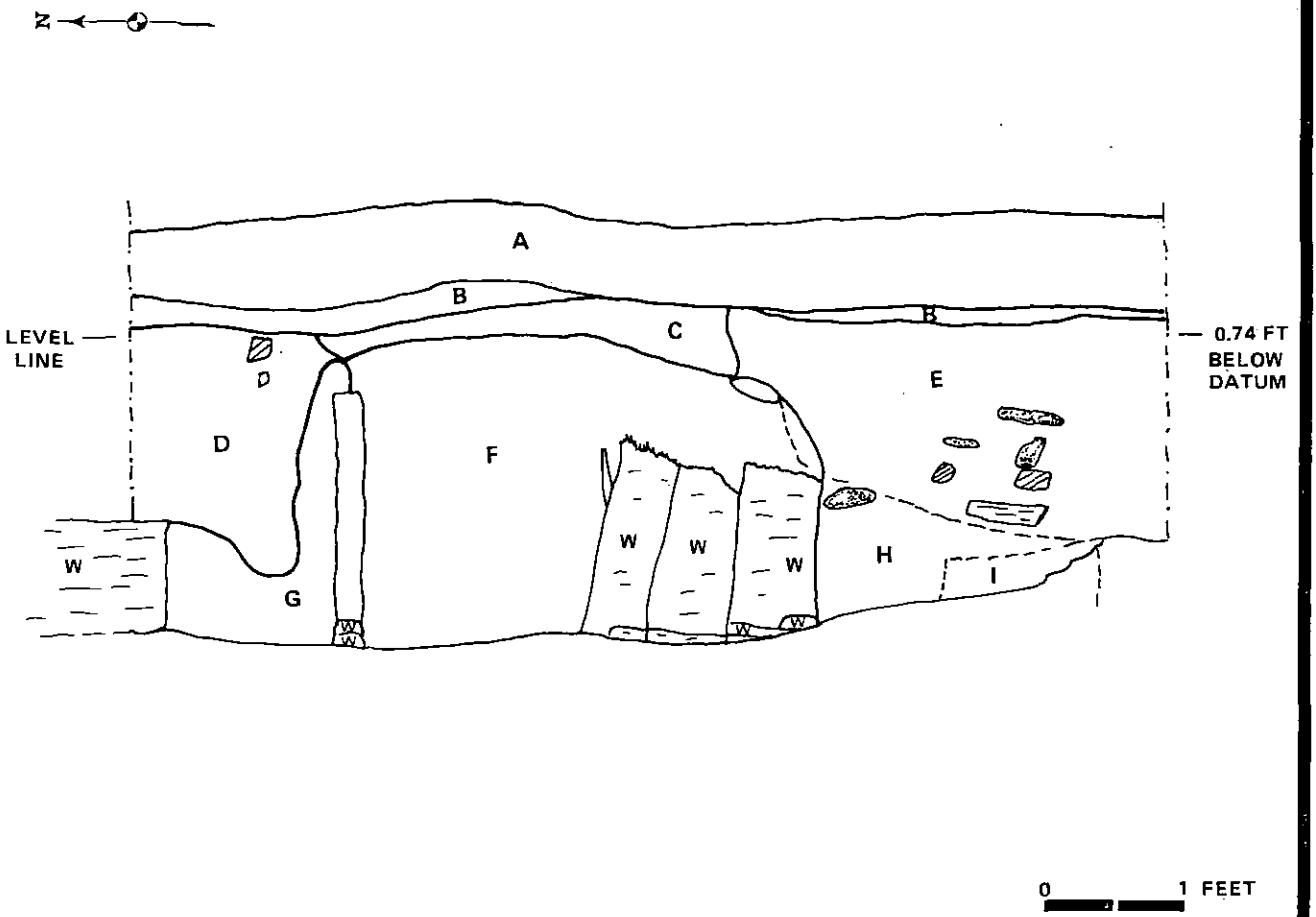
The barrel fills include a range of artifacts, including Kitchen (47.5%), Architecture (46.1%), Furnishings (0.1%), Arms (0.1%), Clothing (0.9%), Personal (0.6%), Pipes (3.6%), and Activities



LEGEND

A	YELLOWISH BROWN	WITH GRAY/GREEN CLAY NEAR THE BARREL STAVES
B	BUILDER'S TRENCH FOR STRETCH FOOTER	
C	BROWN MOTTLED SANDY SILT	
	WOOD	
	BOARDS BELOW BARREL BOTTOM BOARDS (3)	

FIGURE 4.21: Planview of Feature 17, Lot 43.



LEGEND

A - OVERBURDEN-DISTURBED
B - PEBBLY CONCRETE BED
C - BROWN SILTY CLAY
D - DARK BROWN SILTY SAND WITH BLACK OIL-SOAKED SAND & RUBBLE
E - DARK BROWN SILTY SAND RUBBLE. (AREA WAS TRENCHED - DESTROYED RIGHT BARREL)
F - VERY DARK BROWN SANDY SILT (Inside the Barrel)
G - GRAY CLAY
H - VERY DARK BROWN CLAY
I - GRAY CLAY
W - WOOD

FIGURE 4.22: Profile of Feature 17, Lot 43.

(1.2%) group artifacts. In addition, the deposit includes 204 bone elements, 531 gm of shell, and 280 gm of macrofloral material. Fragmentation within the deposits, as measured by the ceramic sherd size index, was quite low. The index for the barrel fills (43F2) was 0.11, slightly lower than that for the deposits related to the installation of the barrel.

While the barrel fills include a broad range of material that is suggestive of domestic refuse, deposition occurred during a period when the lot was used exclusively for commercial purposes. The source of the fills is unknown, but they most likely represent an episode of building construction. Since the deposits are characterized by low integrity and cannot be securely associated with any particular occupant, they are probably not suitable for additional analysis or interpretation.

8. Lot 44

Other than Feature 18, which extended into this lot from Lot 6, testing in Lot 44 produced no evidence of intact occupational deposits. Therefore, relatively little work was done in this lot after completion of the backyard testing program. The excavation of Feature 18 is included in the discussion of Lot 6.

Lot 44 was prepared for testing by machine removal of the pavement, twentieth-century demolition debris, and grade beams associated with the Assay Office Building. After exposure of the cellar floor, the underlying deposits were scraped down to a level where an appreciable quantity of faunal and cultural material was exposed. Test Cut AG, a 3x3-foot unit, was placed in this area, approximately 15 feet from the rear lot line. Excavation of this unit proceeded through three levels and revealed that the deposits were attributable to landfilling. It was then concluded that no intact occupational deposits had been preserved in the lot.

A number of architectural features were recorded while Lot 44 was undergoing testing. These included wood pilings, spread footers, foundation beams, and a remnant stone foundation wall (see Figure 4.11). The north-south rows of pilings that had been identified across the rear of Lot 43 were found to extend across the rear of Lot 44 (see Figure 4.11). The pilings were capped by spread footers which in turn supported wooden foundation beams and a remnant stone foundation wall. These foundation elements apparently represented the rear wall of a nineteenth-century building.

V. WATERFRONT TECHNOLOGY

A. INTRODUCTION

The construction of a slurry wall during the data recovery program allowed GCI to fully excavate and record most of the wharves, bulkheads, and pilings that were present within the project area limits. The opportunity to investigate these structures in such detail is unique to this project. The majority of waterfront archaeological studies conducted in the United States have been restricted to much smaller subsurface apertures because of the depth of the waterfront structures below the surface and the presence of high watertables. Given the importance of these structures within the Assay Site, LBA devotes this chapter to examining the research value of these massive features.

Research Questions 1 and 2, presented in Chapter II, are addressed through the study of these waterfront structures. Question 1 is as follows:

> How was the process of landfilling accomplished in the Assay Site block? Specifically, what is the technology represented in the various fill retention structures, bulkheads, and wharves, and how does it compare to the techniques used in other American seaports?

The first part of this question, i.e., what technological features are represented in the various Assay Site waterfront structures, has been discussed in detail in Chapter IV. The second part of this question will be addressed below.

Research Question 2 is as follows:

> Is there a decrease in the diversity of methods of wharf construction in the late eighteenth and early nineteenth centuries along the United States' eastern seaboard?

The rationale behind this question has been discussed in Chapter II. However, it should be noted that Henn et al. (1988) examined three factors associated with dock building. These included (a) the actual construction techniques of the wharves in lower Manhattan, (b) the scale of wharf construction as measured by the number of wharves being built over time, and (c) the changes that occurred in social relations of production, as measured by the number of individuals employed in this trade (Henn et al. 1988:2-4). To address Question 2, we will examine the configuration of waterfront structures along the eastern seaboard in an attempt to identify the hypothesized standardization of the dock building trade.

First, a description of each waterfront site to be used in addressing these questions will be presented in tabular form. This will be supplemented by discussions of special features exhibited by these sites. Then comparisons will be made of these waterfront sites, again in a tabular format. The variables used in this comparison include (a) overall form, (b) fill type used, (c) construction material, including species of wood used, (d) types of joinings present, and (e) types of fasteners used.

These characteristics will be examined first in terms of their distribution among the sites over time (e.g., late seventeenth century, early to middle eighteenth century, and late eighteenth to early nineteenth century), and then in the context of the locations of the sites along the eastern seaboard (e.g., New England, Middle Atlantic, Southern states). In this way, both temporal and geographic factors will be examined.

Before discussing the various sites included in this analysis, it is important to define the terms to be used. It is apparent from the literature that some confusion has existed in the terminology relating to waterfront structures, and often terms have been used without precise definition. Aware of this problem, several researchers have attempted to create a common terminology to describe wharves and their various structural parts (Heintzelman 1985; Norman 1987; Wilson and Moran 1980). The following definitions are based on the work of these researchers and the results of LBA's research on wharf construction technology.

A wharf is a structure which lies parallel to or projects into navigable waters alongside of which vessels load or unload cargo and people. Timber and stone are the two main building materials used in the construction of wharves in the United States. Since wood was abundant and inexpensive during the colonial and federal periods, it was more commonly used than stone. In Europe, however, stone was cheaper than wood and was the predominant building material for wharves.

The four most common types of wharves constructed during the colonial period were (1) crib, (2) solid-filled, (3) cobb, and (4) grillage/raft. A crib wharf consisted of rough- or square-hewn timbers built up one on top of the other in alternating rows of headers (width-spanning timbers) and stretchers (length-running timbers). The timbers were notched together in "Lincoln Log"-type construction to form a box-shaped frame (Figure 5.1a). Usually a floor was built up from the bottom. This allowed the crib to sink and settle into the riverbottom when filled with ballast (i.e., stone, gravel, coral, and sometimes timber slabs). When the stretcher courses were tightly fitted together so that a finer fill of mud or sand could be used to fill up and sink the crib, the wharf was referred to as a solid-filled type (Figure 5.1b and c). In addition to horizontal timbers forming a cribwork, vertical

piles with horizontal planking or load-bearing stone walls were used to retain the solid fill.

A cobb-type wharf "generally meant an open work version of the crib, using cobblestones to fill up and sink the timber cribs. A finer fill could not be used because of the potentiality of its being lost through the open work. Other materials such as ballast rock discarded by trade vessels, brush, and tree stumps were also used as fill" (Heintzelman 1985:10) (Figure 5.1d). It must be stressed that the term "cobb" found in primary documents on wharf construction may refer either to the type of wharf construction or the type of fill. Therefore, unless the structural elements are described, the reader cannot be sure whether the reference is to the type of wharf or the type of fill used (Heintzelman 1985:10).

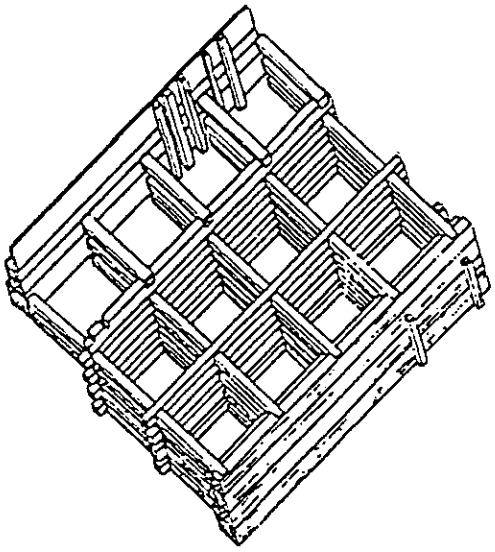
A grillage or raft wharf consisted of several alternating courses of headers and stretchers that were intermittently weighted with stone (Figures 5.2 and 5.3). Several of these rafts were stacked one on top of another to form a block which was probably floated to the desired location and sunk with stone (Norman 1987:26). The term "grillage" was added to the description of the wharf because of its use architecturally to describe a type of cross-layered, load-bearing construction.

B. DISCUSSION OF WATERFRONT SITES

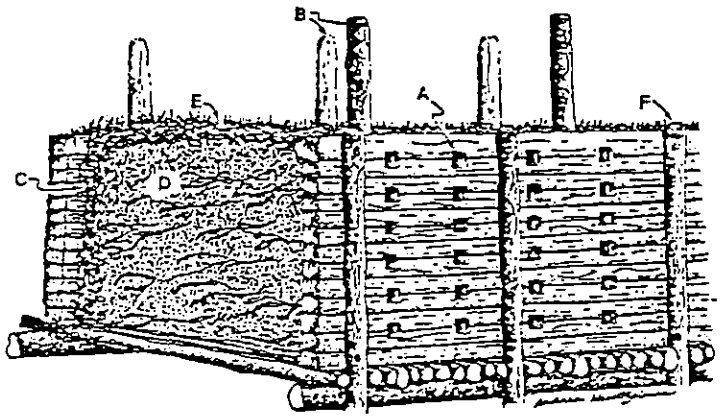
Table 5.1 presents a summary description of the waterfront sites used in this analysis. It should be noted that some of the sites, such as the Assay Site, the Telco Block, and the Central Waterfront Project in Newburyport, contain more than one waterfront structure. The following discussions describe some of the special structural features exhibited by the waterfront sites listed in Table 5.1.

The archaeological monitoring program at Site 1 of the Washington Street Urban Renewal Area on Manhattan's west side has provided in-depth information about early nineteenth-century fastenings and joinings of wharf logs (Louis Berger & Associates, Inc. 1987b) (Figure 5.4). The size and exact configuration of the wharf system at Site 1 are unknown owing to the small subsurface apertures exposed during monitoring. However, the wharf components documented during the monitoring program were similar to those observed at excavations on the east side at the Telco Block (i.e., cobb wharves) (Rockman et al. 1988:37-82) and the Assay Site (see Chapter IV).

The northernmost section of exposed wharf consisted of three courses of east-west oriented logs, three rows deep. The logs in the first and second rows were separated by moderate spaces that accommodated north-south cross ties that represented cross-lap joints. Three variations of this joint were observed: (1) a saddle notch, (2) a cross lap with a squared-off notch, and (3) a cross lap with a trunnel (treenail) fastening (see Figure 5.4: 2, 3).

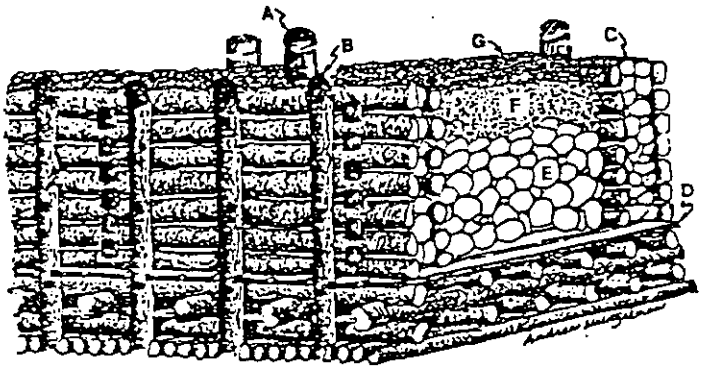


A - Open Cell Crib-Type Wharf. Open cribwork filled with cobbles and sand (SOURCE: Hobley 1981:4).

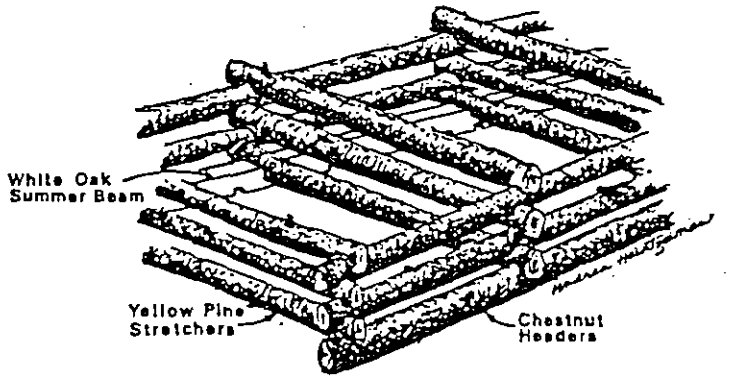


B - Solid Crib-Type Wharf with Timber Floor. (a) stickers; (b) round posts; (c) salt meadow sod lining the sides; (d) mud and layered brush fill; (e) six inches of earth top fill; and (f) fender piles. (SOURCE: Heintzelman 1985:9).

FIGURE 5.1: Wharf Types



C - Solid Crib-Type Wharf with Inner Wall of Stone and Wood Floor. (a) lofting timbers for bollards; (b) fender piles; (c) layer of stone; (d) timber platform; (e) fill of cobblestone or ballast to sink crib; (f) clay, sod and mud fill; and (g) gravel surface. (SOURCE: Heintzelman 1985:12)



D - Cobb-Type Wharf. Open cribwork filled with large cobbles, *stumps and branches.* (SOURCE: Heintzelman 1985:11).

FIGURE 5.1: (continued)

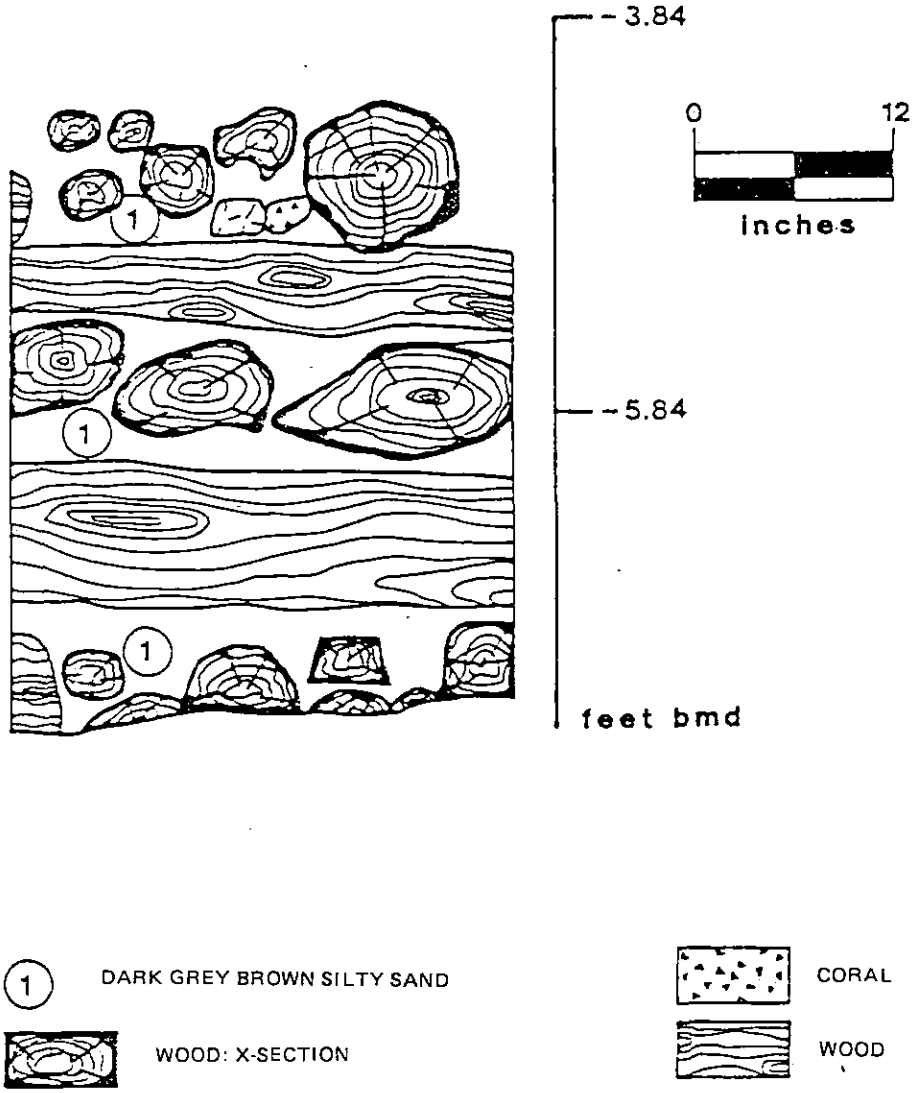
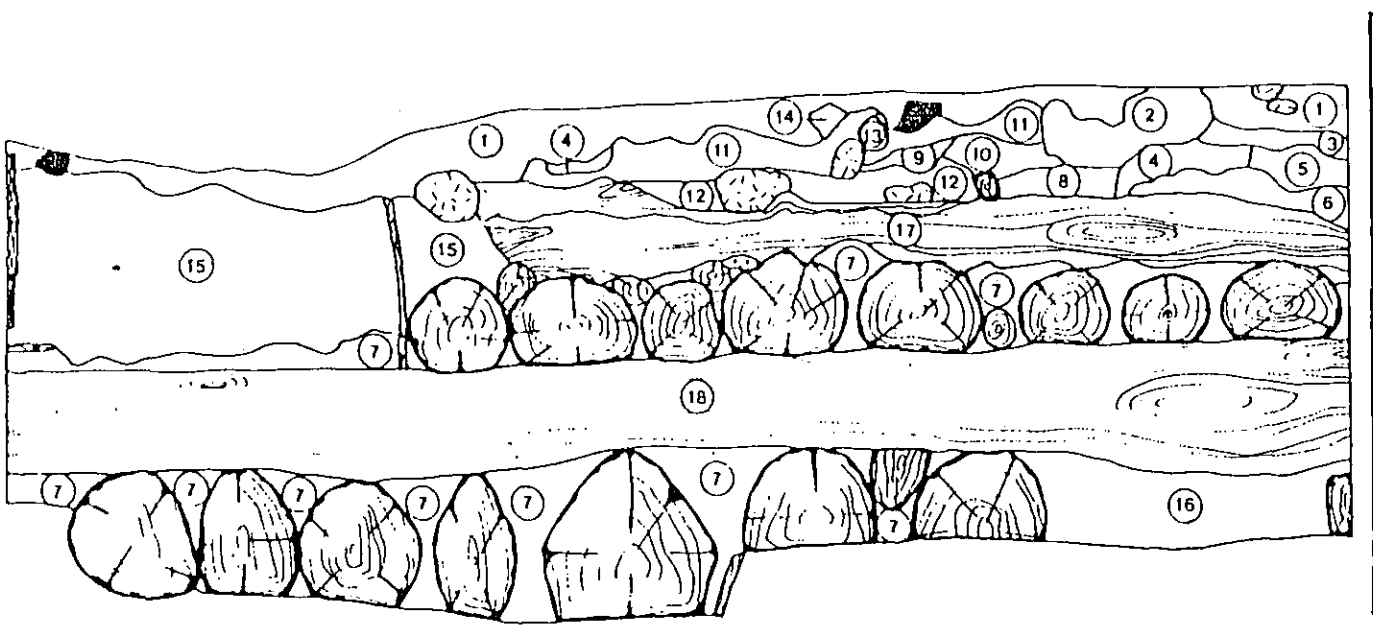


FIGURE 5.2: Lot 19 Unit 3 East Wall Profile Wharf/Grillage Logs , 175 Water Street Site SOURCE: Geismar 1983:117



(1) - BROWN SURFACE RUBBLE

(2) - BLACK BROWN SANDY SILT WITH DECAYED MORTAR

(3) - ORANGE YELLOW SANDY SILT

(4) - ORANGE SANDY SILT

(5) - GREEN DECOMPOSED COPPER

(6) - LIGHT BROWN SANDY SILT

(7) - DARK BROWN ORGANIC SOIL

(8) - BROWN SILT

(9) - RUST COLORED SAND

(10) - ORANGE AND LIGHT BROWN SANDY SILT

(11) - DARK BROWN SILT

(12) - DARK BROWN SANDY SILT

(13) - DECOMPOSED METAL

(14) - BLACK BROWN SILT

(15) - BROWN SANDY SILT

(16) - BLACK BROWN SANDY SILT

(17) - DECAYED WHARFING LOG

(18) - WHARF/GRILLAGE LOG

WOOD CORAL STONE

WOOD:X-SECTION BRICK

0 12

Inches

FIGURE 5.3: Lot 23 Unit 4 West Balk Profile , 175 Water Street Site

SOURCE: Geismar 1983:203

TABLE 5.1

WHARVES AND BULKHEADS RECORDED IN EASTERN SEABOARD ARCHAEOLOGICAL SITES

LOCATION	STRUCTURE	CHARACTERISTICS
Portsmouth, NH	Follett Site Follett Wharf ca. 1720	Cobb type. Rough debarked white pine and hemlock timbers. Oak trunnels securing timbers notched on one surface and interlocked (i.e., mortise and tenon). Fill of discarded ship ballast and large cobbles. Floor or deck covered lower fill, then finer fill with flint nodules, broken shell, and coral. Near top, closed cribwork to hold fill material for road bed. Reused timbers found (i.e., wooden gutter).
Newburyport, MA	Central Waterfront Site Greenleaf Wharf 1775-1800	Line of pilings for retaining gravel and cobble fill.
	Central Waterfront Site Gunnison Wharf 1800-1850	Corduroy of cross-pieces pegged to longitudinal sills. Line of staves then pegged to corduroy and sills to retain granite fieldstone fill.
Salem, MA	Derby Wharf Site Derby Wharf 1762-1795	Solid wharf with bulkhead-free standing retaining wall. Fill largely cobblestones.
	Derby Wharf Site Extension 1806-1809	Cobb type with large solid timber wharf at one end. Heavy timbers notched together to retain stone and rubble. Ballast floor to hold fill. Timbers not closely placed on top of

TABLE 5.1 (continued)

LOCATION	STRUCTURE	CHARACTERISTICS
Salem, MA (continued)		each other. Timber cribs formed by alternate rows of headers and stretchers.
	Central Wharf Site Forrester Wharf 1791-1804	Cobb type-timber platform of southern yellow pine boards. Possible ballast floor for large rocks and cobbles. Platform supported by series of unevenly spaced logs 3 levels deep and constructed in a crib fashion.
	Central Wharf Site Extension 1804-1818	Solid crib construction. Square white pine hewn timbers, varying diameter, tightly fitted together, flush faced on water side. Longitudinal timbers spliced with half-lap joints and secured by trunnels. Interior corners braced by 2 diagonal timbers mortised into bulkhead wall. Fill of large beach cobbles followed by blue/gray clayey silt.
Boston, MA	Boston Hotel Site Scottow Wharf ca. 1650-1676	Cobb type. Debarked and axe-trimmed timbers of varying sizes stacked cross-wise with stone fill. Sawn vertical timbers driven into river bottom to support horizontal crosswork in-place.
	Parcel D-10 Site Long Wharf ca. 1763	Crib type. Atlantic white cedar.

TABLE 5.1 (continued)

LOCATION	STRUCTURE	CHARACTERISTICS
Charleston, MA	Charleston Navy Yard Site Navy Yard Wharf Late 18th Century	Solid crib construction. Squared, hewn timbers of white pine. Trunnels main fastening method. Some metal fasteners. Vertical pilings driven along face from a later reconstruction.
New London, CT	Bank Street Site Douglass Wharf 1750-1800	Cobb type. Alternating rows of header and stretcher timbers of chestnut, yellow pine, and white oak. Stretchers (cross timbers) grooved at both ends and fastened by locust trunnels to the header timbers. One of main structural timbers exhibited reuse. Fill of timber chunks and cobbles.
New York, NY	Old Slip Site Crueger's Wharf 1739/40	Solid log construction notched at the corners. Two rows of horizontal timbers at the bottom overlain by thick log platform of 5 or 6 rows of timbers.
	Telco Block Site Van Cortlandt/ Berrien Wharf ca. 1750	Cobb type. Ten horizontally laid logs placed on top of one another. Two horizontal rows of perpendicularly laid logs 3 feet below one another. Southern yellow pine platform overlaid by stones. Cross ties passed through horizontal logs by means of squared-off notches.
	Telco Block Site Bowne/Byvanck Wharf ca. 1750	Cobb type-horizontally laid sweetgum logs (stretchers) underlain by

TABLE 5.1 (continued)

LOCATION	STRUCTURE	CHARACTERISTICS
New York, NY (continued)		headers with vertical post inserted through notch to brace structure by locking outermost stretchers and headers End of stretchers notched.
	Telco Block Site Bowne/Byvanck Bulkheads pre-1756	Wooden planks laid horizontally on sides, one above the other. Supported on water side by a series of upright beams and on land side by a series of upright planks. Southern yellow pine.
	175 Water Street Site Wharves ca. 1750	Wharf/grillage type. Solid raft-like structures of cross-layered southern yellow pine logs, weighted with stones.
	Site 1, Washington Street Urban Renewal Area Wharves Late 18th-early 19th century	Cobb type wharf configuration. Fill material medium-sized rocks with some small cobbles. Three variations of cross-lap joints observed in longitudinal logs: (1) cross lap with a broad squared-off notch, (2) cross lap using a saddle notch, and (3) cross-lap trunnel fastening. Cross ties used three variations of joining (1) dovetail and shoulder

TABLE 5.1 (continued)

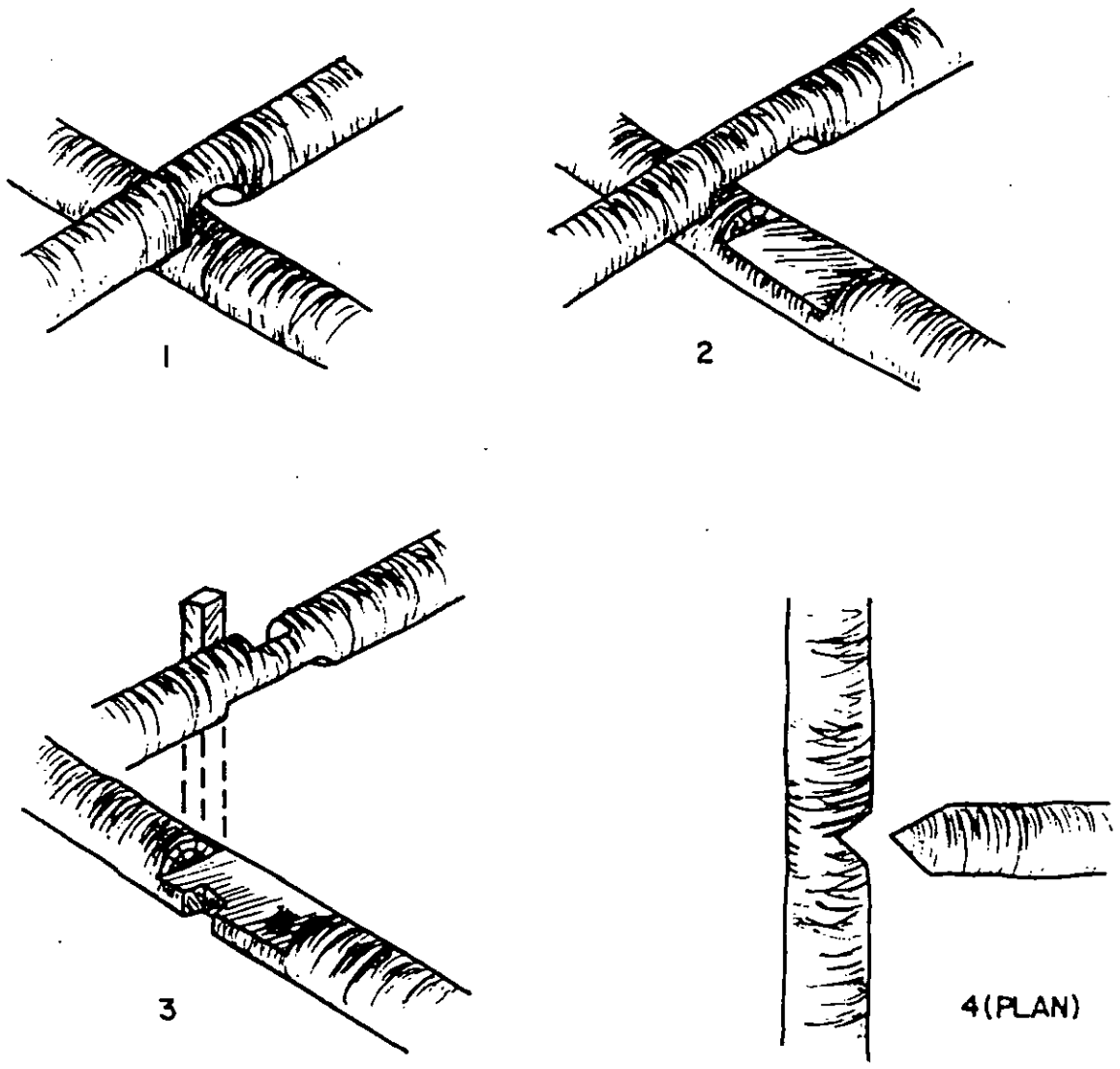
LOCATION	STRUCTURE	CHARACTERISTICS
New York, NY (continued)		housings, (2) housing at check and shoulder of half lap, and (3) mitre joint.
	Barclays Bank Site 17th Century	Cobb type. Timber and logs oriented to form series of 5x5-foot compartments filled with rock and coral. Series of pilings 5 feet apart held compartments in place.
	Assay Site Baches Wharf Late 18th Century	Cobb type. Block-and-bridge construction. Longitudinal timbers consisted of alternating courses of rough-hewn timbers and rounded logs forming a solid face. Vertical guideposts placed along face for support and fastened by iron spikes. Cross ties used crosslap with saddle notches and joined to longitudinal timber face with half-dovetail and shoulder housings.
	Assay Site North/South Wharves Late 18th Century	Cobb type. Horizontally laid, rounded and beveled logs. Logs were notched, as well as the cross ties to form a series of 4- to 8-foot long cells in a "Lincoln Log" type of construction. Northern wharf, one cell wide. Southern wharf, two cells wide. Squared vertical guideposts attached to face by iron fasteners. Solid platform or floor of split timbers near bottom to support cobble

TABLE 5.1 (continued)

LOCATION	STRUCTURE	CHARACTERISTICS
New York, NY (continued)		fill. Above floor two semi-platforms of small logs (faggots) and branches. Joinery consists of saddle-notch joints and half laps.
	Assay Site Bulkhead Juncture North/South Wharves Late 18th Century	Ten vertical planks set side by side and supported by a rough-hewn log not fastened to the planks. Lower end of logs sharpened to a point and driven into clayey river bottom.
	Assay Site Bulkheads Lot 8/42 1775- ca. 1789	Five horizontally laid planks supported by a series of square vertical posts.
	Assay Site Bulkheads Lot 8/9 and Lot 7/8 1775- ca.1789	Horizontally laid planks placed between a series of wood pilings. Planks not fastened to pilings.
Baltimore, MD	Cheapside Dock Site Cheapside Wharf 1778-1784	Crib type. Topping logs spliced with half-lap joints and secured by wrought-iron pins. Corners joined with interlocking lap joints and secured with wrought-iron pin through the joint. Topping logs square-hewn on all side four sides. Below topping logs, rest are square-hewn on top and bottom only. Crib sections anchored with single diagonal corner tie, mortised into top log of preceding crib and into wharf wall. Two trunnels driven into mortise. In addition, guidepost

TABLE 5.1 (continued)

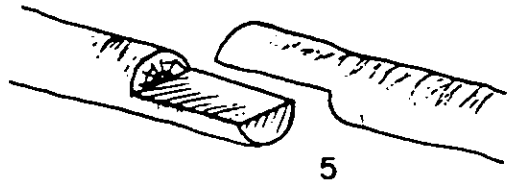
LOCATION	STRUCTURE	CHARACTERISTICS
Baltimore, MD (continued)		laced at the end of crib. Internal bracing at random. Two types of cross ties and diagonal corner ties.
Alexandria, VA	Carlyle Site Carlyle Wharf 1759	Crib type. Solid construction of pine and oak logs with bark intact, with upper and lower surfaces hand-hewn. Stretchers dovetailed into headers and held in place by trunnels or wrought-iron spikes.
Yorktown, VA	Old Wharf Site Old Wharf ca. 1754	Wharf/grillage type. Rafts of heavy hewn timbers with stone for fill.



1 - SADDLE NOTCH
2 - CROSS LAP VIA SQUARED-OFF NOTCH
3 - CROSS LAP WITH TREENAIL
4 - WEDGE

FIGURE 5.4: Log Joinings

SOURCE: Louis Berger & Associates 1987:IV-21



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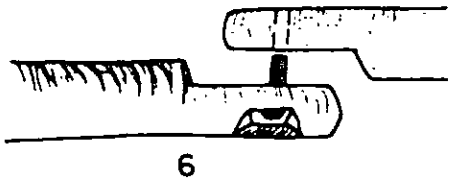

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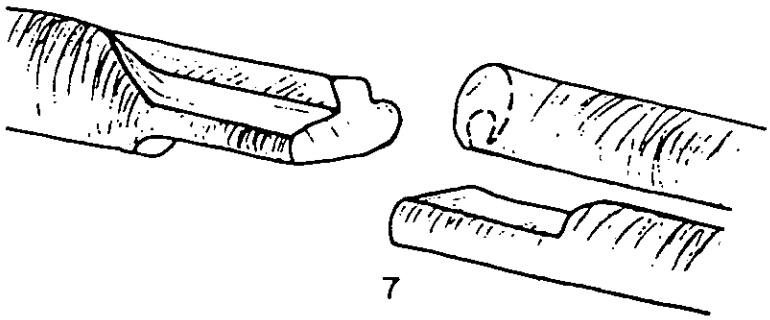

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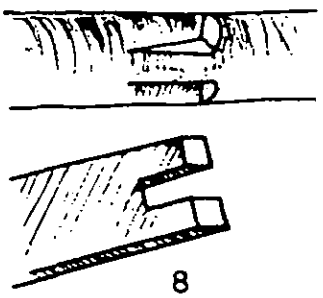

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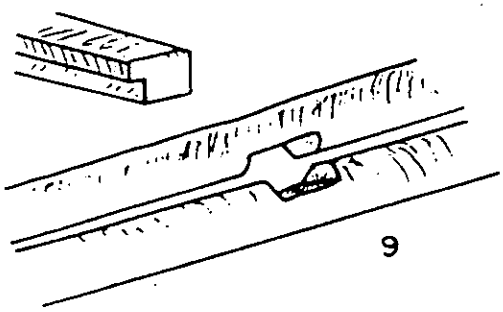

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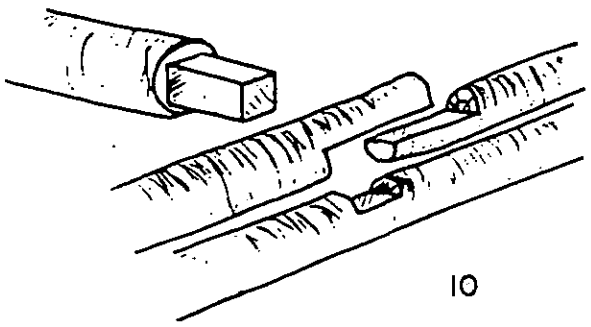

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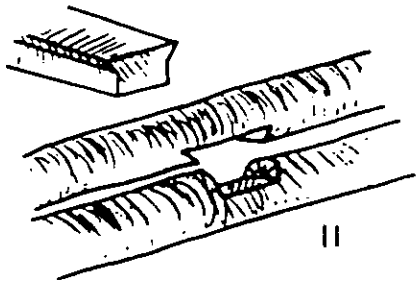


11

5 - HALF LAP

6 - HALF LAP WITH METAL BOLT FASTENING

7 - SCARF JOINT WITH HALF LAP DOVETAIL CLEAT

8 - MITRE JOINT

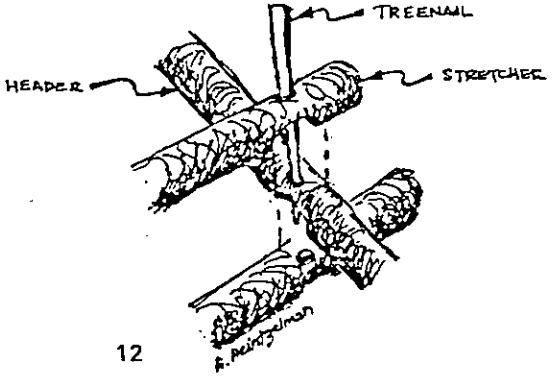
9 - SHOULDERED HOUSING

10 - HOUSING AT CHEEK AND SHOULDER OF HALF LAP

11 - DOVETAIL JOINT

FIGURE 5.4: (continued)

SOURCE: Louis Berger & Associates 1987:IV-22



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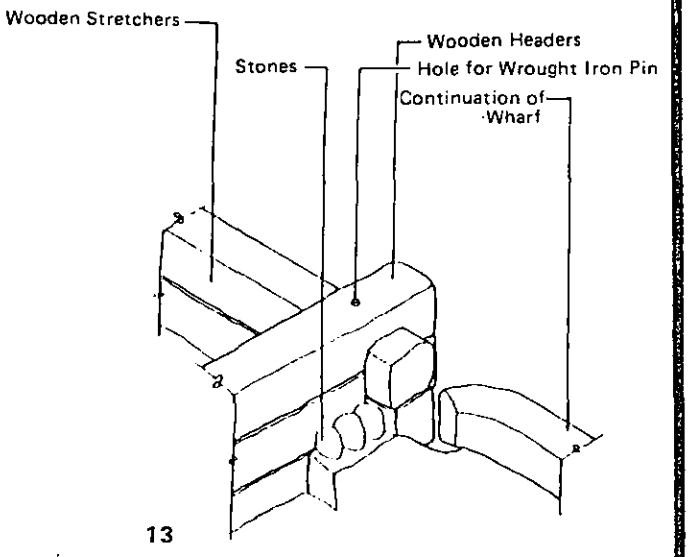

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12 - MORTICE AND TENON SECURED WITH A TREENAIL (SOURCE: Heintzelman 1985: 95).

13 - MORTISE AND TENON SECURED WITH A WROUGHT IRON PIN (SOURCE: Norman 1987: 116).

FIGURE 5.4: (continued)

The third row of logs was distinct from the previous two. The logs were either laid directly on top of one another or were separated by thin boards. Half-lap joints were used to extend the logs in a continuous line (see Figure 5.4: 5, 6, and 7). No cross-lap joints were used in the cross ties for the third row. Rather these ends were formed into shouldered tenons which were inserted into housings cut from the east-west logs. Three different types of cross-tie joinings were recorded. These consisted of a shouldered housing, a housing at the cheek and shoulder of a half lap, and a dovetail joint (see Figure 5.4: 9, 10, and 11).

The structural differences between the first two rows and the third suggested that force directed perpendicularly to the line of the outer log rows (for example, the impact of a docking ship) would not meet rigid resistance but would instead be absorbed by the flexibility of the outer rows. This flexibility was created by the breadth of the notches in the cross-lap joints which permitted some shifting of the logs. While the outer rows and cross ties acted as a cushion, the third row was apparently designed to arrest applied force. This was achieved by using a shouldered tenon at the end of a cross tie; the inward movement of this joint would be resisted by the edge of its housing. The third row of logs apparently served as a vertebra that prevented the dislocation of the wharf (Louis Berger & Associates, Inc. 1987b:IV-15).

Archaeological excavation at the Cheapside Wharf in Baltimore has also provided information on log joinings (cf. Norman 1987). A 105-foot west bulkhead wall section of a crib wharf was exposed during the study. The square-hewn bulkhead timbers were spliced together with half-lap joints and secured with wrought-iron pins. Vertical guideposts braced the exterior of the bulkhead. The corners were joined with a mortise and tenon joint secured with a wrought-iron pin driven into a hole drilled vertically through the joint (see Figure 5.4: 13).

Two types of internal bracing were recorded: cross ties and diagonal corner ties. The cross ties consisted of 50-foot-long round logs whose ends were cut into tenons and fitted into the bulkhead walls by a mortise and tenon joint or a housing at the cheek and shoulder of a half-lap joint (see Figure 5.4: 10). The cross ties appeared to be placed in a random fashion. The diagonal corner ties were used to further stabilize the bulkhead walls by spanning the corners of a crib section. They consisted of eight-inch-diameter unhewn logs.

In Follett Wharf a large wooden gutter was used as a spread footer (Heintzelman-Muego 1983:22). A possible summer beam was used as one of the main structural timbers in Douglass Wharf (Heintzelman-Muego 1983:30-31). One end of it was scorched, unlike the other timbers in the wharf which showed no evidence of burning. This suggests that the summer beam was part of a house that may have

burned and later been salvaged for construction of the wharf. Another example of reuse is found in the North-South wharves at the Assay Site. A ship's mast, with a Mason's mark, was utilized as a stretcher timber in the wharves' waterside face (see Figure 4.6). The reuse of these structural elements for different functions is interesting. Clearly, wood was not a scarce commodity during this time (i.e., 1720-1800). The reuse of these elements suggests that crafted wood may not always have been the prime medium used in wharf construction. It may have been more efficient to reuse a processed element rather than invest the time and/or skill to manufacture a new one.

C. RESEARCH QUESTIONS

Tables 5.2a and b and 5.3a and b present a summary description of the various waterfront sites and their characteristics used to address Research Questions 1 and 2. The first research question involves comparison between the construction techniques used on the Assay wharves and those of other waterfront sites. In comparing the techniques used in the construction of the two wharves at the Assay Site (i.e., Bache's and the North-South wharves) with those at other waterfront sites, only one characteristic appears to be unique to the Assay Site. Faggots, or cord wood, in addition to cobbles, were used as fill in the North-South wharves. The use of faggots is not found on any other site listed in the tables.

The use of block-and-bridge construction, though not described for any other archaeological site listed in the tables, is not unique to the Assay Site. Documentary evidence indicates that block-and-bridge construction was used in wharves along the Hudson River, and it may have been used at Site 1 of the Washington Street Urban Renewal Area (Louis Berger & Associates, Inc. 1987).

The second question examines wharf technology in terms of increased standardization in methods of wharf construction during the late eighteenth and early nineteenth century along the eastern seaboard. Tables 5.2a and b provide data to address this question. No discernible decrease in the diversity of methods of wharf construction is evident. The major types of wharf construction do not appear to cluster during any one particular time period but are more or less evenly distributed over a two-hundred-year time span. This also appears to be true for other wharf construction characteristics (i.e., material, fill treatment of timbers, fasteners, etc.), with the exception of joining techniques. Half-lap joints were not documented during archaeological excavations of the wharves built prior to 1778 (see Table 5.2a and b). The reason for this may be that these wharves used small crib sizes and did not need half-lap joints, which were usually used to create a continuous line of logs and/or timbers. Another reason may be that not enough of the wharf was exposed during the excavations. An insufficient aperture would not permit a detailed recordation of

TABLE 5.2a

COMPARISON OF WHARF CHARACTERISTICS, ORGANIZED BY TIME PERIOD

STRUCTURE	PERIOD	FORM	TYPE	MATERIAL	FILL
Scottow	1650-76	Crib	Cobb	---	Logs and cobbles
Barclays	1690's	Crib	Cobb	---	Stone and coral
Follett	1720	Crib	Cobb	White pine & hemlock timbers; oak trunnels	Cobbles with flint nodules, and corral
Norfolk	1728	Crib	Grillage	Pine	---
Crueger	1739/40	Crib	Solid log	---	Earth and stone
Van Cortlandt/ Berrien	1750	Crib	Cobb	S. Yellow pine	Cobbles
Bowne/Byvanck	1750	Crib	Cobb	Sweetgum	Cobbles
Old Wharf	1754	Crib	Grillage	---	Stone
Carlyle	1759	Crib	Solid	Pine and oak	Sand and earth
Long Wharf	1763	---	Crib	Atlantic white cedar	---
Cheapside	1778-84	Crib	Crib	S. yellow pine	Earth
Derby	1762-95	Bulkhead	Solid	---	Cobbles
Navy Yard	Late 18th	Crib	Solid	White pine	Earth and cobbles
Baches	Late 18th	Crib	Block-and-bridge	---	Cobbles
North/South Wharves	Late 18th	Crib	Cobb	---	Cobbles and faggots
Douglass	1750-1800	Crib	Cobb	Chestnut, yellow	Cobbles and timber *Pine & white oak slabs*
Greenleaf	1775-1800	Bulkhead	Solid	---	Cobbles and gravel
175 Water Street	18th Century	Crib	Grillage	S. yellow pine	Stone
Forrester	1791-1804	Crib	Cobb	S. yellow pine	Cobbles
Site 1, Washington Street	Late 18th-early 19th	Crib	Cobb (possible block-and-bridge)	---	Stone and cobbles
Derby Wharf Extension	1806-09	Crib Cobb	Grillage/	---	Stone and rubble
Forrester Wharf Extension	1804-1818	Bulkhead	Solid	White pine	Cobbles and earth
Gunnison	1800-1850	---	---	---	Granite fieldstone

TABLE 5.2b

COMPARISON OF WHARF CHARACTERISTICS, ORGANIZED BY TIME PERIOD

STRUCTURE	PERIOD	JOINING	TREATMENT OF TIMBERS	FASTENERS	OTHER GENERAL ATTRIBUTES
Scottow	1650-76	---	Axe-trimmed and sawn	---	Vertical guideposts
Barclays	1690s	Notching	Rough logs	---	Vertical guideposts
Follett	1720	Notching; mortise and tenon	Rough-and debarked	---	Ballast floor; closed crib work near top; some timbers exhibited reuse.
Norfolk	1728	Notching	Rough logs	---	---
Crueger	1739/40	Notching	Rough logs	Trunnels	---
Van Cortlandt/ Berrien	1750	Squared-off notches; dovetail	Rough logs	Trunnels	Two log ballast platforms
Bowne/Byvanck	1750	Notching	Rough logs	Trunnels	Vertical guidepost
Old Wharf	1754	---	Rough logs	---	---
Carlyle	1759	Dovetail	Hand hewn tops and bottoms	Trunnels and hand wrought spikes	Closely fitted logs
Long Wharf	1763	---	Square hewn timbers	---	---
Cheapside	1778-84	Half lap; interlocking lap joints; mortise and tenon	Square hewn timbers; round logs with tops and bottoms flattened	Wrought iron pins; trunnels	Vertical guideposts; diagonal corner braces
Derby	1762-95	Notching	Hewn timbers	Trunnels	Vertical guideposts; faced with stone in 1776
Navy Yard	Late 18th C.	Mortise and tenon	Squared hewn timbers; planks	Trunnels metal fasteners	---
Baches	Late 18th C.	Half lap; cross lap and saddle notch; half-dovetail and shoulder housing	Rough-hewn timbers; rounded logs	Iron spikes	Block and bridge; vertical guideposts
North/South Wharves	Late 18th C.	Saddle notch, half lap	Rounded and beveled logs	---	Timber exhibited reuse
Douglass	1750-1800	Grooved and notched	Rough logs	Trunnels	Timber exhibited reuse
Greenleaf	1775-1800	---	Pilings	---	---
175 Water Street	18th C.	Notching	Rough logs	---	---
Forrester	1791-1804	Notching	Rough logs and boards	---	Ballast floor of boards; vertical guideposts
Site 1, Washington Street	Late 18th-early 19th C.	Cross lap; saddle notch; dovetail and mitre	Rough logs	Trunnels	Possible block-and-bridge
Derby - extension	1806-09	Notching	Hewn timbers	Trunnels	Ballast floor; faced with stone in 1824-25
Forrester - extension	1804-18	Half lap; mortise and tenon	Squared timbers	Trunnels	Diagonal corner braces; ballast floor
Gunnison	1800-1850	---	Rough logs	Trunnels	Upright staves

TABLE 5.3a

COMPARISON OF WHARF CHARACTERISTICS, ORGANIZED BY LOCATION

LOCATION	STRUCTURE	FORM	TYPE	MATERIAL	FILL
New Hampshire	Follett Wharf	Crib	Cobb	White pine, hemlock, oak	Cobbles, flint nodules and coral
Massachusetts	Greenleaf	Bulkhead	Solid	---	Cobbles and gravel
	Gunnison	---	---	---	Fieldstone
	Derby	Bulkhead	Solid	---	Cobbles
	Extension	Crib	Grillage/	---	Stones & rubble
	Forrester	Crib	Cobb	S. yellow pine	Cobbles
	Extension	Bulkhead	Solid	White pine	Cobbles earth
	Scottow	Crib	Cobb	---	Stone
	Long Wharf	---	Crib	Atlantic w cedar	---
	Navy Yard	Crib	Solid	White pine	Earth and cobbles
Connecticut	Douglas	Crib	Cobb	Chestnut, yellow pine & white oak	Cobbles & timber slabs
New York	Crueger	Crib	Solid log	---	Earth and stone
	Van Cortlandt/ Berrien	Crib	Cobb	S. yellow pine	Cobbles
	Bowne/Byvanck	Crib	Cobb	Sweetgum	Cobbles
	175 Water Street	Crib	Grillage	S. yellow pine	Stone
	Barclays	Crib	Cobb	---	Stone and coral
	Baches	Crib	Block-and-Bridge	---	Cobbles
	North/South Wharves	Crib	Cobb	---	Cobbles and faggots
	Site 1, Washington Street	Crib (possible block-and-bridge)	Cobb	---	Stone and cobbles
Maryland	Cheapside	Crib	Crib	S. yellow pine	Earth
Virginia	Carlyle	Crib	Solid	Pine & Oak	Sand and earth
	Old Wharf	Crib	Grillage	---	Stone

TABLE 5.3b

COMPARISON OF WHARF CHARACTERISTICS, ORGANIZED BY LOCATION

LOCATION	STRUCTURE	JOINING	TREATMENT OF WOOD	FASTENERS	OTHER GENERAL ATTRIBUTES
New Hampshire	Follett	Notching; mortise and tenon	Rough, debarked logs	---	Ballast floor; closed timbers near top; some logs exhibited re-use
Massachusetts	Greenleaf	---	Staves	---	---
	Gunnison	---	Rough logs	Trunnels	Upright staves
	Derby	Notching	Hewn timbers	Trunnels	Vertical guideposts; faced with stone in 1796
	Extension	Notching	Hewn timbers	Trunnels	Ballast floor; faced with stone in 1824-25
	Forrester	Notching	Rough logs and boards	---	Ballast floor of boards; vertical guideposts
	Extension	Half laps; mortise and tenon	Squared timbers	Trunnels	Ballast floor; diagonal braces
	Scottow	---	Axe-trimmed and sawn	---	Vertical guideposts
	Long Wharf	---	Square hewn timbers	---	---
	Navy Yard	Mortise and tenon	Square hewn timbers and planks	Trunnels and metal fasteners	---
Connecticut	Douglass	Grooved and notched	Rough logs	Trunnels	One timber exhibited reuse
New York	Crueger	Notching	Rough logs	Trunnels	Tightly fitted logs
	Van Cortlandt/ Berrien	Squared-off notches; dovetail	Rough logs	Trunnels	Two log ballast platforms
	Bowne/Byvanck	Notching	Rough logs	Trunnels	Vertical guide pile
	175 Water Street	Notching	Rough logs; planks	---	Intermittent layers of stone ballast
	Barclays	---	Rough logs	---	---
	Baches	Half lap; cross lap, and saddle notch; half dovetail and shoulder housing	Rough hewn timbers; rounded logs	Iron spikes	Block-and-bridge; vertical guideposts
	North/South	Saddle notch; half lap	Rounded and beveled logs	---	Timber exhibited re-use
	Site 1, Washington Street	Cross lap; saddle lap; dovetail and mitre	Rough logs	Trunnels	Possible block-and-bridge
Maryland	Cheapside	Half lap; interlocking lap joints; mortise and tenon	Hewn tops and bottoms; square hewn timbers	Trunnels; hand wrought iron pins	Vertical guideposts; diagonal corner braces
Virginia	Carlyle	Dovetail	Hand hewn tops and bottoms	Trunnels; hand wrought iron spikes	Closely fitted logs
	Old Wharf	---	Rough logs	---	---

all log joints present in a wharf. However, the use of half-lap joints was recently recorded at a wharf in Philadelphia which dated to 1762 (Wuebber, personal communication 1988).

It should be noted that it is really not possible to determine whether changes in wharf joinery have or have not occurred through time. The sample of wharf excavations that produced detailed descriptions of joinery is small. A larger data base would be required to examine this component of wharf technology more closely.

Tables 5.3a and b indicate that there is generally no clustering of construction techniques by location. However, the majority of solid type wharves are from Massachusetts sites, as are the bulkhead wharves and wharves with stone facings. This suggests that Massachusetts craftsmen may have employed specific construction methods that were not employed by craftsmen in other port cities. The reason for this is not clear at this time.

The results of these comparisons suggest that the time of construction did not determine what methods were used to build these waterfront structures. Location also does not appear to be a strong variable, except in the case of Massachusetts. Site-specific circumstances clearly played an important role in the types of wharves built. Some of these site-specific circumstances are water conditions (e.g., currents, tides), bottom conditions (e.g., type of riverbottom soils), and the financial capabilities of the individuals who paid for the wharves to be built (Heintzelman 1985). This diversity associated with specific site conditions and histories has also been noted by Norman (1987).

> Wharves in the eighteenth and early-nineteenth centuries were highly variable. Each one was constructed to suit a particular site and circumstance. While the concepts and rules followed for the construction of wharves were transferred from wharf to wharf, the application of these concepts differed from one to the next based on the structural needs of the wharf and the ingenuity of the builder [Norman 1987:104-105].

What do these findings mean in terms of future archaeological research of waterfront structures? First, research questions concerning temporal changes in craft traditions and wharf construction technology (cf. Henn et al. 1986) cannot be addressed at this time. This is a result of the apparent site-specific nature of wharf construction along the eastern seaboard (i.e., north of the Virginia/North Carolina border, and excluding Massachusetts), as it is currently described in the literature. However, joining methods, which are rarely described in reports on waterfront sites, may be sensitive to temporal and geographic differences in craftsmanship and technology. This area of wharf technology has not been the focus of recent archaeological research.

Joinery represents one of the major engineering components of a wharf, and is linked to the types of activities that were planned to occur in relation to the wharf. These activities would include how ships were to dock along the wharf, the type of cargo that was to be unloaded, whether the cargo was to be stored on the wharf, and so forth. In terms of field efforts, focusing on wood joints requires recordation of the exteriors (front and back) and interiors of as many sections of a wharf as possible. This recordation should follow standard engineering/structural terminology, as was used in the Site 1 Washington Street Urban Renewal study (Louis Berger & Associates, Inc. 1987b). The results of this recordation would then be analyzed in terms of temporal and geographic affiliation. If the configuration of wharf joints is also found to be related only to site-specific environments, then archaeological data on wharves can be used only to describe the foundations that are uncovered during an urban excavation. It should be noted that recordation of wharf joints does not require extensive excavations. These data can easily be obtained during archaeological monitoring activities (cf. Louis Berger & Associates, Inc. 1987b).

In addition, further research is needed on the Massachusetts sites to determine the reason behind the apparent clustering of certain technological features within that state, regardless of the time the wharves were built. Were the craftsmen working in Massachusetts different in some way (e.g., ethnically) from others working along the coast? Did Massachusetts dock builders have a local craft tradition different from that of dock builders in other states? Did the nature of the Massachusetts shoreline require construction techniques different from those used at other eastern ports? These questions could best be addressed through historical research rather than archaeological investigations. However, it would be interesting to determine if the types of joinery used within the Massachusetts wharves were different from those used in other regions.

VI. CONTRIBUTIONS OF ARCHAEOLOGICAL INVESTIGATIONS OF LANDFILL SITES

The Professional Archaeologists of New York City (PANYC) and the New York City Landmarks Preservation Commission co-sponsored a symposium on landmaking in New York City on May 21, 1986. The objective of this gathering of professional archaeologists was to review the status of archaeological studies of landfill soils and landmaking structures in the city. All present agreed on the importance of archaeological investigations of waterfront structures, such as wharves, piers, and bulkheads. However, two differing points of view were brought up on (a) the research value of landfill contexts, (b) the methods that should be used in landfill studies, and (c) the appropriate levels of effort that should be applied to future archaeological investigations of landfill sites. It was the view of one group that landfill sites should be studied in greater detail, that research should be conducted on patterns of landfill variability using materials within landfill soils for the study of New York City's changing economic and social character. Following this approach, artifacts from landfill would be considered as "the city's material culture," and thus could be used in studying "the city." Others at the symposium stated that research of landfill soils should not be a primary focus of future investigations in New York because materials from landfill could not be linked to specific historical associations (e.g., individuals, households, or businesses) (PANYC Newsletter 1987). Thus, materials from landfill soils should not be used in the study of economic and social change within the city.

These differences of opinion were not resolved during the symposium and remain unresolved at the present time. This chapter will attempt to provide some answers to these outstanding issues.

The first question to be considered is, What techniques have been used to sample landfill within waterfront sites? As may be seen from Table 6.1, the primary methods used have included hand-dug excavation units and backhoe trenching. At sites where backhoe trenching was employed, samples were taken of either natural soil strata or arbitrary soil levels (usually one-foot levels), and sometimes screened. The size of the screened samples is indicated in Table 6.1 when it was noted in the site reports.

Hand-dug excavation units provide the best stratigraphic control for the investigation of landfill deposits. There is, however, a safety problem in using hand-dug units, owing to the great depth of landfill soils and the saturated nature of these soils. In addition, the excavation of these units is very costly because of the safety measures that must be used and the depths to which the units must be extended if the base of landfill deposits is to be sampled. Regardless of the difficulties that accompany the

TABLE 6.1

METHODS USED FOR INVESTIGATION OF LANDFILL SITES

Site & Date of Landfilling	Hand-dug Excavation Units	Backhoe Trench Excavation, Sampling Natural Strata (size of sample screened in parentheses)	Backhoe Trench Excavation, Sampling Arbitrary Levels (size of sample screened in parentheses)	Flotation from Units and/or Trenches
Salem, Massachusetts				
Forrester Wharf Late 18th/Early 19th Century		X[3]		
Newbury Port, Massachusetts	X	X[4]		
Boston, Massachusetts				
Scottow Wharf 17th Century		X[5]		
Long Wharf 18th Century			X[5]	
New York City				
64 Pearl Street Late 17th Century	X			
7 Hanover Square Late 17th Century	X	X[6]		?
Barclays Bank Site Late 17th Century	X	X (40 gal.)		X (not processed)
Old Slip 18th Century[1]	2			
Schermerhorn Row 18th Century[1]	X			
175 Water Street 18th Century	X		X (40 gal.)	
209 Water Street 18th Century	X			
Telco Block Site 18th Century	X		X (30 gal.)	X
Assay Site Late 18th/Early 19th Century	X			X (not processed)
Site 1, Washington Street Urban Renewal Area Late 18th/Early 19th Century			X (40 gal.)	X
Alexandria, Virginia				
Carlyle Wharf	7			

[1] Limited excavations.
[2] Sampling of artifacts exposed in landfill soil profile.
[3] Type of strata/levels followed not indicated.
[4] Sample size used not noted.
[5] Sample size used equaled one backhoe bucket.
[6] Sample size used equaled one filled wheelbarrow.
[7] "Testholes," no other specifics available.

excavation of hand-dug units, should this type of excavation method even be applied to landfill deposits?

To date, the primary reason for investigating landfill soils has been to determine the general content of the fill soils and the approximate time they were placed within a site (cf. Geismar 1983). Backhoe trenching has provided this type of information on several sites in New York, and hand-dug units were not required. For example, at Site 1 of the Washington Street Urban Renewal area, excavation of three test trenches in a three-block area, and the screening of soils from these trenches, provided sufficient information to characterize the content of landfill soils and to date the deposits (Louis Berger & Associates, Inc. 1987b). Trenching at the 175 Water Street Site provided similar information (cf. Geismar 1983). It should be noted, however, that it is often not possible to have good stratigraphic control when retrieving soil samples from machine-excavated trenches. One may ask, though, how important are tight stratigraphic controls in the excavation of landfill?.

Archaeological monitoring has demonstrated that it is possible to retrieve some archaeological field data during construction activities, particularly during excavation of building foundations. For example, monitoring of foundation excavations at Site 1 of the Washington Street Urban Renewal Area resulted in the identification of wharf construction technology, including the configuration of wharf joinery (Louis Berger & Associates, Inc. 1987b). Several other investigations in New York (e.g., the Assay Site) and in other cities (e.g., Alexandria, Virginia) have been successfully conducted while construction-related excavations have been on-going.

Landfill excavation opportunities at the Assay Site were unique, and it is unlikely that the methods used there will be duplicated in the future. For example, the deep test trenches were lined with metal sheeting which extended into landfill soils and created a safe environment for excavating and sampling landfill deposits. This type of trenching, however, is extremely costly. Hand-dug excavation of landfill soils occurred after the completion of a slurry wall around the entire Assay construction site, again providing a safe and water-free environment for sampling landfill deposits. The probability of a similar scenario occurring on future sites is low, since it is the desire of most construction firms, for reasons of cost and safety, to have the archaeological work completed before construction activities begin. Further, the installation of a slurry wall around an entire construction site rarely occurs in Manhattan. The use of a slurry wall at the Assay Site met the special construction needs of this property.

Which of the above methods, or combination of methods, is most effective in providing the types of data that are needed to address research issues that involve the investigation of landfill? This

As a preliminary to addressing these questions, it will be useful to examine whether various archaeological studies involving landfill deposits and artifacts have been successful in accomplishing their stated research goals. If it is found, for example, that none of these studies achieved their research objectives, then it may be possible to draw certain conclusions: perhaps the methods used were incorrect, or the particular site was not conducive to addressing these goals, and/or the landfill deposits themselves were not appropriate to the research issues posed.

Among the first group of archaeological investigations of landfill in New York were Old Slip, excavated in 1969; Schermerhorn Row, excavated in 1977; 209 Water Street, excavated in 1978; and 64 Pearl Street, excavated in 1980. These studies represented the first opportunities to look at the nature and content of landfill soils in the city, and although their primary research objective was a descriptive one, such projects did present suggestions concerning future research issues. In his study of landfill of Cruger's Wharf, Huey states:

> If such sites are properly studied, they may hold the key to understanding New York not only as a colonial distribution center reaching far inland but also its relation to other ports along the eastern seaboard. Through careful analysis of the types and specific attributes of artifacts retrieved from stratified datable river bottom layers such as under or near Cruger's Wharf, it may be possible to determine changing patterns of trade involving the goods imported to New York by geographical distribution based on comparison with data from other sites [Huey 1984:24].

Huey ends his article by recommending that additional historical and archaeological research can be used to more fully address questions on the cultural differences and relationships within New York and between New York and other ports (Huey 1984:33).

The first large-scale excavation in the city to examine the research potential of landfill was the 7 Hanover Square project (1981). Unfortunately, the report on 7 Hanover Square has not been completed. The next group of landfill sites excavated in the city includes the Telco Block (excavated in 1981) and the 175 Water Street Site (excavated in 1981-1982). The reports on both of these projects have been completed and are readily available (Geismar 1983; Rockman et al. 1983).

The original research proposal for the Telco Block included a research question regarding the nature of the city's participation in the world economy in the eighteenth century and how this participation changed through time. The origins of artifacts from fill soils and riverbottom contexts as well as later occupational

in the world economy in the eighteenth century and how this participation changed through time. The origins of artifacts from fill soils and riverbottom contexts as well as later occupational deposits (Rockman et al. 1983:6) were to be used to address this question. However, the results of the excavations and additional research in the literature demonstrated that this question could not be addressed with materials from the site. It was not possible to determine the place of manufacture of many of the artifacts recovered from the fill and riverbottom deposits (Rockman et al. 1983:7). These findings suggest that Huey's research topics for future landfill site studies may therefore not be feasible.

Given the inappropriateness of their original research proposal, Rockman et al. (1983:10) developed new questions to guide the analysis of the Telco Block. One of these questions concerned the nature of the landfilling sequence and landfilling technology within the block, while another had to do with the use of the project area prior to filling. In addition, Rockman et al. placed their research of the site into a larger research framework. The site would document, following the works of Wallerstein, the development of the capitalist world economy, specifically the trend of commodification of land and labor (Rockman et al. 1983:13). The excavation and documentary study of landfill, and the waterfront structures, would provide information on the commercialization of land within the eighteenth-century New York port (Rockman et al. 1983:13).

Rockman et al. were able to document, through extensive historical research, the commercialization of land during the eighteenth century, and to identify the historical contexts in which landfill processes functioned. However, archaeological data were not used to investigate these research domains. Landfill and the wharves and bulkheads within the site were simply physical manifestations of the commercial processes of the waterfront, and those related to landmaking.

In the concluding sections of their report, they state that "the excavation of these [landfill] sites provides a means of charting 'on the ground' those processes which are incompletely described in the records" (Rockman et al. 1983:244). How this is accomplished is not clear. As noted above, Rockman et al.'s investigation did not use archaeological data, such as the configuration of the wharves and the content of landfill, to describe or explain the city's social and economic processes. Rather, historical research provided data for describing and explaining these processes.

Rockman et al. (1983:244) then detail several future research endeavors, such as correlating proposed and documented landfilling with the financial and political character of water lot owners and with overall economic trends. They do not state how landfill data should be used to accomplish this research. As noted in Chapter II, it is very difficult to make the link between archaeological

contexts, such as landfill, and abstract variables, such as "economic trends."

The research issues involving landfill on the 175 Water Street project were site-specific. Geismar posed the following hypothesis: historical research indicates that the block as a whole was created at approximately the same time, thus the fill techniques used to make land should be similar, if not identical, across the block (Geismar 1983:11). The excavations revealed, however, that the fill and fill retaining structures within the block varied.

Geismar states:

> Variability in both the fill techniques and the chronology indicated through archaeological testing has expanded the information from historic data; conversely, independent historic data has offered explanations for what was found archaeologically [Geismar 1983:12].

"What was found archaeologically" was a derelict ship used as a fill retaining feature across several water lots. Through historical research on these water lots, Geismar identified a cooperative effort among the water lot owners to stabilize and develop portions of the block. What is important about these findings is that it was archaeological evidence that indicated the occurrence of something unusual involving landfilling within an area of the site. Based on this evidence, Geismar went to the documents to determine the reason for the presence of the ship across several water lots. This historical research then identified economic ties between the various water lot owners. This is an example of where archaeology provided a line of inquiry that would most likely not have been followed if the landfilling process within the 175 Water Street Site had been studied only through historical research.

The filling techniques at the 175 Water Street Site not only represented site-specific eighteenth-century fill procedures, but also demonstrated a continuation "or readaptation of ancient European solutions to similar situations" (Geismar 1983:708). In her comparison of fills used in New York and among sites in medieval and early renaissance Europe, Geismar found that garbage was the universal fill.

Geismar was generally successful in addressing the project's research issues. This may be due to the site-specific nature of the questions posed. Geismar did not attempt to use the landfill to examine aspects of the city's economic and social structure, as was attempted by Rockman et al. (1983). However, on Site 1 of the Washington Street Urban Renewal Area, located on the Hudson River, Geismar did attempt to examine landfill in the context of city-wide social attitudes toward public health (Louis Berger & Associates, Inc. 1987b). During fieldwork, the differences between

the fill within Site 1 and the fill that had been recorded on landfill sites along the East River became obvious. Site 1 contained few artifacts in its fill compared to the East River sites. It was hypothesized that these differences were due more to time than location. Site 1 was dated to the first two decades of the nineteenth century, while the East River sites dated from the eighteenth century to the first decade of the nineteenth century.

What occurred within the city between the filling dates of the East River sites and Site 1 that would explain these differences in the fills, and what social attitudes may have influenced these differences? These were two of the research questions posed in the Site 1 project. Combining the results of historical research and analysis of materials recovered from Site 1's fill soils, Geismar found that the differences between the Hudson River site and the East River sites "may reflect the imposition of city ordinances and laws; these were controls instituted to protect the health of a burgeoning population and maintain a viable workforce" (Geismar 1986:1). These ordinances and laws were created after the East River sites had been filled; thus time was a factor in the differences among the sites. The Site 1 project was successful in addressing its research objectives. As with the 175 Water Street Site, the study of the landfill soils present in Site 1 led researchers back to the historic record to explain the patterns observed in the archaeological record.

The Barclays Bank Site was the last landfill site investigated before work began on the Assay Site. The research topic involving landfill soils within the Barclays Site attempted to synthesize the results of the earlier archaeological projects in lower Manhattan. A hypothesis was posed that the process of landfilling within the block would be the same as for contemporaneous landfill sites, but different from that of later fill sites (Louis Berger & Associates, Inc. 1987a).

Table 6.2, which is from the Barclays Bank Site report, was used to compare the overall characteristics of the New York City landfill sites. Data on the frequency of artifact groups within the fill soils were available from the 175 Water Street Site, Site 1 of the Washington Street Urban Renewal Area, the Barclays Bank Site, and the Assay Site. Figures 6.1 and 6.2 summarize these artifact frequencies. Based on the data presented in the table and the two figures, and on the overall results of these projects, it appears that seventeenth-century landfill sites did have much in common in terms of the types of fill retaining structures used and the speed with which the sites were filled.

The later Site 1, however, was also filled quickly. Another similarity between the earlier East River sites and Site 1 was the evidence of fill soils from leveling of natural features within the city's landscape. Thus, the Barclays Site research indicated that similar characteristics occur among sites of different time periods

and different locations within the city. However, the proportions of artifact classes within the fills of the sites are variable. It was posed that this variability may be related to site-specific histories, and in the case of Site 1, time.

The Barclays Bank project was successful in addressing its research objectives that dealt with landfill soils. However, the Barclays Site research was strictly descriptive, examining patterning among the various sites, but not attempting to explain, with historical and archaeological data, the observed patterns.

TABLE 6.2

COMPARISON OF NEW YORK CITY LANDFILL SITES
(from Louis Berger & Associates, Inc. 1987a, Table VIII.14, Page VIII-27)

Site and Date of Landfilling	Fill Deposits				Fill Constructions			
	Garbage	Ballast	Native American Artifacts	Clean Sand or Earth	Stone Retaining Walls	Wooden Features Piers, Wharves, etc.	Bulkhead	Ship
64 Pearl Street[1] Late 17th century	X	X	X	X	X	-	-	-
7 Hanover Square[2] Late 17th century	X	X	X	?	X	?	-	-
Barclays Bank Site Late 17th century	X	X	X	-	X	X	-	-
Old Slip[3] 18th century (Limited excavations)	X	-	?	X	-	X	-	-
Schermerhorn Row[3] 18th century (Limited excavations)	X	-	?	?	-	X	-	-
175 Water Street[3] 18th century	X	X	X	-	-	X	X	X
209 Water Street[3] 18th century (Limited excavations)	X	-	?	-	-	-	-	X
Telco Block Site[3] 18th Century	X	X	X	X	-	X	X	-
Assay Site[2] Late 18th - early 19th century	X	X	-	X	-	X	X	-
Site 1, Washington Street Urban Renewal Area[2] Late 18th - early 19th century	X	-	X	X	-	X	-	-

1. Pickman and Rothschild 1982

2. Geismar 1986, Table 3, Page V-2 and 3

3. Geismar 1983, Table 5.4, Page 707

Table does not include fast - land sites

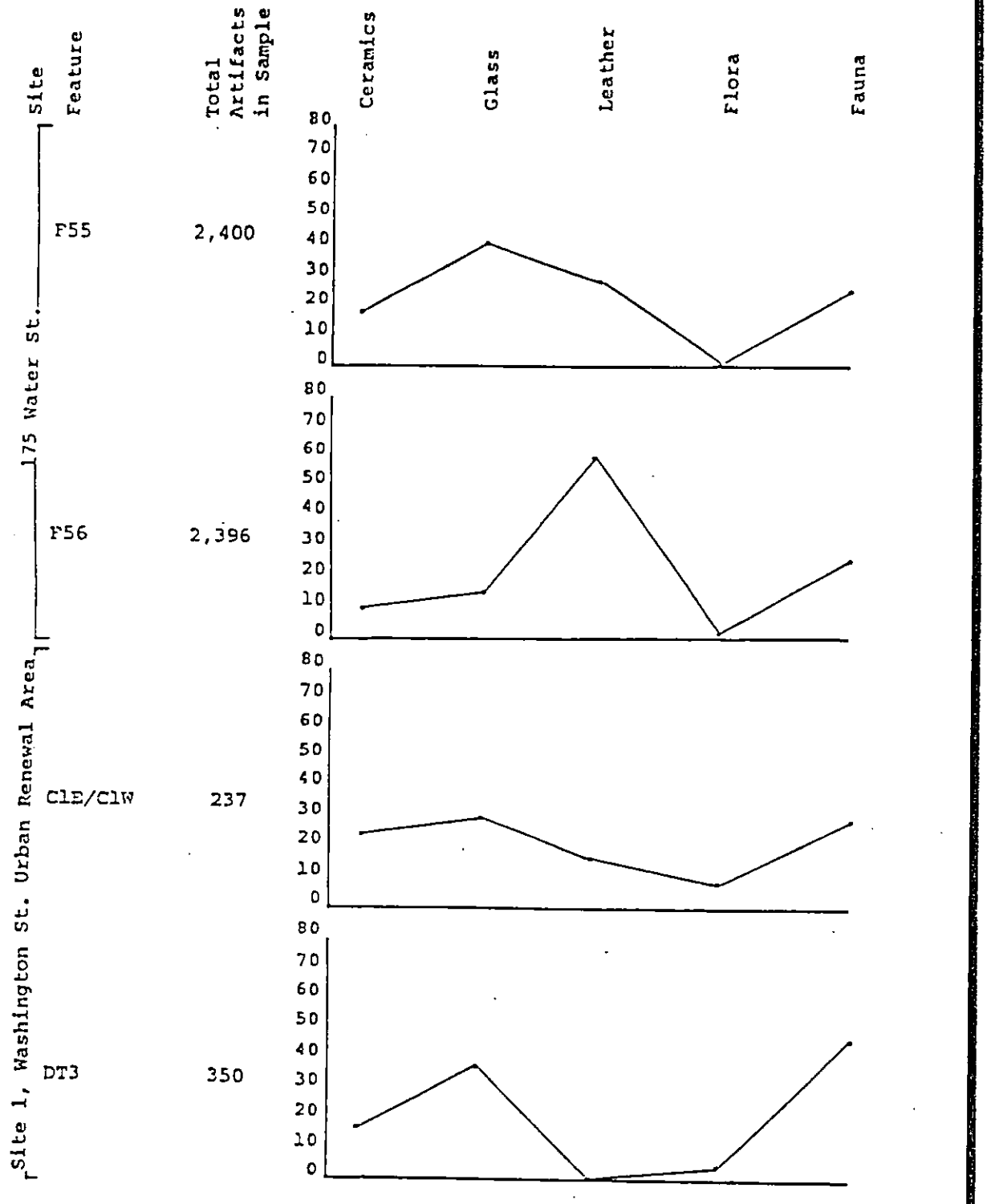


FIGURE 6.1: Site 1, Washington St. Urban Renewal Area. Comparison of Selected Fill Artifacts with 175 Water St. Sample.

SOURCE: Louis Berger & Associates, Inc. 1987: Figure 30, pages V-16

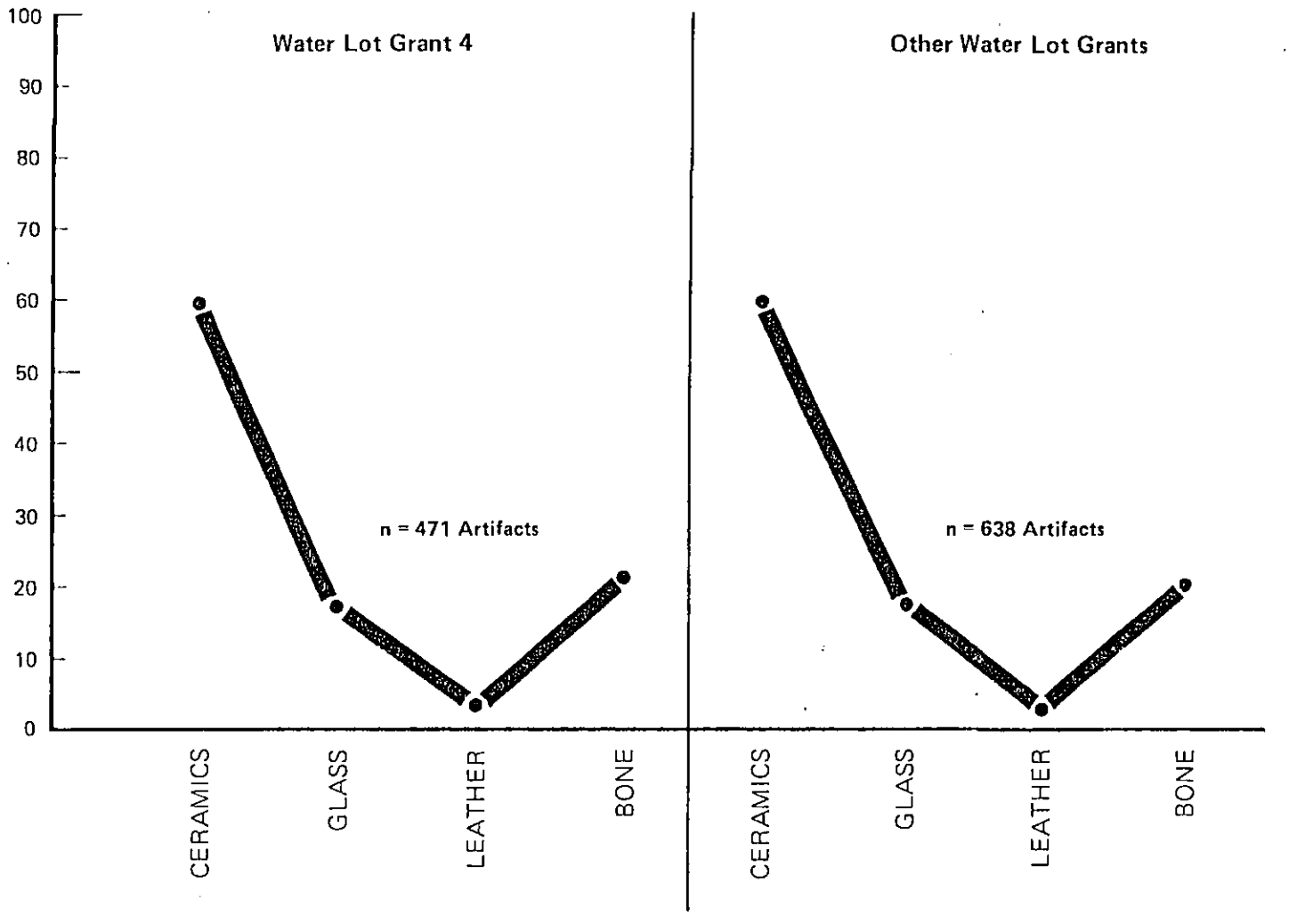


FIGURE 6.2: Proportion of Ceramics, Glass, Leather and Bone From Landfill in Water Lot Grant 4 and Other Water Lot Grants, Barclays Bank Site

SOURCE: Louis Berger & Associates, Inc. 1987a: Figure VIII.1, pages VIII-29

So, what has been the contribution of archaeological landfill studies, as seen in these projects from New York City? Most have provided information on site-specific developmental histories. Few have attempted to use archaeological data from landfill to describe and explain the social and economic character of the city and how these aspects of the city changed through time. This was one of the objectives of the Telco project, but this goal was not achieved by using archaeological data.

The contributions of archaeological research of landfill, in terms of increasing our knowledge of urban lifeways and processes, do not appear to be extensive. Of all of the above studies, only the 175 Water Street project resulted in "new" information, i.e., how water lot owners cooperated in the landfilling process. This information was based on archaeological data. Historic records were used only to confirm the economic connection of the water lot owners. If the ship had not been found, then this cooperative effort among the owners might not have been investigated. It should be pointed out that analysis of landfill soils was not a factor in the development of this "new" information. The results of the 175 Water Street project confirm the importance of studying waterfront structures, but not the fill soils.

The utility of using landfill soils in research that is not site-specific can also be evaluated by addressing Research Question 3, posed in Chapter II. The question is as follows:

> Is the content and configuration of each eighteenth- and nineteenth-century landfill site, along the U.S eastern seaboard, different, and is this diversity linked to site-specific circumstances?

The previous chapter has shown that site-specific circumstances seem to be the primary factor in determining the configuration of wharves, bulkheads, and other waterfront structures dating prior to the third decade of the nineteenth century. Also, there may be some clustering of construction techniques by region. Time, and the urban economic and social processes that change through time, do not appear to be factors. With the current data base, it is not possible to determine whether engineering aspects of these structures (i.e., wood joining) change through time. Also, the link between the economic function of a structure and the engineering features used cannot be identified. These outstanding issues will need to be addressed through future, detailed studies of these waterfront structures.

What about the fill soils within these sites? Almost all of the archaeological reports used in this study note that "garbage" or "refuse" was present in the fill. However, the quantities of different classes of materials are generally not noted, except for some of the New York City sites. The Telco researchers calculated

the volume of artifacts within various categories of fill found in the site (Rockman et al. 1983:78-80). Clean soils and soils with redeposited refuse were identified. The trash-laden deposits contained refuse from tanneries that would have been located along the waterfront. This tannery refuse was also mixed with both domestic and commercial materials from other sources (Rockman et al. 1983:78).

Figures 6.1 and 6.2 present information on the content of landfill soils within other New York City sites. The proportions of various artifact classes have also been calculated for the Assay Site (Table 6.3). Given the way the rough-sort analyses were performed on the Assay Site landfill contexts, it is not possible to include counts for leather.

TABLE 6.3

PERCENTAGE OF CERAMICS, GLASS, BONE, AND FLORAL MATERIALS FROM ASSAY SITE LANDFILL

Test Cut	Ceramics	Glass	Faunal	Floral
J Test Cuts	65%	31%	2%	2%
N Test Cuts	80%	15%	4%	1%
X Test Cuts	42%	36%	15%	7%
R Test Cut	93%	5%	1%	1%

The crown glass counts are not included in Table 6.3. As noted earlier, crown glass was most frequent in the J and X test cuts.

Table 6.3 shows variation among the landfill soils within the site. Each area of the site appears to represent different depositional events, associated with the dumping of broken ceramics (Test Cut R and the J test cuts), broken crown glass and bottle glass (the J and X test cuts), and possibly domestic refuse (the N test cuts, and possibly the X test cuts as shown in the proportion of bone, though the bone count is only 84).

When compared to the sites represented in Figures 6.1 and 6.2, the Assay Site has the highest proportion of ceramics. The occurrence of the large crown glass deposits within the Assay Site is another difference. Also, the Assay Site exhibits the lowest proportions of faunal remains. Similarities among the sites can be seen in the proportions of glass within some of the Assay test cuts and one of the 175 Water Street contexts. These same proportions of glass are

also found in the two Site 1 contexts; however, the counts for glass from Site 1 are much smaller than the counts for the Assay and 175 Water Street sites.

These comparisons, as well as the results of the Telco study, all indicate a diversity in the content of fill soils among the sites. This diversity also occurs within the sites themselves, as is evident from the Telco, Assay, and 175 Water Street sites. Part of the diversity among the sites is clearly due to temporal factors, such as the implementation of ordinances and laws concerning trash disposal (Geismar 1986). However, this diversity appears to be linked more to the type of activities that occurred around the area to be filled. This is best exemplified by the Assay Site, which contained several different landfill deposits adjacent to the wharves, within the wharves, and in the center of the site. The types of artifacts within these many deposits indicated separate dumpings from different commercial and domestic activities, and a combination of these activities.

Based on the artifact content of the landfill soils from these sites, it appears that each site, dating prior to the early nineteenth century, is unique. If the sites represent unique landfilling activities, then how can the materials from these landfill contexts be used to examine social and economic events and processes of a city? In order to examine changes in material consumption patterns within New York City as a whole, GCI assumed that the artifacts from the Assay Site's fill deposits represented the city's general material culture. However, this approach has serious methodological flaws. During the period in which the Assay Site was filled, Manhattan's population grew from 33 thousand to 60 thousand individuals (Albion 1939). To consider these thousands of individuals as a single social entity, i.e., "the city," ignores the results of extensive historical research which has identified the social and economic diversity of this and other urban populations (cf. Abbott 1974; Albion 1939; Wilkenfeld 1973, 1976).

These factors touch on another fundamental problem with the use of landfill soils in addressing research issues not specific to a particular site. We generally do not know where the artifacts in the fill came from. Thus, these deposits cannot be used in the same fashion as deposits from urban or rural lots on fast land, in which the recovered materials can be linked to specific households or businesses, or class of household or business.

So the question remains: What should be studied on future landfill sites? Based on this review, it is recommended that landfill soils be used only to describe the specific depositional histories of the sites under investigation. If unusual artifact deposits are found, such as from a china dump, then specialized studies can be performed as a means of increasing our understanding of these artifact types. For example, work by Janowitz and Stehling (1986) on ceramics from china dumps from two New York sites provided new

information on the range of decorations and forms available among polychrome pearlwares imported into the city. This type of ware is rarely illustrated or discussed in the available literature (Janowitz and Stehling 1986:12). Also, if artifacts that rarely occur in fast land contexts are recovered from landfill, then these materials should be studied more fully since they represent important archaeological data for culture studies. Dutch artifacts, for example, are found in fast land contexts in the city, but the number of sites containing these types of materials is quite low. Recovery of such materials from landfill soils would provide additional information for studies of Dutch ceramics, pipes, tiles, etc., in terms of the Dutch period "decorative arts." It should be noted that the scope of a detailed material culture or "decorative arts" study is usually beyond the scope of a compliance-related cultural resource investigation. Such research can best be accomplished within an academic or research institution.

Based on the results of these archaeological investigations of landfill sites, it appears that materials and soils from landfill are most suited to site-specific research. In terms of field methods to be used, only a representative sample of landfill soils needs to be obtained from these sites, given the low information yield of these types of deposits when compared to contexts directly associated with residential, commercial, and industrial activities. This sample can be easily retrieved through machine-excavated trenches. Since the primary goal of this sampling is to record the landfill depositional history of the site, the level of effort expended in analyzing the artifacts from landfill should not be comparable to the level of effort expended in sampling post-landfill occupational deposits. If unusual clusters of artifacts are identified in landfill soils, such as a china dump, then alternative excavation methods, such as hand-dug units, may be used if the landfill environment is stable and shallow enough for the safe retrieval of these materials.

VII. RESEARCH POTENTIAL OF THE ASSAY SITE

A. INTRODUCTION

The research potential of the Assay artifact collection has not been exhausted in the present project, and the collection remains a major resource for future scholarly studies. This chapter presents several research issues that can be addressed by other scholars. The most obvious component of the collection which is suitable for more in-depth analysis is the artifact assemblage from Feature 18 in Lot 6.

B. THE FEATURE 18 ASSEMBLAGE

This feature represents the best preserved deposit attributable to domestic occupations. The materials in this feature appear to be from three sources: the Ming cooperage (ca. 1789-1792), the John Elsworth boarding house (ca. 1799), and the Courtlandt VanBeuren household (ca. 1801-1812). To use the Feature 18 artifacts, it will be necessary to conduct additional analyses of the collection in order to sort out the historical associations of the artifacts. This may be accomplished through different types of analyses. LBA recommends a more extensive cross-mending of ceramics and glass from within the feature and from soils both beneath the feature and in Feature 28 in Lot 7. This cross-mending may identify discrete depositional events within what now appears to be one large unstratified context. It should be noted that LBA's preliminary analyses have shown that there is a clustering of ceramic ware types and forms in different contexts within the feature. It may also be useful to conduct computer-generated distributional analyses of the types, subtypes, and forms of all artifacts in the feature. These analyses would provide a mechanism for detailing spatial relationships of various artifacts which could indicate separate depositional events. These events could then be linked to specific historical associations within Lots 6 and 7.

If materials within the feature can be confidently linked to the VanBeuren occupation, LBA recommends the following research strategy. First, historical research should be undertaken to define the household's relative economic position. This can be accomplished by determining the household's taxable wealth, with reference to city-wide surveys that provide decile rankings for the early nineteenth century. Research should also be undertaken to define the composition of the household and provide information on its life cycle. Federal census records will provide minimum information on the household, and this can be supplemented by other sources such as church records. So far, no commercial papers relating to the VanBeuren grocery have been located, either at the New York Historical Society or the New York Public Library. It is possible that the household was part of the socially and politically prominent VanBeuren family, or part of the Van

Courtlandt family. Secondary sources dealing with these elite families should be reviewed.

Archaeological analyses should then focus on examination of the formation processes or refuse disposal patterns that characterize the deposit. Most important, ceramic cross-mending with surrounding contexts, particularly those in adjacent Lot 7, will be necessary to determine the type of refuse context represented by the collection and what systemic event or events created the deposit.

The Feature 18 assemblage contains a large faunal collection. These materials can be used in several lines of inquiry, depending on the historical source of the materials. If these faunal remains are linked to the boarding house, then a comparative analysis can be conducted with faunal materials from mid-nineteenth-century boarding houses in Lowell, Massachusetts (cf. Beaudry and Mrozowski 1987a, 1987b). The Lowell houses were associated with workers within the Boott Mills textile manufacturing complex. If the faunal materials are associated with the VanBeuren household, then an economic scaling of meat cuts, following the Schulz and Gust method (1983), can be undertaken. Since food generally accounted for a much higher proportion of the household budget than ceramics, it is thought that economic scaling based on dietary remains will provide a more sensitive reflection of household spending patterns.

Upon completion of the various historical and archaeological analyses, comparisons should be made between the VanBeuren deposits and contemporaneous deposits from other sites. There are six deposits, dating between the 1780s to the 1820s, assignable to specific households in Manhattan (cf. Louis Berger & Associates, Inc. 1987a: Table VIII.1), and this sample can be expanded by use of sites in other cities.

This more detailed analysis of the Feature 18 assemblage should be performed in the context of developing and testing models of consumer behavior. GCI's original research design presents such a model which can be tested using materials from the feature and possibly other contexts within the Assay Site. This model examines the domestic deposits in terms of the emergence of the family consumer economy, during the Federal period. At this time, the family moves from being a unit of production to one concerned with consumption. This shift involves several factors, including the separation of home and work place, and the emergence of the "women's sphere" (Henn and Wall to Baugher, April 4, 1984; and cf. Wall 1987).

This shift has been examined by historians; however, another avenue of research would be the material manifestation of this shift. If a link between material culture (i.e., the quantity, quality, and diversity of ceramic, glass, floral, and faunal assemblages) and this shift in the structure and role of the family can be defined, then artifacts from the late eighteenth and early nineteenth

centuries can be used to measure when this shift actually occurred and how it is expressed among different types of families (e.g., families of different social classes).

If the initial analysis of the Feature 18 deposits does not identify distinct strata or clusterings of artifacts but determines that the deposits are totally mixed, then the research value of the assemblages is diminished. As noted in earlier chapters, it is extremely important to identify the historical context of materials under investigation. The possible origins of the artifacts in Feature 18 are very different in terms of their "systemic context" (cf. Schiffer 1972). As a result, it would not be possible to explain any patterning within the assemblage, as the observed patterning might have resulted from activities within the boarding house, the cooperage, the VanBeuren household, or a combination of these.

C. THE CROWN GLASS DEPOSIT

Lot 41 contained a large crown glass deposit within the landfill. The city directories show that the water lots on this block had been sold and filled between 1785 and 1804. Lot 41 had been built on and occupied by 1808. During this time period, the American glass industry was just beginning, with the bulk of window glass still being imported from England; and most of the imported window glass was already pre-cut. The predominance, within this deposit, of disc edges and bull's-eyes exhibiting cut marks suggests that this glass was made domestically. In addition, the glass is similar in appearance to examples of window glass known to have been made in New Jersey and Pennsylvania. These data point to a glassmaker within the vicinity of the Assay Site. This local manufacturer appears to have used this waterfront location as a place to dump waste materials from the glassworks. Only by closely examining the glass, however, can the question of its origin be resolved.

The crown glass deposit contains approximately 170,000 fragments. These includes bull's-eyes, edges, and body fragments. Some of the pieces clearly show scoring and cut edges. Angles are also present on several pieces. In appearance the glass has a greenish tint and a good clarity.

The crown glass deposit appears to represent the remains of work done by local craftsmen, and in this respect it is unique in New York City and should be more fully described. The glass fragments clearly show the pattern of cutting panes from the discs. In addition, traces of a tin-mercury coating are present on some of the edges, suggesting that mirrors were being made of crown glass.

In order to verify that this glass was in fact domestically produced, it is suggested that trace analysis be done on similar glass of known provenience (Olin and Sayre 1974). This would require obtaining samples of window glass from the glass regions

of England and France as well as examples of locally produced window glass from the New York metropolitan area. Several glass houses sprang up in New York and New Jersey during the first two decades of the nineteenth century, and samples from some of these could be used both for visual comparison and trace analysis.

Historical research on glassworks within the city and vicinity should also be conducted as part of the investigation of this crown glass deposit.

D. WOODEN ARTIFACTS

The great range of wooden objects from the Assay Site provides an opportunity to study the types of wood used during the early to mid-nineteenth century, the manufacturing techniques employed, and the nature of the wood artifacts themselves. Wood is an ideal material from which to fashion things because of its soft nature. Wear marks are left on the surface of the wood as a result of manufacturing, and learning to identify the characteristic marks of specific tools can lead to information about manufacturing techniques. In order to recognize specific wear marks on wood it is necessary to investigate written sources and to observe crafters using the tools of the period.

Thin sectioning is a method used for identifying wood species. It may also be used to identify the point of origin for certain types of wood, for example English versus American oaks. A good application of this method would be with the Ming cooperage deposit. According to the city directories the Ming cooperage existed on Lot 7 from 1789 to 1795. It left behind wood chips in the wood privies in Lot 6 and Lot 7. These wood chips are the physical remains of activities within the cooperage. A preliminary examination has shown that these chips bear the marks of the tools used to create them. Thus, it might be possible to identify not only the wood types but also the methods of manufacture. In addition, the relationship of the wooden artifacts from some of the deposits to Ming's cooperage as the place of manufacture could be investigated.

Some of the wood artifacts within the Assay collection are retrievable by their computer codes; however, many others are not highlighted. Therefore, the first task in this study would be to go through the collection and sort out a selection of suitable artifact types. A good starting place for locating wooden artifacts would be the conserved wood samples which were boxed separately. The best approach for categorizing the artifacts would be to divide them into broad categories such as the following: Structural--pilings, planks, wooden boxes, barrel cisterns, wharves, spread footers; Commercial--block and tackles, pulleys, wood chips, barrels, tools; Domestic--handles, furniture parts, scrub brushes, toys, spoons. The artifacts would need to be identified, analyzed by wood type, and examined for tool marks.

E. FAUNAL AND FLORAL MATERIALS

Faunal and floral analyses provide the most information when applied to deposits whose characteristics have been previously established through artifact analysis. In other words, a deposit whose temporal parameters and type of occupation (residential, commercial, or mixed) and depositional context (yard deposit, feature fill, landfill) are already known, is the most appropriate for zooarchaeological and ethnobotanical studies. Several deposits from the Assay Site have the potential to meet these requirements: the wood privies in Lots 6 and 7; the stone-lined privies from Lots 6, 7, and 8; the warehouse floor in Lot 9; and the barrel cistern in Lot 43.

The faunal and floral collections from these deposits could be used in further research concerning both foodways and site formation processes. As a first step in any analysis, the faunal and floral materials will have to be identified. To date, most of the faunal remains have simply been counted and most of the floral material and shell has only been weighed, without identification or separation by class or species regardless of the type of deposit. The exceptions to this are depositional units that have fairly clear historical associations (i.e., the warehouse in Lot 9 and the wood privy in Lot 6, though the specific historical association of depositional contexts within the latter will require very detailed cross-mend analyses).

The area of foodways ("foodways" defined in the broadest sense as what people ate, how they prepared and served food, where the food was obtained, etc.) could be investigated through the examination of bones, fish scales, seeds, shells, and nuts, from appropriate contexts and from selected soil samples. For instance, the domestic deposits from the privies in Lots 6 and 7 might reflect the daily diets of middle or upper class New Yorkers while the warehouse materials would show what was available for sale. These two deposits could be compared and contrasted.

The presence or absence and type of bones, shells, seeds, nuts, and fish scales within a given deposit can provide information about site formation processes. Faunal and floral materials are generally disposed of by households on a daily basis while other types of cultural materials are disposed of periodically. The state of preservation of floral and faunal materials (when compared to artifacts such as ceramic tablewares and glassware) can help determine whether contexts contain primary, secondary, tertiary, de facto, and/or displaced refuse deposits.

The minimum level of analysis required for these features should include identifying species and element; examining modifications, including types and locations of butchering marks, gnaw marks; researching evidence of cooking techniques; and identifying

indications of the use of bone in manufacturing (such as button blanks, partially completed handles, and horn cores).

F. CHINA SHOP DEPOSITS

The Assay Site assemblage also includes two concentrations of creamwares and pearlwares, which may be "dumps" within landfill soils. These ceramics may represent vessels either damaged in transport or in china shop accidents. The deposits, Cx 839 from Test Cut J6 and several contexts from Test Cut R within Test Trench East, consist of thousands of sherds. Similar deposits have been found at the 7 Hanover Square and 175 Water Street sites (Janowitz and Pipes 1983; Stehling and Janowitz 1986). At these two latter sites, it was possible to correlate the dumped ceramics with nearby china shops. Analysis of the ceramics from these dumps provided new information on the range of decorations and forms that were available among polychrome pearlwares imported into the city. This type of ware is rarely illustrated or discussed in the available literature (Janowitz and Stehling 1986:12).

The sherds from the two Assay Site deposits should be marked and then sorted by ware type and pattern and cross-mended in order to determine the range of forms and decorations present. Any observable makers' marks and identifiable patterns will add precision to the dating. It is expected that this assemblage, when combined with information from the Hanover Square and Water Street dumps, will help in the study of the late eighteenth- and early nineteenth-century ceramics trade between Great Britain and New York City.

G. GENERAL SUGGESTIONS FOR FURTHER ANALYSES

The artifacts from the features, with the exception of the warehouse and the wood privy in Lot 6, received an intermediate level of analysis; but those from non-feature contexts were subjected only to a preliminary rough-sort analysis (see Chapter II). If these contexts are to be used to address future research concerns, then the materials in these contexts should be subjected to more detailed analyses than were possible within the parameters of the current study.

The ceramics from non-feature deposits were separated by size and then those sherds two inches or greater were sorted by general categories of whiteware, ironstone, porcelain, creamware, etc. (see Chapter II) in order to provide rough date ranges. The ware types into which they were sorted were general and did not specify differences within each type. Other unusual ware types were counted and placed in the "other" category. These artifacts could be further analyzed to at least the intermediate level, which would include information about decoration, makers' marks, form, and function.

Glass from the features received an intermediate level of analysis, but non-feature glass was simply counted. Glass from the site could be analyzed at the intermediate level and the glass from the features could be cross-mended and attempts made to determine minimum numbers of vessels.

The small finds/architectural artifacts from the non-feature contexts were separated into non-diagnostic, diagnostic, and architectural groups and counted. The small finds/architectural artifacts from feature deposits received an abbreviated intermediate level of analysis. These artifacts could be given a complete intermediate level of analysis. More intensive research would be helpful for several well-represented classes of artifacts: buttons, cloth, bale seals, window leads, ship-related artifacts, and the assemblage associated with the bottom of the wharf. The latter deposit has good research potential, given the quantity and range of whole items present. However, before artifacts from the riverbottom deposits can be used in any type of research, it will be necessary to confidently define the depositional context represented by these materials. For example, Are the artifacts from this location the result of dumping from docked ships, from residences adjacent to the wharves, and/or from businesses on and adjacent to the wharves? LBA's preliminary examination of the riverbottom contexts adjacent to the North-South wharves and Bache's Wharf suggests that materials associated with the wooden privies in Lots 6 and 7 are present in these riverbottom soils. Therefore, the assemblages from the latter context and from the two features should be examined for this possible linkage. If this connection can be established, then materials from the riverbottom next to the wharves could be included in the consumer behavior studies involving the Lot 6 and 7 assemblages.

H. SUMMARY

These are just a few of the research issues that could be addressed with the Assay Site collection. As noted in Chapter II, many of these research topics fall within the purview of academic institutions, where the institutional framework allows researchers the time and resources to grapple with the major methodological and theoretical issues that must be addressed when attempting to examine broad research domains (e.g., the changing role of women within nineteenth-century households) or detailed, material-specific analyses (e.g., studies of hand-painted pearlware ceramics, crown glass, or wooden artifacts). It should be remembered that historical research and artifact analyses on a mandated archaeological data recovery program must be completed quickly and at a reasonable cost. The primary variable that forces this work to be completed in a timely manner is the Certificate of Occupancy (C of O). The report on the data recovery program must be completed and approved by municipal review agencies before the C of O is given. Research deadlines within academic institutions

are much later, and more flexible, than those in contract situations.

Mandated archaeological work provides a beginning point for more in-depth research. Research by Wall (1987) is an excellent example. This is not to say that contract archaeology projects should not attempt to conduct research on the social and economic processes that characterized American society, and on the specific material culture and decorative arts of this society. However, these projects should not attempt to examine topics that are beyond (a) the reach of both the artifacts and features contained within a site, and (b) the methods readily available to analyze these artifact and features. Care must also be taken to avoid research strategies that cannot be successfully examined in the often rushed context of contract archaeology.

Thus, the full research potential of the Assay Site, Barclays Bank Site, 175 Water Street Site, Telco Block, 7 Hanover Square, and other New York City projects, has yet to be realized. This realization can occur only as a result of future studies of these sites by scholars from local and regional universities and research institutions.

REFERENCES

Abbott, Carl
1974 The Neighborhoods of New York, 1760-1775. New York History 55:35-54.

Albion, Robert Greenhalgh
1939 The Rise of the New York Port, 1815-1860. Charles Scribner's Sons, New York.

1965 Forests and Sea Power: The Timber Problem of the Royal Navy, 1652-1862. Reprint of 1926 Harvard Economic Studies Volume XXIX; Hamden, Connecticut: Archon Books.

Barber, Edwin Atlee
1976 The Pottery and Porcelain of the United States. Reprint of the original 1893 edition, Feingold and Lewis, New York.

Beaudry, Mary C.
1984 Archaeology and the Historical Household. Man in the Northeast No. 28, pp. 27-38.

1977 Volume 1: Life at the Boarding Houses, A Preliminary Report. LOWE 300, Lowell National Historical Park Survey Project, Interdisciplinary Investigations of the Boott Mills, Lowell, Massachusetts. Cultural Resource Management Study No. 18. Division of Cultural Resources, North Atlantic Regional Office, National Park Service, Boston, Massachusetts.

1987 Opinion. Analytical Scale and Methods for the Archaeological Study of Urban Households. The Society for Historical Archaeology Newsletter 20(1):22-24.

Beidleman, D. Katherine, Wade P. Catts and Jay F. Custer
1986 Final Archaeological Excavation at Block 1191, Wilmington, New Castle County, Delaware. Delaware Department of Transportation Archaeological Series 39. Delaware Department of Transportation, Dover.

Blackmar, Betsy
1979 Rewalking the "Walking City:" Housing and Property Relations in New York City, 1780-1849. Radical History Review 21:131-148.

Boros, Laurie, Valerie De Carlo, Roselle Henn, and Diana Wall
1985 Archaeological Investigations of the Wharves at the Assay Office Site in Lower Manhattan. Paper presented at the Symposium on Historic Industrial-Port Development, at the annual meeting of the Society for Industrial Archaeology, Newark, New Jersey.

Bridgwater, William, and Seymour Kurtz (editors)
1963 The Columbia Encyclopedia, third edition. Columbia University Press, New York.

Brown, Marley, III
1987 Opinion 2 - A Rejoinder. Issues of Scale Revisited. The Society for Historical Archaeology Newsletter 20(1):25-27.

Cameron, Elisabeth
1986 Encyclopedia of Pottery & Porcelain: 1800-1960. Facts on File Publications, New York, New York.

Campbell, Anita
1984 Le Creamware. Dossiers 57. Gouvernement du Québec, Ministère des Affaires Culturelles. Québec.

Coysh, A. W., and R. K. Henrywood
1982 The Dictionary of Blue and White Printed Pottery 1780-1880. Banon Publishing, Woodbridge, Suffolk, England.

Deetz, James
1977 Material Culture and Archaeology -- What's the Difference ? In Historical Archaeology and the Importance of Material Things, edited by Leland Ferguson. Society for Historical Archaeology Special Publication Series, Number 2.

Dupont, Jean-Claude, and Jacques Mathieu
1986 Exercises des Métiers du Bois. Célat, Québec.

Elliot's Improved Double Directory
1812

Forbes, H. A. Crosby
1982 Hills and Streams: Landscape Decoration on Chinese Export Blue and White Porcelain. International Exhibitions Foundation and the China Trade Museum, Milton, Massachusetts.

Gates, William C., and Dana E. Ormerod
1982 The East Liverpool, Ohio, Pottery District. Historical Archaeology 16 (1 and 2).

Geismar, Joan
1983 The Archaeological Investigation of the 175 Water Street Block, New York City. Prepared for HRO, International, Ltd., by Soil Systems Division, Professional Service Industries, Inc.

1986 Landfill and Health: Telling It Like It Was. Paper presented at the Annual Meeting of the Society for Historical Archaeology, Sacramento, California.

Godden, Geoffrey A.
1964 Encyclopedia of British Pottery and Porcelain Marks. Schiffer Publishing Ltd., Exton, Pennsylvania.

Greenhouse, Barry
December 11, 1985
Letter to Larry Jay Wyman, HRO, International, Ltd., re: Financial Square.

Greenhouse Consultants, Inc.
1983a Historical Documentary Report, Assay Office Site, New York, New York. Prepared for HRO International, Ltd., New York.

1983b Proposal to Perform Deep Archaeological Testing at the Assay Office Site, New York, New York. Prepared for HRO International, Ltd., New York.

1984 Proposal and Test Recommendations for the Backyard Areas of the North Half of the U.S. Assay Office Site (Block 35). Prepared for HRO International, Ltd., New York.

Harris, Edward C.
1975 The Stratigraphic Sequence: A Question of Time. World Archaeology 7(1):109-121.

1979 Principles of Archaeological Stratigraphy. Academic Press, New York.

Haynes, E. Barrington
1970 Glass Through the Ages. Penguin Books, Baltimore.

Heintzelman, Andrea
1985 Late Seventeenth and Eighteenth Century Wharf Technology: Historical and Archeological Investigations of Three Eastern U.S. Examples. M.A. thesis on file at the American University, Washington, D.C.

Heintzelman-Muego, Andrea
1983 Construction Material and Design of 19th Century and Earlier Wharves: An Urban Archeological Concern. Paper presented at the Annual Society for Historical Archaeology and Council for Underwater Archaeology Conference, Denver, Colorado.

Henn, Roselle, and Diana diZerega Wall
April 4, 1984
Letter to Sherene Baugher, New York City Landmarks Preservation Commission.

April 6, 1984
Letter to Sherene Baugher, New York City Landmarks Preservation Commission.

April 11, 1984
Letter to Sherene Baugher, New York City Landmarks Preservation Commission.

May 14, 1984
Letter to Sherene Baugher, New York City Landmarks Preservation Commission.

May 16, 1984
Letter to Sherene Baugher, New York City Landmarks Preservation Commission.

Henn, Roselle E., Diana diZerega Wall, Laurie Boros, Valerie DeCarlo, and Jed Levin
1986 The Standardization of Wharf Construction in Federalist New York City. Paper presented at the annual meeting of the Society for Historical Archaeology, Sacramento.

Henry, Susan L., and Terry H. Klein
1988 An Evaluation of Comparative Studies in Urban Archaeology. Paper presented at the annual meeting of the Society for Historical Archaeology, Reno, Nevada.

Hillman, Howard
1981 The Cooks Book. Avon Books, New York.

Hobley, Brian
1981 The London Waterfront - Exception on the Rule? In Waterfront Archaeology in Britain and Northern Europe, edited by Gustav Milne and Brian Hobley. Research Report No. 41, London: The Council for British Archaeology.

Honerkamp, Nicholas, R. Bruce Council and Charles H. Fairbanks
1983 The Reality of the City: Urban Archaeology at the Telfair Site, Savannah, Georgia. Submitted to Archaeological Services Branch-Atlanta. Prepared by The Jeffrey L. Brown Institute of Archaeology, The University of Tennessee at Chattanooga.

Howard, David Savage
1984 New York and the China Trade. The New York Historical Society, New York.

Huey, Paul R.
1984 Old Slip and Cruger's Wharf at New York: An Archaeological Perspective of the Colonial American Waterfront. Historical Archaeology 18(1):15-37.

Janowitz, Meta F., and Marie-Lorraine Pipes
1983 Pearlwares and Creamwares from a China Shop Dump at the 7 Hanover Square Site. Paper presented at the annual meeting of the Council for Northeast Historical Archaeology.

Janowitz, Meta F., and Nancy A. Stehling
1986 Merchant's Dump and Local Products: The Availability of Ceramics in Turn of the 19th Century New York City. Paper presented at the annual meeting of The Society for Historical Archaeology, Sacramento.

John Langdon and Son's New York City Directory
1804-1805

Jones, Alice Hanson
1980 Wealth of a Nation To Be; The American Colonies on the Eve of the Revolution. Columbia University Press, New York.

Jones, Olive R.
1983a The Contribution of the Ricketts' Mold to the Manufacture of the English "Wine" Bottle, 1820-1850. Journal of Glass Studies 25:167-177.

1983b London Mustard Bottles. Historical Archaeology 17(1):69-84.

Jones, Olive, and Catherine Sullivan
1985 The Parks Canada Glass Glossary. Parks Canada, Ottawa, Ontario.

Joseph, Robert (editor)
1985 The Wines List. Guiness Superlatives Ltd., Middlesex, England.

Kammen, Michael
1982 "The Promised Sunshine of the Future," Reflections on Economic Growth and Social Change in Post-Revolutionary New York. New Opportunities in a New Nation: The Development of New York after the Revolution, edited by Manfred Mones and Robert V. Wells, pp. 109-143. Department of History, Union College, and Union College Press, Schenectady, New York.

LeeDecker, Charles H., Terry H. Klein, Cheryl A. Holt, and Amy Friedlander
1987 Nineteenth Century Households and Consumer Behavior in Wilmington, Delaware. In Socioeconomic Status and Consumer Choices: Perspectives in Historical Archaeology, edited by Suzanne Spencer-Wood, pp. 233-259. Plenum Press.

Longworth's American Almanack
1798-1809

Louis Berger & Associates, Inc.
1985a Archaeological Monitoring: The Shearson Lehman/American Express Information Services Center, Washington Street Urban Renewal Area, New York, New York. Prepared for the New York City Public Development Corporation by Louis Berger & Associates, Inc., East Orange, New Jersey.

1985b Nineteenth Century Wilmington Households: The Christina Gateway Project. Prepared for the City of Wilmington, Department of Commerce, by Louis Berger & Associates, Inc., East Orange, New Jersey.

1987a Druggists, Craftsmen, and Merchants of Pearl and Water Streets, New York: The Barclays Bank Site. Prepared for London & Leeds Corporation and Barclays Bank PLC, New York.

1987b Archaeological Investigation of Site 1 of the Washington Street Urban Renewal Area, New York. Prepared for Shearson Lehman/American Express through the New York City Public Development Corporation.

1988 The East Creek Sawmill Site, 1782 to circa 1913. Prepared for the Federal Highway Administration and the New Jersey Department of Transportation, Trenton.

Map of Water Lot Grants on East River
1885 On file at the Manuscripts Division, New York Historical Society, New York.

McKearin, Helen, and Kenneth M. Wilson
1978 American Bottles & Flasks and Their Ancestry. Crown Publishers, New York.

Mehlman, Felice
1982 Phaidon Guide to Glass. Phaidon Press Ltd., Oxford, England.

Miller, George L.
1980 Classification and Economic Scaling of 19th Century Ceramics. Historical Archaeology 14:1-40.

Munsey, Cecil
1970 The Illustrated Guide to Collecting Bottles. Hawthorn Books, New York.

New York City Directories
1789-1850 On file at the New York Historical Society, New York; and on microfilm at the Library of Congress, Washington, D.C.

[New York City]
n.d. Libers. On file at the Surrogates Court, New York.

1785-1850 Tax Lists. On file at Queens College and at the Municipal Archives, New York.

Noel Hume, Ivor
1969 Pearlware: Forgotten Milestone of English Ceramic History. In English Pottery and Porcelain, edited by Paul Atterbury, pp. 42-49. Universe Books, New York.

1970 A Guide to Artifacts of Colonial America. Alfred A. Knopf, New York.

1974 All the Best Rubbish. Harper and Row, New York.

Norman, Gary Joseph
1987 Eighteenth-Century Wharf Construction in Baltimore, Maryland. M.A. thesis on file at the Department of Anthropology, College of William and Mary, Williamsburg, Virginia.

Olin, Jacquelin S., and Edward V. Sayre
1974 Neutron Activation Analytical Survey of Some Intact Medieval Glass Panels and Related Specimens. Archaeological Chemistry, Advances in Chemistry Series 138, edited by Curt W. Beck. American Chemical Society, Washington, D.C.

Oswald, Adrian
1961 The Evolution and Chronology of English Clay Tobacco Pipes. Archaeological News Letter 7(3):55-62. London.

1967 English Clay Tobacco Pipes. British Archaeological Association. London.

Peckham, Harriet C. Waite Van Buren
1913 History of Cornelis Maessen Van Buren...and His Descendants. Tobias A. Wright, New York.

Porter, Glenn, and Harold Livesay
1971 Merchants and Manufacturers. Johns Hopkins University Press, Baltimore.

Professional Archaeologists of New York City
1987 Report on the PANYC Symposium on Landmaking in New York City. Newsletter No. 31, p. 9.

Quimby, Ian M.
1973 Ceramics in America. University Press of Virginia, Charlottesville.

Rockman, Diana, Wendy Harris, and Jed Levin
1983 The Archaeological Investigation of the Telco Block, South Street Historic District, New York, New York. Prepared for Jack Resnick and Sons, Inc., by Soil Systems, Inc.

Salwen, Bert
1973 Archeology in Megalopolis. In Research and Theory in Current Archeology, edited by Charles L. Redman, pp. 151-163. John Wiley & Sons, New York.

1978 Archeology in Megalopolis: Updated Assessment. Journal of Field Archeology 5:453-459.

Schiffer, Herbert, Peter Schiffer, and Nancy Schiffer
1980 China for America - Export Porcelain of the 18th & 19th Centuries. Schiffer Publishing Ltd., Exton, Pennsylvania.

Schiffer, Michael B.
1972 Archaeological Context and Systemic Context. American Antiquity 37(2):156-165.

1983 Toward the Identification of Formation Processes. American Antiquity 48(4):675-706.

1988 The Structure of Archaeological Theory. American Antiquity 53(3):461-485.

Schulz, Peter D., and Sherri M. Gust
1983 Faunal Remains and Social Status in 19th Century Sacramento. Historical Archaeology 17(1):44-53.

Shepard, James F., and Gary M. Walton
1976 Economic Change After the American Revolution, Pre- and Post-War Comparisons of Maritime Shipping and Trade. Explorations in Economic History 13:397-422.

Shepherd, James F., and Gary M. Walton
1972 Shipping, Maritime Trade, and the Economic Development of Colonial North America. Cambridge University Press, Cambridge.

Sloane, Eric
1965 A Reverence for Wood. Ballantine Books, New York.

Smith, Alan
1970 The Illustrated Guide to Liverpool Herculaneum Pottery 1796-1840. Praeger, New York.

South, Stanley
1977 Method and Theory in Historical Archaeology. Academic Press, New York.

Spann, Edward K.
1981 The New Metropolis; New York City, 1840-1857. Columbia University Press, New York.

Spillman, Jane Shadel
1982 Glass Tableware, Bowls and Vases. Alfred A. Knopf, New York.

Stehling, Nancy, and Meta Janowitz
1986 Three Post-Revolutionary China Shops in New York City. Paper presented at the annual meeting of the Council for Northeast Historical Archaeology.

Towner, Donald
1963 The Leeds Pottery. Cory, Adams & MacKay Ltd., London.

1978 Creamware. Faber & Faber, London.

U. S., Bureau of Census
1810 Third Census of the United States - Population. New York State, New York County, New York City, Ward 2. Microfilm of original materials on file at the National Archives, Washington, D.C.

Visser, Edwin
1990 Personal communication. Bronx District Deputy of the Free and Accepted Masons.

Walker, Iain C.
1971 An Archaeological Study of Clay Pipes from the King's Bastion, Fortress of Louisbourg. Canadian Historic Sites: Occasional Papers in Archaeology and History No. 2:55-122.

1977 Clay Tobacco Pipes with Particular Reference to the Bristol Industry. History and Archaeology No. 11, National Historic Parks and Sites Branch, Parks Canada, Ottawa.

Wall, Diana diZerega.
1987 At Home in New York: Changing Family Life among the Propertied in the Late Eighteenth and Early Nineteenth Centuries. Unpublished Ph.D. dissertation, Department of Anthropology, New York University, New York.

Wall, Diana diZerega, and Roselle E. Henn
1984a The Results of the Archaeological Testing and the Recommendations for Mitigation for the "Backyard Areas" in Lots 7, 8 & 9, 41, 42 & 43; Block 35, New York City. Prepared by Greenhouse Consultants, Inc., New York, New York.

1984b Results of Testing and Recommendations for Mitigation in Lots 6 and 44, Block 35 Site. Prepared by Greenhouse Consultants, Inc., New York, New York.

1984c The Sampling of the Landfill and the recording of the Construction of the Bulkhead in Test Trench West, Block 35. Prepared by Greenhouse Consultants, Inc., New York, New York.

Wilkenfield, Bruce Martin
1973 The Social and Economic Structure of the City of New York, 1695-1796. Ph.D. dissertation, Columbia University, New York.

Wilson, Merrill A., and Geoffrey P. Moran
1980 Historic Structure Report, Central Wharf. Architectural Data and Archaeological Data. Denver Service Center, National Park Service, Denver, Colorado.

Winton, Andrew L., and Kate Barber Winton
1981 Notwalk Potteries. Phoenix Publishing, Caanan, New Hampshire. (Published for Friends of Lockwood House, Inc.)

Zierden, Martha, and Debi Hacker
1987 Charleston Place: Archaeological Investigations of the Commercial Landscape. The Charleston Museum Archaeological Contributions 16. Charleston, South Carolina.

APPENDIX 1

RESUMES OF PRINCIPAL INVESTIGATORS

RESUME

NAME: Terry H. Klein

EDUCATION: M.A., Anthropology, Southern Illinois University, 1979. B.A., Anthropology, University of Arizona, 1974.

PROFESSIONAL AFFILIATIONS: Society for American Archaeology
Society for Historical Archaeology
Council for Northeast Historical Archaeology
Professional Archaeologists of New York City
Society of Professional Archaeologists

EXPERIENCE:

1989 to Present * Chief, Cultural Resources, Southeast Region, Cultural Resource Group, Louis Berger & Associates, Inc.

Administrative Manager, Cultural Resource Studies for North Carolina Department of Transportation. Management and review of archaeological and historic architectural investigations for 32 Department of Transportation projects throughout North Carolina.

Project Director, Phase III Data Recovery of the Raleigh-Gaston Roundhouse in Raleigh, for the North Carolina Department of Administration.

1983 to 1989 * Assistant Director and Senior Archaeologist, Cultural Resource Group, Louis Berger & Associates, Inc.

Administrative Manager, Indefinite Quantity Option Contract for Federal Bureau of Prisons. Survey, testing and data recovery of cultural resources throughout the United States.

Administrative Manager, Indefinite Quantity Option Contract for Pennsylvania Department of Transportation, Harrisburg. Phase I, II and III cultural resources investigations throughout Pennsylvania.

Principal Investigator, Phase II Investigations of the Fountain-Mouquin House Site, Fort Wadsworth, Staten Island, New York, for the Department of the Navy, Northern Division. Site was an eighteenth and nineteenth century farmstead/suburban residence. Testing examined yard deposits, building foundations, and a prehistoric component.

Principal Investigator, Cultural Resource Investigations of the Hamlin Historic Archaeological Site, Warren County, New Jersey, for the New Jersey Department of Transportation. Site was a late-eighteenth, early-nineteenth century farm, containing midden deposits and a complex of structural features.

Principal Investigator, Cultural Resource Overview and Master Plan, Fort Hamilton and Fort Totten, New York, for Mid-Atlantic Office, National Park Service. Project involved developing prehistoric and historic overviews, conducting archaeological and architectural inventories, and writing a management plan for the two military facilities.

Principal Investigator, Phase I, II, and III, Archaeological and Historical Investigation of a block in the Christina Gateway Project, Wilmington, Delaware, for the City of Wilmington. Block contained privy/wells dating from late eighteenth to late nineteenth century.

Co-Principal Investigator, Phase II Archaeological Investigation of Site 1, Washington Street Urban Renewal Area, for Shearson Lehman/American Express and the New York City Public Development Corporation. Site contained nineteenth century landfill constructions and foundry remains.

Co-Principal Investigator, Phase II and III, Archaeological and Historical Investigations of the Barclays Bank, 100 Water Street Site, Manhattan, for the London and Leeds Corporation. Site contained late seventeenth century landfill deposits and features and remains of eighteenth century domestic occupations.

Project Director, Archaeological Investigations for Peacekeeper Environmental Impact Assessment Cheyenne, Wyoming. Project consisted of survey and testing of historic and prehistoric resources with historic Fort D.A. Russell and area surrounding Cheyenne.

1981 to 1983 * Senior Archaeologist and Acting Branch Manager, Soil Systems, Inc., Wilmington, Delaware.

Georgia Power Bartletts Ferry Electric Generating Project, Harris County, Georgia. Survey and testing of 112 acre tract for proposed borrow pit. Conducted test excavations on two early to late nineteenth century farmsteads.

General Services Administration Federal Building Site, Jamaica, Queens County, New York. Served as Principal Investigator for testing of portions of a city block. Site contained late eighteenth to early twentieth century cultural resources.

Georgia Power Vogtle-Wadley Transmission Line Testing, Burke and Jefferson Counties, Georgia. Testing of four prehistoric sites dating from the Early Archaic to Mississippian Periods.

Georgia-Power Vogtle-Wadley Transmission Line Survey, Burke and Jefferson Counties, Georgia. Survey of 22 miles of a proposed transmission line.

Columbia Gas Pipeline Survey, Orange County, New York. Survey of two miles of proposed pipeline. Tennessee Gas Transmission Co.

Tennessee Gas Transmission Co. Pipeline Survey: Survey of 150 miles of proposed pipelines in New Jersey, Pennsylvania, New York, Massachusetts, and New Hampshire.

1981 * Staff Archaeologist, Thunderbird Research Corporation.

Participated in the excavation of a large Woodland site in the Shenandoah River Valley.

1978 to 1980 * Director, Alexandria Regional Preservation Office.

Directed a comprehensive archival and archaeological survey of Alexandria, Virginia, and contributed to an archaeological preservation plan for the city.

Conducted Environmental Impact Surveys.

Taught courses in survey techniques.

Lectured to community groups.

Participated in workshops on the Federal Resource Protection Planning Process.

1977 to 1978 * Archaeologist, National Register of Historic Places, Heritage Conservation and Recreation Service.

Reviewed State and Federal National Register nominations and determinations of eligibility for archaeological properties, provided professional staff support and assisted in the preparation of National Register program guidelines and reviewing reports.

* Archaeologist, Interagency Archaeological Services, Office of Archaeology and Historic Preservation.

Reviewed reports and policy documents originating in the office, reviewed determinations of no adverse effect requests, and researched coal strip mining and its impact on cultural resources.

Coordinated a pilot bibliography project in which five states were contracted to create bibliographies and maps on all Federally derived archaeological reports within their respective states.

1976 to 1977 * Research Assistant, Black Mesa Archaeological Project, Southern Illinois University, Carbondale.

Conducted original research using data from Black Mesa, Arizona.

Analyzed excavation and laboratory data from two sites on Black Mesa.

* Assistant Crew Chief, Black Mesa Archaeological Project, Kayenta, Arizona.

Supervised students and Navajo workmen and directed a small crew for surveying and recording sites in the area.

* Research Assistant, Star Lake Archaeological Project, Southern Illinois University, Carbondale.

Analyzed prehistoric and protohistoric ceramics from Star Lake in northwest New Mexico.

1975 * Survey Crew Member, Black Mesa Archaeological Project, Kayenta, Arizona.

Principal recorder for a survey crew on Black Mesa.

University of Arizona, Graduate Archaeological Field School, Grasshopper, Arizona.

Participated in the excavation of a large Mogollon site.

1974 University of Arizona, Undergraduate Archaeological Field School. Snowflake, Arizona.

Participated in the excavation of a small pueblo in the Hay Hollow Valley.

PUBLICATIONS:

1987 Nineteenth-Century Households and Consumer Behavior in Wilmington, Delaware. Co-authored with Charles H. LeeDecker, Cheryl A. Holt, and Amy Friedlander. In Socio-economic Status and Consumer Choices: Perspectives in Historical Archaeology edited by Suzanne Spencer-Wood. Plenum Publishing Corp., New York.

1983 A Public Consumption Report, Archaeological Investigations at the Wilmington Boulevard, New Castle County, Delaware. Co-authored with Amy Friedlander. Delaware Department of Transportation Archaeology Series 12. Dover, Delaware.

Management of the Past: Balancing Scientific and Community Needs. In Approaches to Preserving a City's Past. Alexandria Urban Archaeology Program, Alexandria, Virginia.

The Anasazi Adaptation: Star Lake as Chacoan Hinterland. Co-authored with Walter Wait. In The Star Lake Archaeological Project: Anthropology of a Headwater Area of Chaco Wash, New Mexico. Edited by Walter Wait and Ben Nelson. Southern Illinois University Press, Carbondale.

1979 A Manual for Urban Survey. Alexandria Papers in Urban Archaeology, No. 1. Alexandria Archaeology Research Center, Alexandria, Virginia.

IAS Begins Bibliography Project. 11593 Vol. 4 No. 1 Urban Archaeology, No. 1. Alexandria Archaeology Research Center, Alexandria, Virginia.

Methods for Perceiving Social Group Size Change on Black Mesa, Arizona. M.A. thesis on file, Department of Anthropology, Southern Illinois University, Carbondale.

1977 IAS Begins Bibliography Project. 11593 Vol. 2, No. 5. Office of Archaeology and Historic Preservation, National Park Service.

Contributor to: Excavations on Black Mesa, 1976: A Preliminary Report, edited by Stephen Plog. Archaeological Service Report, No. 50, Southern Illinois University, Carbondale.

CONTRACT REPORTS:

1987 Druggists, Craftsmen, and Merchants of Pearl and Water Streets, New York: The Barclays Bank Site. Editor and Senior Author. Louis Berger & Associates, Inc, East Orange, New Jersey.

1986 The Hamlin Site, 1780-1856: A Study of Rural Consumer Behavior. Editor. Louis Berger & Associates, Inc., East Orange, New Jersey.

1985 Nineteenth-Century Wilmington Households: The Christina Gateway Project. Editor. Louis Berger & Associates, Inc., East Orange, New Jersey.

Phase II Historical and Archaeological Investigations of the Fountain-Mouquin House Site (A085-01-0007), Fort Wadsworth, Staten Island, New York. Editor and Senior Author. Louis Berger & Associates, Inc., East Orange, New Jersey.

A Cultural Resource Overview and Management Plan, For U.S. Army Property Fort Hamilton, Brooklyn, New York Fort Totten, Queens, New York. Editor. Louis Berger & Associates, Inc., East Orange, New Jersey.

1984 Final Archaeological Investigations at Wilmington Boulevard-Monroe Street to King Street, Wilmington, New Castle County, Delaware. Co-editor with Patrick Garrow. DelDOT Archaeology Series 29. Delaware Department of Transportation, Dover.

Phase I Study of a Block Between Third, Fourth, King, and French Streets, Wilmington, Delaware. Co-author with Amy Friedlander, Lucinda Foss, and Charles LeeDecker. Louis Berger & Associates, Inc., East Orange, New Jersey.

1983 An Archaeological and Historical Assessment of the Barclays Bank Site, 100 Water Street, New York, New York. Co-author with Amy Friedlander. Louis Berger & Associates, Inc., East Orange, New Jersey.

Cultural Resource Survey and Testing of the Bartletts Ferry Electric Generating Project, Harris County, Georgia. Senior author, Soil Systems, Inc., Marietta, Georgia.

Phase II Archaeological Investigations, Proposed Social Security Administration Building, Jamaica, Queens County, New York. Senior author. Soil Systems, Inc., Marietta, Georgia.

1982 Cultural Resource Survey and Testing of the Proposed Vogtle-Wadley Transmission Line, Burke and Jefferson Counties, Georgia. Soil Systems, Inc., Marietta, Georgia.

Archaeological Testing of Sites 10072-5NY, 10072-12NY, 10072-4Pa (36-SQ-1), and 10072-1NJ (28-SX-273). Soil Systems, Inc., Marietta, Georgia.

1981 Final Report of an Archaeological Survey of Additional Tennessee Gas Transmission Company Natural Gas Pipelines in New Jersey, Pennsylvania, New York, Massachusetts, and New Hampshire. Soil Systems, Inc., Marietta, Georgia.

Report of an Archaeological Survey of a Transmission Pipeline in Orange County, New York.

The Temora Dump Site. Thunderbird Research Corporation, Front Royal, Virginia.

ACADEMIC HONORS:

Phi Beta Kappa

Phi Kappa Phi

RESUME

NAME:	Charles H. LeeDecker
EDUCATION:	M.A., Anthropology, The George Washington University, 1978. B.A., Anthropology, Cornell University, 1970.
PROFESSIONAL REGISTRATION:	Accredited by the Society of Professional Archaeologists in Field Research and Cultural Resource Management
PROFESSIONAL AFFILIATIONS:	Society of Professional Archaeologists Society for American Archaeology Society for Historical Archaeology

EXPERIENCE:

1984 to Present	Senior Archaeologist, Louis Berger & Associates, Inc.
	Principal Investigator for preliminary archaeological evaluation of the Washington Metropolitan Area Transit Authority E-Route, Mid-City Segment, District of Columbia.
	Principal Investigator for excavation and recordation of the Raleigh & Gaston Railroad Roundhouse, Raleigh, North Carolina.
	Project Archaeologist for archaeological excavations at the Allegheny Portage Railroad National Historic Site.
	Principal Investigator for archaeological data recovery at the Indian Creek IV Site, Greenbelt Storage Yard, Beltsville, Maryland.
	Principal Investigator for archaeological testing at the Dobson Mills Site, Philadelphia, Pennsylvania.
	Principal Investigator for archaeological testing and data recovery at the Bennett St. and 7th & Church Street projects, Wilmington, Delaware.

EXPERIENCE:
(Continued)

Principal Investigator for archaeological survey of Texoma Distribution Enchancement Project, Cameron and Calcasieu Parishes, Louisiana, for Fluor Engineers, Inc.

Principal Investigator for archaeological data recovery at Block 1184, Wilmington, Delaware, for the Christina Gateway Corporation.

Principal Investigator for analysis of collections and report preparation for the Assay Office Site, Block 35, New York City, New York, for the Howard Ronson Organization, New York.

Principal Investigator for archaeological survey and site evaluation at the Washington Metropolitan Area Transit Authority, Greenbelt Storage Yard, Greenbelt, Maryland.

Project Archaeologist for re-evaluation of rural historic context for the Fort Drum, New York, vicinity, for the National Park Service, Mid-Atlantic Region.

Principal Investigator for testing of eight historic sites at Fort Drum, New York, for the National Park Service, Mid-Atlantic Region.

Co-Principal Investigator for testing and data recovery at the Christina Gateway Project, Block 1101, Wilmington, Delaware, for the City of Wilmington.

Principal Investigator for archaeological testing and data recovery at the Howard Road Historic District, Washington, D.C., for the Washington Metropolitan Area Transit Authority.

Principal Investigator for archaeological survey of 14 District of Columbia Department of Recreation Properties.

Principal Investigator for archaeological testing of three sites at Marine Corps Base, Camp Lejeune, North Carolina, for the Naval Facilities Engineering Command, Atlantic Division.

EXPERIENCE:
(Continued)

Principal Investigator for archaeological survey of Jones Point Park, Alexandria, Virginia.

Project Archaeologist for preliminary archaeological assessment of a proposed parking facility at Squares 803 and 804, District of Columbia.

Project Archaeologist for archaeological resource management plan for Quantico Marine Corps Base, Virginia.

Principal Investigator for archaeological assessment of the Langston Terrace Project, Washington D.C., for the District of Columbia Department of Housing and Community Development.

1981 to 1984 — Senior Archaeologist and Branch Manager, Soil Systems Division, Alexandria, Virginia.

Responsible for administration, long-term planning and business development in the Middle Atlantic region. Directed archaeological studies for East Tennessee Natural Gas Transmission Corp. pipeline expansion in southwest Virginia; National Photographic Interpretation Center building addition, Washington, D.C.; Philadelphia's Fairmount Park; Felsenthal National Wildlife Refuge, Arkansas; Fort Belvoir, Virginia; Raritan Township Municipal Authority 201 Plan, New Jersey; etc.

1980 to 1981 — President, LeeDecker & Associates. Springfield, Virginia. Directed cultural resource projects for the Caruthersville Harbor, Missouri; four dredge disposal sites in Dorchester County, Maryland; Helena and Vicinity, Arkansas; and La Grue Bayou, Arkansas.

1976 to 1980 — Archaeologist, Iroquois Research Institute, Fairfax, Virginia.

Established and managed the Institute's Branch office in Memphis, Tennessee. Responsible for preparation of research proposals and direction of more than 30 archaeological projects throughout midwestern and southeastern states. Major projects include intensive survey and

EXPERIENCE:
(Continued)

testing of 200 miles of drainage ditch improvements in the St. Francis River Basin, Arkansas and Missouri; archaeological survey and testing of 7,400-acre Gathright Lake, Virginia; preparation of cultural resource management guidelines for the Federal Power Commission; survey of 14,000 acre Taylorsville Lake, Kentucky; archaeological resource management plan for Perry Lake, Kansas; archaeological reconnaissance and predictive model for 110,000-acre flood easement lands at Truman Dam, Missouri.

1975 — Archaeological excavations and laboratory processing at the Shawnee-Minisink Site, a multi-component stratified site in the Upper Delaware River Valley, Pennsylvania.

1974 to 1975 — Student Intern, Smithsonian Institution, Museum of Natural History, Conservation Laboratory. Conservation and restoration of archaeological and ethnographic collections.

PUBLICATIONS AND PAPERS PRESENTED:

1984 — "U.S. Environmental Protection Agency - Region IIStage IB Surveys in New Jersey: An Assessment of Archaeological Sampling Techniques". In Historic Preservation Planning in New Jersey: Selected Papers on the Identification, Evaluation, and Protection of Cultural Resources. Office of New Jersey Heritage, Trenton.

1985 — "From House to Outhouse: A Study of Nineteenth Century Households in Wilmington, Delaware." With Terry Klein, Amy Friedlander and Cheryl Holt. Presented at the Society for Historical Archaeology Annual Meeting, Boston and at the Middle Atlantic Archaeological Conference, Rehoboth Beach.

1985 — "Filling the Middle-Range Theory Gap in Urban Archaeology: A Household Paradigm." With Amy Friedlander. Presented at the 84th Annual Meeting of the American Anthropological Association, Washington, D.C.

PUBLICATIONS AND PAPERS PRESENTED:
(Continued)

1987 "Nineteenth Century Households and Consumer Behavior in Wilmington, Delaware." With Terry Klein, Amy Friedlander and Cheryl Holt. In Socio-Economic Status and Consumer Choices: Perspectives in Historical Archaeology. Suzanne Spencer-Wood, editor. Plenum Press.

1989 "Consumer Behavior Studies: An Historical Perspective on Consumer Research." Presented at the Annual Meeting of the Society for Historical Archaeology, Baltimore.

1990 Archaeological and Historical Investigation of Block 1184, Wilmington, New Castle County, Delaware. Delaware Department of Transportation **Archaeology Series** No. 78.

forthcoming "Historical Dimensions of Consumer Research." To be published in Historical Archaeology in a special volume of papers edited with Terry Klein.

SELECTED TECHNICAL REPORTS:

1977 Co-author and Project Coordinator of Archaeological and Historical Investigations for Energy Facilities: A State of the Art Report. Submitted to the Office of Energy Systems, Federal Power Commission.

1977 Contributing author of The Cultural Resources of Clinton Lake, Kansas: An Inventory of Archaeology, History and Architecture. Submitted to the U.S. Army Corps of Engineers, Kansas City District.

1977 Senior author of Preliminary Management Plan for Cultural Resources, Perry Lake, Kansas. Submitted to the U.S. Army Corps of Engineers, Kansas City District.

1977 Senior co-author of Cultural Resources Studies: Tuttle Creek Lake and Marysville Flood Study Area, Big Blue River, Kansas. Submitted to the U.S. Army Corps of Engineers, Kansas City, District.

TECHNICAL REPORTS:
(Continued)

1977 Co-author of Testing-Mitigation at 44BA25, Gathright Lake Project, Virginia. Submitted to the U.S. Army Corps of Engineers, Norfolk District.

1978 Contributing author of Cultural Resources Management Plan for New Melones Project Area, California. Submitted to the U.S. Army Corps of Engineers, Sacramento District.

1978 Contributing author of The Cultural Resources of Lowes Island, Virginia. Submitted to the Fairfax County Water Authority.

1978 Principal Investigator and senior author of A Survey Level Report of Locust Creek, Greene County, Arkansas: Archaeology, History and Architecture. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1978 Principal Investigator and senior author of A Reconnaissance Level Report of the Belle Fountain Ditch and Tributaries Project, Mississippi County, Arkansas and Dunklin & Pemiscot Counties, Missouri Archaeology, History and Architecture. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1978 Principal Investigator and senior author of A Survey Level Report of Ditches 70, 71, 21A and 25 Channel Enlargement Project, Mississippi County, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1978 Principal Investigator and senior author of A Survey Level Report of the Ditch 19 Channel Enlargement Project, Dunklin County, Missouri. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1978 Principal Investigator and senior author of A Survey Level Report of the Buffalo Creek Diversion Project, Craighead and Mississippi Counties, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

TECHNICAL REPORTS:
(Continued)

1978 Contributing author of Predicting Cultural Resources in the St. Francis River Basin: A Research Design. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1978 Principal Investigator and senior author of A Survey Level Report of the Castor River Ditch Enlargement Project, Item 1, Stoddard County Missouri. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1978 Principal Investigator and senior author of A Survey Level Report of the Madison to Highway 64 Channel Cleanout Project, Item 2, Cross and St. Francis Counties, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1978 Principal Investigator and senior author of A Survey Level Report of the Ditch 24 Channel Enlargement Project, Stoddard County, Missouri. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1978 Principal Investigator and senior author of A Survey Level Report of the Ditch 27 and Tributaries Channel Enlargement Project, Mississippi County, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1979 Principal Investigator and senior author of A Survey Level Report of the Blackfish Bayou Channel Enlargement Project Items 2 and 3, Crittenden and St. Francis Counties, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1979 Senior co-author of A Prioritization Plan for the Conservation of Historical, Archaeological and Architectural Resources at Gathright Lake, Virginia. Submitted to the U.S. Army Corps of Engineers, Norfolk District.

1979 Contributing author of Inventory and Evaluation of Archaeological Resources of Clinton Lake, Kansas and Mitigation of Potentially Eligible Sites. Report submitted to the U.S. Army Corps of Engineers, Kansas City District.

TECHNICAL REPORTS:
(Continued)

1979 — Principal Investigator and senior author of A Survey Level Report of the Wappapello to Crowleys Ridge Channel Cleanout and Scour Repair Project, Butler and Stoddard Counties, Missouri. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1979 — Principal Investigator and senior author of A Survey Level Report of the Big Creek Channel Enlargement Project, Item 2, Crittenden County, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1979 — Principal Investigator and senior author of A Survey Level Report of the Castor River Channel Enlargement Project, Item 2, Bollinger and Stoddard Counties, Missouri. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1979 — Principal Investigator and senior author of A Survey Level Report of the Honey Cypress Ditch Enlargement Project, Dunklin County, Missouri and Mississippi County, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1979 — Principal Investigator and senior author of A Preliminary Report of Stations 0+00 to 50+60 of the Big Creek Enlargement and Diversion Project, Item 1, Crittenden County, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1980 — Principal Investigator and senior author of Prehistoric Archaeological Reconnaissance in the Harry S. Truman Dam and Reservoir 50 Year Flood Easement Lands, Osage River Basin, Missouri. Submitted to the U.S. Army Corps of Engineers, Kansas City District.

1980 — Principal Investigator and senior author of Interim Report of Cultural Resource Survey and Testing of Stations 50+60 to 196+00 of the Big Creek Enlargement and Diversion Project, Crittenden County, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

TECHNICAL REPORTS:
(Continued)

1980 — Principal Investigator and senior author of A survey Level Report of the Upper Buffalo Ditch Enlargement Project, Dunklin County, Missouri and Mississippi County, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1980 — Principal Investigator and author of A Survey Level Report of the Caruthersville Harbor Project, Pemiscot County, Missouri. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1981 — Principal Investigator and author of A Cultural Resource Reconnaissance of Four Federal Maintenance Dredging Projects in Dorchester County, Maryland. Submitted to the U.S. Army Corps of Engineers, Baltimore District.

1981 — Principal Investigator and senior author of A Cultural Resource Reconnaissance of the Helena, Arkansas and Vicinity Project, Phillips County, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1981 — Principal Investigator and author of A Cultural Resource Survey of the La Grue Bayou Permit Area, Prairie County, Arkansas. Submitted to the U.S. Army Corps of Engineers, Memphis District.

1982 — Principal Investigator and author of Phase II Archaeological Investigation of Sites 44WM164 and 44WM182, Clifford Hutt Property, Westmoreland County, Virginia. Submitted to the U.S. Army Corps of Engineers, Baltimore District.

1982 — Principal Investigator and author of Archaeological Assessment of the Fort McNair Metrobus Garage Facility, Southwest Washington, D.C. Submitted to Skidmore, Owings & Merrill Architects, Washington, D.C.

1982 — Contributing author to Archaeological Investigations at the National Photographic Interpretation Center Addition, Washington, D.C. Navy Yard Annex. Submitted to Leo A. Daly Architects, Washington, D.C.

TECHNICAL REPORTS:
(Continued)

1983 Principal Investigator and senior author of Phase II Archaeological Investigation of Sites 44WG248 and 44WG249 on the East Tennessee Natural Gas Company Transmission Line Expansion, Washington County, Virginia. Submitted to East Tennessee Natural Gas Company, Knoxville, Tennessee.

1983 Principal Investigator and senior author of Phase I Archaeological Investigation of Segment J2 of the Franconia-Springfield Metrorail Line, Fairfax County, Virginia. Submitted to Wallace, Roberts and Todd, Philadelphia, Pennsylvania.

1983 Principal Investigator and senior author of Phase I Archaeological Investigation of Segment H1 of the Franconia-Springfield Metrorail Line, Fairfax County, Virginia. Submitted to Wallace, Roberts and Todd, Philadelphia, Pennsylvania.

1983 Project Manager for Phase I Archaeological Investigation of National Park Service Lands in the Vicinity of Chain Bridge, District of Columbia and Virginia. Submitted to the Arlington County Department of Public Works.

1983 Project Manager for A Phase II Investigation of the Prehistory and History of Five Sites in St. Mary's County, Maryland. Submitted to the Southern Maryland Electric Cooperative, Inc.

1983 Principal Investigator for Phase I Archaeological Investigation of the Fairfax Yacht Club Occoquan Marina. Submitted to Marine Structural Applications, Inc.

1983 Principal Investigator for Stage 1A Cultural Resource Survey of the Raritan Township Municipal Authority 201 Plan, Hunterdon County, New Jersey. Submitted to AEPCO, Inc.

1983 Project Manager for A Phase I Archaeological Survey of the Proposed Nokesville Community Park, Prince William County, Virginia. Submitted to the Prince William County Park Authority.

TECHNICAL REPORTS:
(Continued)

1983 Principal Investigator for U.S. Environmental Protection Agency Stage 1B Surveys in New Jersey: An Assessment of Archaeological Sampling Procedures. Prepared for the Office of Historic Preservation, New Jersey Department of Environmental Protection.

1983 Principal Investigator for Survey for Archaeological and Historical Resources Along the WMATA E-Route from Fort Totten Drive to the District Line. Submitted to Wallace, Roberts and Todd.

1983 Principal Investigator for Phase I Archaeological Investigation of the Academy Apartments, West Point, Virginia. Submitted to the American Development Group, Inc.

1983 Principal Investigator for Managing Archaeological Resources in Fairmont Park. Submitted to Wallace, Roberts and Todd.

1984 Project Archaeologist for Archaeological Testing of Twelve Sites in the Felsenthal Navigation Pool and National Wildlife Refuge, Arkansas. Submitted to the U.S. Army Corps of Engineers, Vicksburg District.

1984 Project Manager and Co-principal Investigator for Cultural Resource Survey and Evaluation at Fort Belvoir, Virginia. Submitted to the National Park Service, Mid-Atlantic Region.

1984 Principal Investigator for Phase II Archaeological Investigation of the Eisenhower Avenue Earthwork Site, City of Alexandria, Virginia. Submitted to Wallace, Roberts and Todd and the Washington Metropolitan Area Transit Authority.

1984 Principal Investigator for Preliminary Archaeological Assessment of Fourteen Department of Recreation Properties in the Anacostia Section, District of Columbia. Submitted to the Department of Recreation, District of Columbia.

TECHNICAL REPORTS:
(Continued)

1985 Principal Investigator for Archaeological Survey of a Proposed Bike Path, Foot Path and Soccer Fields at Jones Point Park, Alexandria, Virginia. Submitted to the City of Alexandria and the National Park Service, National Capital Region.

1985 Principal Investigator for Archaeological Testing of Sites 31ON348, 31ON281 and 31ON350, Marine Corps Base Camp Lejeune, Onslow County, North Carolina. Submitted to the Naval Facilities Engineering Command, Norfolk.

1985 Co-principal Investigator for Nineteenth Century Wilmington Households: The Christina Gateway Project Submitted to the Department of Commerce, City of Wilmington.

1985 Principal Investigator for Historical and Archaeological Assessment of Two Proposed Satellite Parking Lots, Squares 702 and 703, Washington, D.C. Submitted to the Washington Metropolitan Area Transit Authority.

1985 Co-Principal Investigator for Nineteenth-century Wilmington Households: The Christina Gateway Project. Submitted to the Department of Commerce, City of Wilmington, Delaware.

1985 Principal Investigator for Archaeological, Architectural, and Historical Investigations at the Howard Road Historic District, Washington, D.C. Submitted to Wallace, Roberts & Todd and the Washington Metropolitan Area Transit Authority.

1986 Principal Investigator for Cultural Resource Study at the Marine Corps Development and Education Command. Submitted to Bairley & MaGinniss, P.C. for Marine Corps Development and Command, Quantico, Virginia.

1986 Principal Investigator for Preliminary Historical and Archaeological Assessment of the Langston Terrace Project, Washington, D.C. Submitted to Glen B. Leiner, Architectural Historian.

TECHNICAL REPORTS:
(Continued)

1986 Co-author of Re-Evaluation of Rural Historic Contexts for the Fort Drum, NY Vicinity. Submitted to the National Park Service, Mid-Atlantic Region.

1986 Principal Investigator for Archaeological and Historical Investigation of State-Owned Lands on Block 1184, Wilmington, Delaware: Interim Report. Prepared for the Christina Gateway Corporation, Wilmington, Delaware.

1987 Principal Investigator for Phase I Archaeological Survey of Md. Route 28 Improvement Project, Montgomery County, Maryland. Submitted to the Maryland Department of Transportation.

1987 Principal Investigator for Archaeological and Historical Investigations at the Assay Office Site, Block 35, New York, New York: Interim Report. Prepared for HRO International, New York, New York.

1987 Principal Investigator for Level II Cultural Resource Investigation for the Texoma Distribution Enhancements Project. Cameron and Calcasieu Parishes, Louisiana. Prepared for Fluor Engineers, Inc., Houston, Texas.

1988 Principal Investigator for Preliminary Archaeological Reconnaissance of Charles County Landfill No. 2, Charles County, Maryland, and Preliminary Archaeological Reconnaissance of Billingsley Road from Landfill No. 2 to Maryland Route 5, Charles County, Maryland. Prepared for Whitman, Requardt and Associates, Baltimore, Maryland.

1988 Principal Investigator for Archaeological Reconnaissance of Maryland Route 68 Crossings at Antietam and Beaver Creeks, Alternate 6, Washington County, Maryland. Prepared for Maryland Department of Transportation.

TECHNICAL REPORTS:
(Continued)

1988 — Principal Investigator for Archaeological Evaluation of the Greenbelt Storage Yard, Prince Georges County, Maryland. Prepared for Wallace, Roberts & Todd and the Washington Metropolitan Area Transit Authority.

1989 — Principal Investigator for Cultural Resource Assessment of U.S. Route 113, Milford-Georgetown, Sussex County, Delaware. Prepared for the Delaware Department of Transportation.

1989 — Prinipcal Investigator for Archaeological Testing of the Dobson Mills, East Falls, Philadelphia, Pennsylvania. Prepared for Rouse Urban Housing, Inc., Philadelphia.

1989 — Principal Investigator for Preliminary Archaeological Evaluation of the WMATA E-Route (Green Line), Mid-City Segment, Alternatives ARS, C, C-2, C-MOD, District of Columbia. Prepared for Wallace Roberts & Todd.

1989 — Project Archaeologist for Phase 1A Evaluation of the Clermont Avenue Interchange, City of Alexandria and Fairfax County, Virginia. Prepared for the Virginia Department of Transportation.

1989 — Principal Investigator for Stage I Cultural Resource Investigation of the Shoregate Development Project, Albany, New York. Prepared for Smith & Mahoney, P. C.

APPENDIX 2

LOT HISTORIES

INTRODUCTION TO
APPENDIX 2, SECTIONS 1 TO 9

All data from tax lists and city directories spanning the period 1800 to 1850 have been consolidated into Appendix 2, Sections 1 through 9. The interpretive problems inherent in the tax lists that predate 1800 have been discussed in detail in the text, where the interpretation of these lists, applicable to the study lots, is also presented. Section 9 contains relevant data from the 1810 federal census, which were cross-referenced against the relevant city directory.

Sections 1 through 8 follow the same format. Data are presented in chronological order. All names, whether found in the tax lists or the directories, were placed in the column labeled "Name." The first entry (i.e., horizontal set of data) for any year contains the information from the tax list, if a tax list for that year has survived. Information from the directories has been placed in the column labeled "Directory." If additional names or a slightly different presentation of the name, such as "Henry Coit & Co." as opposed to merely "Henry Coit," was found in the directory, then this information was placed in a separate entry following the data derived from the tax list. In a few instances, more than one directory was issued in a given year. When the entries differed, the variation is discussed in a footnote. In order to reduce the cumbersome level of detail, no citations have been given unless necessary to explain an interpretation. All references are listed in the relevant section of this report.

It should be observed that the level of detail in the directories was not consistent. Distinctions between work place and residence were not consistently observed whether within a single year or from year to year. Thus, absence of information on residence was not interpreted to mean a consolidated work place and residence. Careful perusal of the following lists should amply demonstrate the pitfalls of this extrapolation.

A similar caveat on the interpretation of the value of real property and personal property should also be observed. In general, the value of real property tended to change consistently across all lots. This implies that the fluctuation reflects modification in assessment and not necessarily a physical change in a given structure. Virtually all the buildings were damaged or lost during the 1835 fire, which is the only event that had a documented impact on the study area. Other modifications and/or construction episodes have been difficult to ascertain solely from the historical record. Secondly, due to the conflation of commercial inventory with household chattels together with the predominance of merchants in the study area in the early nineteenth century, it is premature to assign a residential or mixed commercial/residential occupation to a lot solely because the individual enumerated in a tax list reported both real and

personal property. In several documented cases, there were entries for both real and personal property in the tax list as well as a directory entry that specified separate residence and work place. Although it is probable that reporting both real and personal property at a single address generally indicated combined home and work place, it is a well-known statistical fallacy to apply a generalization to an individual, particularly in the face of documented exceptions.

The following editorial conventions have been observed. Square brackets ([...]) enclose interpolated material. Angled brackets (<...>) enclose material crossed out or deliberately obscured in the original text, reflecting an historical decision. The alteration is, hence, integral to the manuscript. This is distinguished from a damaged manuscript by intentionality. Interpolations to a text that was damaged by fire or misuse are, therefore, enclosed by square brackets. Reconstruction of a text that was deliberately changed, possibly because of an error in the originally recorded information or a change in the status of the information, is enclosed in angled brackets. In this regard, it is interesting that all examples of the latter, that is, of historically modified entries, were associated with the 1835 fire, suggesting that mid-year revision of the tax lists was necessary due to the cataclysmic effect of the blaze on ownership and occupancy of these buildings.

SECTION 1
LOT 6

1800-1850

Year	Name	Description	Real Estate	Personal Estate	Directory
1800	William Bache				Attorney 91 Front Street
1801	Courtlandt VanBeuren				Grocer 91 Front Street
1802	Courtlandt VanBeuren	Brick Store	$5500		Grocer 91 Front Street
1803	Courtlandt VanBeuren				Grocer 91 Front Street
1804	Courtlandt VanBeuren				Grocer 91 Front Street
1805	Courtlandt VanBeuren				Grocer 91 Front Street
1806	Courtlandt VanBeuren				Grocer 91 Front Street
1807	Courtlandt VanBeuren	Old No. 91 New No. 89 House	$3500	$1000	Grocer 91 Front Street
	VanBeuren & Schoonmaker				Merchants 91 Front Street
1808	Courtlandt VanBeuren	Old No. 91 New No. 89 House	$3500	$1000	Grocer 91 Front Street
	VanBeuren & Schoonmaker				Merchants 91 Front Street
	Daniel Fisher	In d[itt]o		$ 500	
1809	Courtlandt VanBeuren	Old No. 91 New No. 89 House	$3500	$1000	Grocer 91 Front Street
	VanBeuren & Schoonmaker				Merchants 91 Front Street

Year	Name	Description	Real Estate	Personal Estate	Directory
1809	John Hasbrouck	In d[itt]o		$ 200	
1810	Courtlandt VanBeuren[1]	Old No. 91 New No. 89 House	$3500	$1000	Grocer 91 Front Street
	John Hasbrouck[1]	In d[itt]o			
1811	Courtlandt VanBeuren				Grocer 91 Front Street
	John Hasbrouck				Merchant 91 Front Street Home: 55 Broad
1812	Courtlandt VanBeuren				91 Front Street Home: 22 Provost
	John Hasbrouck				91 Front Street Home: 55 Broad
	Schoonmaker & Hasbrouck	Old No. 91 New No. 89 House	$3500	$ 300	Name only 91 Front Street
1813	Schoonmaker & Hasbrouck	Old No. 91 New No. 89 House	$3500	$ 300	Grocers
	Michael Schoonmaker				Grocer 91 Front Street
	John Hasbrouck				Merchant 91 Front Street
1814	Courtlandt VanBeuren	Old No. 91 New No. 89 House	$7000	$20,000	Grocer 91 Front Street
	Michael Schoonmaker				Grocer 91 Front Home: 30 Frankfort
	John Hasbrouck				Merchant 91 Front Street Home: 30 Front

[1]Confirmed in 1810 federal census; see Section 9.

Year	Name	Description	Real Estate	Personal Estate	Directory
1815	Courtlandt VanBeuren	Old No. 91 New No. 89 House & Store	$7000	$15,000	Grocer 91 Front Street
1816	Courtlandt VanBeuren	Old No. 91 New No. 89 House & Store	$6000	$15,000	Grocer 91 Front Street
	Courtlandt VanBeuren & Son				91 Front Street
1817	Courtlandt VanBeuren	Old No. 91 Old No. 89 House	$5500	$15,000	Merchant 91 Front Street
	Courtlandt VanBeuren & Son				91 Front Street
1818	Schoonmaker, VanBeuren & Co.				Merchants 91 Front Street
	Michael Schoonmaker	Old No. 91 New No. 89 House	$6000	$1000	
	Martin Schoonmaker			$ 100	
1819	Schoonmaker, VanBeuren & Co.				Merchants 87 Front Street
	Michael Schoonmaker	No. 87	$6000	$1000	
1820	Schoonmaker, VanBeuren & Co.				Merchants 87 Front Street
	Michael Schoonmaker	No. 87	$5000	$1000	
	Egbert VanBeuren				87 Front Street Home: 12 State Street
1821	Courtlandt VanBeuren	No. 87	$5000		

Year	Name	Description	Real Estate	Personal Estate	Directory
1821	Michael Schoonmaker	"in"		$1000	87 Front Street
1821	Schoonmaker, VanBeuren & DeForest				Merchants 87 Front Street
	Egbert K. VanBeuren				Merchant 87 Front Street Home: 12 State St.
	Joseph DeForest				Merchant 87 Front Street Home: 12 Stone St.
1822	Michael Schoonmaker	No. 87	$5000	$1000	87 Front Street
	Schoonmaker, VanBeuren & DeForest				Merchants 87 Front Street
	Egbert K. VanBeuren				Merchant 87 Front Street Home: Brooklyn
	Joseph DeForest				Merchant 87 Front Street Home: Brooklyn
1823	Michael Schoonmaker	No. 87	$5000		
	VanBeuren & DeForest				Merchants 87 Front Street
	Egbert K. VanBeuren				Merchant 87 Front Street Home: 170 Fulton St.
	Joseph DeForest				Merchant 87 Front Street Home: Brooklyn
1824	VanBeuren & DeForest	No. 87	$5000		Merchants 87 Front Street
	Egbert K. VanBeuren				Merchant 87 Front Street Home: Brooklyn

Year	Name	Description	Real Estate	Personal Estate	Directory
1824	Joseph DeForest				Merchant 87 Front Street Home: Brooklyn
1825	VanBeuren & DeForest	No. 87	$5000		
	Egbert K. VanBeuren				Merchant 87 Front Street Home: Brooklyn
	Joseph DeForest				Merchant 87 Front Street Home: Brooklyn
1826	VanBeuren & DeForest	No. 87	$5500		Grocers 87 Front Street
	Egbert K. VanBeuren				Merchant 87 Front Street
	Joseph DeForest				Merchant 87 Front Street
1827	VanBeuren & DeForest	No. 87 Store	$5500		Grocers 87 Front Street
	Egbert K. VanBeuren				Home: 409 Broadway
1828	VanBeuren & DeForest	No. 87	$5500		Grocers 87 Front Street
	Egbert VanBeuren				Merchant 87 Front Street
	Joseph DeForest				Merchant 87 Front Street
1829	VanBeuren & DeForest	No. 87	$5500		Grocers 87 Front Street
	Egbert K. VanBeuren				87 Front Street
	Joseph DeForest				87 Front Street
	Martenus Schoonmaker				87 Front Street Home: Brooklyn

Year	Name	Description	Real Estate	Personal Estate	Directory
1830	VanBeuren & DeForest	No. 87 Store	$5500		Grocers 87 Front Street
1830	Egbert K. VanBeuren				Merchant 87 Front Street Home: Brooklyn
	Joseph DeForest				Merchant 87 Front Street Home: Brooklyn
1831	[?] Voorhees	No. 87	$9000		
1832	Conovert & Labaugh	No. 87 Store	$10,000		
1833	Conovert & Labaugh	No. 87 Store	$10,000		Commission Merchants 87 Front Street
1834	Convert & Lambaugh	No. 87 Store	$5500		Commission Merchants 87 Front Street
1835	<Peter Mead>	No. 87 Store	$10,000		
	Smith & Rudd				Grocers 87 Front Street
	Hezekiah F. Rudd				Grocer 87 Front Street
	Alexander H. Smith				Grocer 87 Front Street Home: Brooklyn
1836	Buloid & Co.	No. 87 Store	$21,000		
1837	Buloid & Co.	No. 87 Store	$21,000		
	Buloid & Caswell				Merchants 87 Front Street
	Robert Buloid				Merchant 87 Front Street

Year	Name	Description	Real Estate	Personal Estate	Directory
1837	John Caswell				Merchant 87 Front Street
1838	John Caswell				Merchant 87 Front Street
1839	John Caswell	No. 87 Store	$22,000		Merchant 87 Front Street
1840	John Caswell	No. 87 Store	$22,000		Merchant 87 Front Street
1841	John Caswell	No. 87 Store	$22,000		Merchant 87 Front Street
1842	John Caswell	No. 87 Store	$18,000		Dealer in Teas, Imported Wines and Liquors 87 Front Street Home: 76 Warren St.
1843	John Caswell	No. 87 Store	$16,000		Merchant 87 Front Street
1844	Widow Van Voorhees	No. 87 Store	$18,000		
	John Caswell				Merchant 87 Front Street
	Solomon T. Caswell				Clerk 87 Front Street
1845	Widow Van Voorhees	No. 87 Store	$18,000		
	John Caswell				Merchant 87 Front Street
	Solomon T. Caswell				Clerk
1846	Widow Van Voorhees	No. 87 Store	$18,000		
	John Caswell & Co.				Grocers 87 Front Street
	Solomon T. Caswell				Grocer 87 Front Street

Year	Name	Description	Real Estate	Personal Estate	Directory
1847	Widow Van Voorhees	No. 87 Store	$18,000		
	John Caswell & Co.				Grocers 87 Front Street
1847	Solomon T. Caswell				Grocer 87 Front Street
1848	Widow Van Voorhees	No. 87 Store	$18,000		
	John Caswell & Co.				Grocers 87 Front Street
	Solomon T. Caswell				Grocer 87 Front Street
1849	Widow Van Voorhees	No. 87 Store	$18,000		
	John Caswell & Co.				Grocer 87 Front Street
	Solomon T. Caswell				Grocer 87 Front Street
1850	Widow Van Voorhees	No. 87 Store	$18,000		
	John Caswell & Co.				Grocers 87 Front Street

SECTION 2
LOT 7

1800-1850

Year	Name	Description	Real Estate	Personal Estate	Directory
1800	No Data				
1801	No Data				
1802	Thomas Delves	No. 93 Brick Store	$4250		
	Stephen Miller	"in d[itt]o"		$ 50	Merchant 93 Front St. House: 18 Gold St.
1803	Stephen Miller				Merchant 93 Front St. House: 18 Gold St.
1804	Stephen Miller				Merchant 93 Front St. House: 18 Gold St.
1805	No Data				
1806	Mrs. Troup				Boarding House 93 Front St.
1807	Thomas Farmer	House Old No. 93 New No. 91 "Unoccup[ied]"	$3500		Thomas Farmer & Co. 75 Front St.
1808	Edward Wilkie	House Old No. 93 New No. 91	$3500	$ 200	Branch Pilot 93 Front St.
1809	Thomas Farmer	House Old No. 93 New No. 91	$3500		
	Edward Wilkie				Branch Pilot 93 Front St.
1810	Garrett Sickles[1]	House Old No. 93 New No. 91	$3500	$ 300	Boot/Shoemaker 93 Front St.

[1]Confirmed in federal census; see Section 9.

Year	Name	Description	Real Estate	Personal Estate	Directory
1810	Tyzack Hodges[2]	"in d[itt]o"		$ 100	
	Daniel Sickles	"in d[itt]o		$ 100	
	William D. Hill	"in d[itt]o"		$ 200	
1811	Garret Sickles				Boot/Shoemaker 93 Front St.
1812	Garret Sickles	House Old No. 93 New No. 91	$3500	$ 200	Boot/Shoemaker 93 Front St.
	Joseph Duvall	"in d[itt]o"		$ 200	93 Front St.
1813	Garret Sickles	House Old No. 93 New No. 91	$3500	$ 200	Boot/Shoemaker 93 Front St.
1814	Garret Sickles	House Old No. 93 New No. 91	$6600		Boot/Shoemaker 93 Front St.
1815	Garret Sickles	House Old No. 93 New No. 91	$6600	$1000	Boot/Shoemaker 93 Front St.
1816	Garret Sickles	House & Store Old No. 93 New No. 91	$6000	$ 500	Boot/Shoemaker 93 Front St.
1817	Henry Thorn	House Old No. 93 New No. 91	$5500		93 Front St.
	Robert McCormick	"In"		$ 500	Grocer 96 Front St. Home: 93 Front St.
1818	Henry W. Thorne				93 Front St.

[2]"Isaac" Hodges shows in the 1810 federal census and in the associated directory; see Section 9.

Year	Name	Description	Real Estate	Personal Estate	Directory
1818	Robert McCormick	House Old No. 93 New No. 91	$6000	$1000	Grocer 96 Front St. Home: 93 Front St.
1819	Robert McCormick	Store No. 89	$6000		
1820	Robert McCormick				Grocer 89 Front St.
	George Blair		$5000		Watchmaker 89 Front St.
	Ezekial Blair				Cartman 89 Front St.
1821	G. Blair	No. 89	$5000		Grocer 93 Wall St. Home: 89 Front St.
	Robert McCormick				Grocer 94 Front St. Home: 89 Front St.
1822	Thomas Nevins	No. 89	$5000		Cooper 89 Front St. Home: 85 Front St.
	Robert McCormick				Grocer 94 Front St. Home: 89 Front St.
1823	Mrs. Martin Feury	No. 89	$5000		
	Robert M'Cormick				Grocer 94 Front St. Home: 89 Front St.
	Ezekiel Blair				Cartman 89 Front St.
1824	Robert McCormick	No. 89	$5000		Grocer 94 Front St. Home: 89 Front St.
1825	Robert McCormick	No. 89	$5500		Grocer 94 Front St. Home: 89 Front St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1826	Robert McCormick	No. 89	$5000		Grocer 94 Front St. Home: 89 Front St.
1827	G. P. Holmes & Co.	Store No. 89	$5500		89 Front St.
	Robert McCormick				Grocer 94 Front St. Home: 89 Front St.
1828	William Chamberlin	Store No. 89	$5500		
1829	William Chamberlin	Store No. 89	$5500		Merchant 89 Front St.
1830	William Chamberlin	Store No. 89	$8500		Merchant 89 Front St. Home: 40 Greene
1831	S. McAllister & Co.	No. 89	$8500		Grocers 89 Front St.
	Samuel McAllister				Home: 52 Frankfort
1832	S. McAllister & Co.	No. 89	$9000		
1833	"Vacant"	Store No. 89	$9000		
1834	[?]	Store No. 89	$16,000		
1835	<Peter Mead>	Store No. 89	$16,000		
	Parker, Howard & Co.				Merchants 89 Front St.
	Ebenezer Parker				Merchant Home: Brooklyn
	John T. Howard				Home: Brooklyn
	Joseph Howard				Home: Brooklyn

Year	Name	Description	Real Estate	Personal Estate	Directory
1836	Parker & Co.	Store No. 89	$21,000		
	Parker, Howard & Co.				Merchants 89 Front St.
	Ebenezer Parker				Merchant Home: Brooklyn
	John T. Howard				Home: Brooklyn
	Joseph Howard				Home: Brooklyn
1837	B. L. Wooley	Store No. 89	$21,000		Merchant 89 Front St.
1838	Brittain L. Merchant				Merchant 89 Front St.
1839	B. L. Wooley	Store No. 89	$22,000		Merchants 89 Front St.
1840	B. L. Woolley [sic]	Store No. 89	$22,000		Merchants 89 Front St. Home: 40 Vesey
1841	B. L. Wooley	Store No. 89	$21,000		Merchants 89 Front St.
1842	B. L. Wooley & Co.	Store No. 89	$18,000		Merchant 89 Front St.
1843	B. L. Wooley & Co.	Store No. 89	$18,000		Merchant 89 Front St.
1844	B. L. Wooley	Store No. 89	$18,000		Merchant 89 Front St.
	Thomas Marean				Commission Merchant 89 Front St.
1845	B. L. Wooley	Store No. 89	$18,000		
	Thomas Marean				Commission Merchant 89 Front St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1845	Ezra Wheeler				Grocer 89 Front St.
1846	B. L. Wooley	Store No. 89	$18,000		
	Thomas Marean				Commission Merchant 89 Front St.
	Ezra Wheeler				Grocer 89 Front St.
1847	Ezra Wheeler	Store No. 89	$18,000		Grocer 89 Front St.
	Thomas Marean				Commission Merchant 89 Front St.
1848	Ezra Wheeler & Co.	Store No. 89	$17,500		Grocers 89 Front St.
	Thomas Marean				Commission Merchant 89 Front St.
1849	Ezra Wheeler	Store No. 89	$17,500		Grocers 89 Front St.
	Thomas Marean				Commission Merchant 89 Front St.
1850	Ezra Wheeler	Store No. 89	$17,500		Grocers 89 Front St.
	Thomas Marean				Commission Merchant 89 Front St.

SECTION 3
LOT 8

1800-1850

Year	Name	Description	Real Estate	Personal Estate	Directory
1800	No Data				
1801	Thomas Delves (?)				Merchant 56 Wall St. Store: Gouverneur's Wharf
1802	Thomas Delves	Brick Store No. 93	$4250		Merchant 56 Wall St. 93 1/2 Front St.
1803	Thomas Delves				Merchant 56 Wall Store: 93 1/2 Front St.
1804	Thomas Delves				Merchant 56 Wall St. Store: 93 1/2 Front St.[1]
1805	Thomas Delves				Merchant 56 Wall St. Store: 93 Front St.
1806	Thomas Delves				Merchant 56 Wall St. Store: 93 Front St.
1807	Delves & Thompson	Store Old No. 93 New No. 91	$2500		
	Thomas Delves				Merchant 56 Wall St. Store: 93 Front St.
1808	H. & J.G. Coster	Store Old No. 93 New No. 91	$3500		

[1]Langdon's (1804-1805:n.p.) directory gives Delves's address as 93 1/2; Longman's (1804) gives the address as 93 as do all subsequent directories.

Year	Name	Description	Real Estate	Personal Estate	Directory
1808	John Hutchinson[2]				Commission Merchant 93 Front St. & 47 South St.
1809	John Hutchinson	Store Old No. 93 New No. 91	$3500		
1810	John G. Coster	Store Old No. 93 New No. 91	$3500		
1811	No Data.				
1812	H. A. & John G. Coster	Store Old No. 95 [?] New No. 93 [?]	$4500		
1813	H. A. Coster	House & Back Store Old No. 95 [?] New No. 93 [?]	$4500		
1814	John G. Coster	Store Old No. 95 [?] New No. 93 [?]	$9000		
1815	Henderson & Cairns	Store Old No. 93 New No. 91	$9000		Merchants 93 Front St.
	Henry W. Thorne				93 Front St.
1816	Henderson & Cairns	Store Old No. 93 New No. 91	$8000		Merchants 93 Front St.
	Henry W. Thorne				93 Front St.
1817	Walsh & Gallagher	Store Old No. 93 New No. 91	$8000		
1818	Walsh & Gallagher	Store Old No. 93 New No. 91	$7000		

[2]See also Section 7.

Year	Name	Description	Real Estate	Personal Estate	Directory
1819	Walsh & Gallagher	Store No. 91	$7000		
1820	Walsh & Gallagher	Store No. 91	$6000		Merchants 91 Front St.
1821	Hinton & Moore	No. 91	$5500		
1822	"Vacant"	No. 91	$5500		
1823	"Vacant"	No. 91	$5000		
1824	Walsh & Gallagher	No. 91	$5000		
1825	Henry Grinnell	"Store in rear" No. 91	$5500		Merchant 91 Front St. Home: 28 Market
1826	Charles Green	"Store in rear" No. 91	$7000		
1827	John G. Coster	"Vacant Store in rear" No. 91	$7000		
1828	John G. Coster	Store No. 91	$7000		
	James C. Richards				91 Front St.
	Condit & Richards				91 Front St.
1829	Condit & Richards	No. 91	$7000		Merchants 91 Front St.
	James C. Richards				Home: 52 Cedar
1830	Condit & Richards	Store No. 91	$7000		Merchants 91 Front St.
	James C. Richards				Home: 40 Roosevelt

Year	Name	Description	Real Estate	Personal Estate	Directory
1831	Condit & Scott	No. 91	$9000		Merchants 91 Front St.
	Henry Condit				Home: State St.
	John M. Scott				91 Front St.
1832	Condit & Scott	Store No. 91	$10,000		Merchants 91 Front St.
	Henry Condit				Home: 10 State St.
	John M. Scott				91 Front St.
1833	Condit & Scott	Store No. 91	$10,000		Merchants 91 Front St.
	Henry Condit				91 Front St.
	John M. Scott				91 Front St.
1834	Condit & Scott	Store No. 91	$10,000		Merchants 91 Front St.
	Henry Condit				91 Front St.
	John M. Scott				91 Front St.
1835	<Condit & Scott>	Store No. 91	$10,000		Merchants 91 Front St.
	Henry Condit				Home: 44 Broadway
	John M. Scott				Home: 24 Grand St.
1836	<Condit & Scott>	Store No. 91	$19,000		Merchants 91 Front St. or 72 South St.
1837	Condit & Scott	Store No. 91	$20,000		Merchants 91 Front St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1838	Condit & Scott	Store No. 91	$20,000		Merchants 91 Front St.
1839	Condit & Scott	Store No. 91	$22,000		Merchants 91 Front St.
	Henry Condit				Home: 578 Broome
1840	Condit & Scott	Store No. 91	$22,000		Merchants 91 Front St.
	Henry Condit				Home: 578 Broome
1841	Condit & Scott	Store NO. 91	$21,000		Merchants 91 Front St.
1842	Estate of John Coster	Store No. 91	$18,000		
	Condit & Scott				Grocers 91 Front St.
1843	Moses Taylor	Store No. 91	$16,000		
	Condit & Scott				Grocers 91 Front St.
	Thomas Marean				Commission Merchant 91 Front St.
1844	Moses Taylor	Store No. 91	$18,000		
	Brower & Neilson				Commission Merchants
	John H. Brower				Merchant Consul, & Agent N. Y Insurance Co. 75 Wall St. 91 Front St.
1845	Moses Taylor	Store No. 91	$18,000		

Year	Name	Description	Real Estate	Personal Estate	Directory
1845	Brower & Neilson				Commission Merchants 91 Front St.
	John H. Brower				Merchant Consul, & Agent N. Y Insurance Co. 91 Front St.
1846	Moses Taylor	Store No. 91	$18,000		
	Brower & Neilson				Commission Merchants 91 Front St.
	John H. Brower				Merchant Agent N. Y. Insurance Co. 91 Front St.
	Gill, Gillets & Noyes				Teas 91 Front St.
1847	Moses Taylor	Store No. 91	$18,000		
	Gill, Gillets & Noyes				Teas 91 Front St.
1848	Moses Taylor	Store No. 91	$17,500		
	Gill, Gillets & Noyes				Teas 91 Front St.
	J. L. & N. L. Griswold				Merchants 91 Front St.
1849	Moses Taylor	Store No. 91	$17,500		
	Gill, Gillets & Noyes				Teas 91 Front St.
	J. L. & N. L. Griswold				Merchants 91 Front St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1850	John S. Hill				Commission Merchant 91 Front St.
1850	Moses Taylor	Store No. 91	$17,500		
	Gill, Gillets & Noyes				Teas 91 Front St.
	J. L. Griswold				Merchant 91 Front St.
	Warrington L. Gillet				Home: Philadelphia
	J. S. Hill				Commission Merchant 91 Front St.
	Charles Hill				Merchant 91 Front St.

SECTION 4
LOT 9

1800-1850

Year	Name	Description	Real Estate	Personal Estate	Directory
1800	Adam Pentz				Cooper 95 Front St. Home: 8 Roosevelt
1801	No Data				
1802	Peter A. Camman	Brick Store No. 95	$5500		Merchant 95 Front St. Home: 30 Cedar
1803	Peter A. Camman				Merchant 95 Front St. Home: 64 Broad
1804	No Data				
1805	Cadle & Stringham				Merchants 95 Front St.
	William Hill				Merchant 95 Front St.
1806	Cadle & Stringham				Merchants 95 Front St.
	William Hill				Merchant 95 Front St.
1807	Cadle & Stringham	Store Old No. 95 New No. 93	$2500		Merchants 95 Front St.
	William Hill				Merchant 95 Front St. Home: 15 & 17 Cortlandt
1808	Cadle & Stringham	Store Old No. 95 New No. 93	$3500		Merchants 95 Front St.
	William Hill				Merchant 95 Front Home: 15 & 17 Cortlandt

Year	Name	Description	Real Estate	Personal Estate	Directory
1808	George Johnston				Merchant 1 & 95 Front St.
1809	Cadle & Stringham	Store Old No. 95 New No. 93	$3500		Merchants 95 Front St.
	William Hill				Merchant 95 Front Home: 15 & 17 Cortlandt
	George Johnston				Merchant 95 Front St.
1810	Cadle & Stringham	Store Old No. 95 New No. 93	$3500		
	Cadle & Stringham	Store Old No. 95 New No. 93	$3500		Merchants 95 Front St.
	William Hill				Merchant 95 Front Home: 15 Cortlandt
	George Johnston				Merchant 95 Front St. Home: 4 State St.
1811	William Hill				Merchant 95 Front Home: 15 Cortlandt
	George Johnston				Merchant 95 Front St.
1812	William Hill				Merchant 95 Front Home: 15 Cortlandt
	George Johnston				Merchant 95 Front St.
1813	William Hill				Merchant 95 Front Home: 15 Cortlandt

Year	Name	Description	Real Estate	Personal Estate	Directory
1813	George Johnston				Merchant 95 Front St. Home: 6 Vesey
1814	William Hill	Store Old No. 95 New No. 93	$9000		Merchant 95 Front St. Home: 15 Cortlandt
	George Johnston				Merchant 95 Front St. 92 Greenwich
1815	George Johnston	Store Old No. 95 New No. 93	$9000		Merchant 95 Front St. Home: State St.
1816	Hinton & Moore	Store Old No. 95 New No. 93	$8000		Sail/Duck Store 95 Front St.
1817	Hinton & Moore	Store Old No. 95 New No. 93	$7500		Sail/Duck Store 95 Front St.
1818	Hinton & Moore	Store Old No. 95 New No. 93	$7500		Sail/Duck Store 95 Front St.
1819	Hinton & Moore	Store No. 93	$7000		Sail/Duck Store 93 Front St.
1820	Hinton & Moore	Store No. 93	$6000		Sail/Duck Store 93 Front St.
1821	Hinton & Moore[1]	No. 93	$6000		Sail/Duck Store & Ship Chandler 93 Front St.
1822	A. V. Winans	No. 93	$6000		Grocer 93 Front St. Home: 76 Frankfort
1823	A. V. Winans	No. 93	$6000		Grocer Front St. corner of Gouverneurs Lane Home: 76 Frankfort

[1]See also Section 3.

Year	Name	Description	Real Estate	Personal Estate	Directory
1824	A. V. Winans	No. 93	$6000		Grocer Front St. corner of Gouverneurs Lane Home: 76 Frankfort
1825	A. V. Winans & Co.	No. 93	$6500		Grocer Front St. corner of Gouverneurs Lane Home: 76 Frankfort
1826	A. V. Winans & Co.	No. 93	$6500		Grocer Front St. corner of Gouverneurs Lane Home: 76 Frankfort
1827	A. V. Winans & Co.	Store No. 93	$6500		Grocer 93 Front St.
1828	A. V. Winans & Co.	Store	$6500 No. 93		Grocers 93 Front St.
1829	A. V. Winans & Co.	No. 93	$6500		Grocers 93 Front St.
1830	A. V. Winans & Co.	Store No. 93	$9500		Grocers 93 Front St.
1831	A. V. Winans & Co.	Store No. 93	$9500		Grocers 93 Front St.
1832	A. V. Winans & Co.	Store No. 93	$11,000		Grocers 93 Front St.
1833	A. V. Winans & Co.	Store No. 93	$11,000		Grocers 93 Front St.
1834	A. V. Winans & Co.	Store No. 93	$11,000		Grocer 93 Front St.
1835	<A. V. Winans & Co.>	Store No. 93	$11,000		Grocer 93 Front St.
	Anthony V. Winans				Home: 25 Cliff
1836	James Vanbenschoten	Store No. 93	$21,000		Merchant 93 Front St. Home: 755 Broadway
1837	J. Vanbenchoten	Store No. 93	$30,000		

Year	Name	Description	Real Estate	Personal Estate	Directory
1838	John G. and E. Baker				Wine Merchants 93 Front St.
1839	Baker & Co.	Store No. 93	$31,000		Wine Merchants 93 Front St.
1840	Baker & Co.	Store No. 93	$28,000		Wines 93 Front St.
1841	Baker & Co.	Store No. 93	$26,000		Wines 93 Front St.
1842	Henry E. Morris	Store No. 93	$24,000		
	John G. and Edward Baker				Importers of Wines and Liquors 93 Front St.
1843	J. G. and E. Baker	Store No. 93	$21,000		Importers 93 Front St.
1844	Ann Morris	Store No. 93	$25,000		
	John G. and Edward Baker				Importers 93 Front St.
1845	Ann Morris	Store No. 93	$25,000		
	John G. and Edward Baker				Importers 93 Front St.
	B. L. Woolley				Merchant 93 Front St.
1846	Ann Morris	Store No. 93	$25,000		
	John G. and Edward Baker				Importers 93 Front St.
	B. L. Woolley				Merchant 93 Front St.
1847	Ann Morris	Store No. 93	$25,000		
	John G. and Edward Baker				Importers 93 Front St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1848	Ann Morris	Store No. 93	$25,000		
1848	John G. and Edward Baker				Importers 93 Front St.
1849	Ann Morris	Store No. 93	$25,000		
	John G. and Edward Baker				Importers 93 Front St.
1850	Ann Morris	Store No. 93	$25,000		
	John G. and Edward Baker				Importers 93 Front St.

SECTION 5
LOT 41

1807-1850

Year	Name	Description	Real Estate	Personal Estate	Directory
1807	Gerard Walton	"Vacant Lot"	$1200		
1808	Marston & Osborne	Store No. 48	$4000		
	William Osborn				Merchant 48 South St.
1809	Osborn & Willis	Store No. 48	$4000	$ 500	Merchants 48 South St.
	William Osborn				Merchant 48 South St.
	Melick & Burger				Merchants 48 South St.
	James Chrystie	"in store"		$ 100	
1810	William Osborne	Store No. 48	$4000		Merchant 48 South St. Home: 47 John St.
	Hubbard & Greene				Commission Merchants
1811	William Osborn				Merchant 48 South St. Home: 82 Greenwich
1812	Perit & Lathrop	Store No. 48	$4000		48 South St.
	Daniel W. Coit				48 South St.
1813	Daniel W. Coit	Store No. 48	$4000		Merchant 48 South St.
1814	Daniel W. Coit	Store No. 48	$9000		
	Samuel T. Coit				Merchant 48 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1815	John B. Murray	Store No. 48	$9000		Merchant 48 South St. Home: 129 Chambers
1816	James and William Dunlap	Store No. 48	$9000		
1817	Hazard and Williams	Store No. 48	$8000		
1818	John Bulkley	Store No. 48	$7000		Merchant 48 South St. Home: 12 Barclay
	John Bulkley & Co.				Ship Chandlers 48 South St.
1819	John Bulkley				Merchant 48 South St. Home: 41 Greenwich
	John Bulkley & Co.				Ship Chandlers 48 South St.
1820	John Bulkley & Co.	Store No. 48	$6000		Ship Chandlers 48 South St.
	John Bulkley				Merchant 48 South St. Home: 46 Greenwich
1821	John Bulkley & Co.	Store No. 48	$6000		Ship Chandlers 48 South St.
	John Bulkley				Merchant 48 South St. Home: 46 Greenwich
1822	John Bulkley & Son	Store No. 48	$6000		Ship Chandlers 48 South St.
	John Bulkley				Merchant 48 South St. Home: 46 Greenwich
1823	John Bulkley & Son	Store No. 48	$6000		Ship Chandlers 48 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1823	John Bulkley				Merchant 48 South St. Home: 46 Greenwich
1824	John Bulkley & Son	Store No. 48	$6000		
	John Bulkley				Merchant 48 South St. Home: 46 Greenwich
	H. D. Bulkley				Merchant 48 South St. Home: 46 Greenwich
1825	John Bulkley & Son	Store No. 48	$7000		
	John Bulkley				Merchant 48 South St. Home: 46 Greenwich
	H. D. Bulkley				Merchant 48 South St. Home: 46 Greenwich
1826	John Bulkley & Son	Store No. 48	$7000		Merchants 48 South St.
	H. D. Bulkley				Merchant 48 South St.
1827	John Bulkley & Son	Store No. 48	$7000		Merchants 48 South St.
	H. D. Bulkley				Merchant 48 South St. Home: 46 Greenwich
1828	John Bulkley & Son	Store No. 48	$7000		Merchants 48 South St.
	H D. Bulkley				Merchant 48 South St.
1829	Dan[iel] Tuttle	No. 48	$7000		Merchants 48 South St.
	John Bulkley & Son				Merchants 48 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1829	John Bulkley				Merchant 48 South St. Home: 46 Greenwich
1830	Dan[iel] Tuttle & Co.	Store No. 48	$9000		Merchants 48 South St.
1831	Dan[iel] Tuttle & Co.	Store No. 48	$9000		Merchants 48 South St.
1832	Dan[iel] Tuttle & Co.	Store No. 48	$9000		Merchants 48 South St.
1833	Dan[iel] Tuttle & Co.	Store No. 48	$9000		Merchants 48 South St. Home: 15 Whitehall
	Hallam Chesebrough				Grocer 48 South St. Home: 85 Front St.
1834	Dan[iel] Tuttle & Co.	Store No. 48	$9000		
	Daniel Tuttle				Merchant 48 South St. Home: 78 Elm St.
	Hallam Chesebrough				Grocer 48 South St.
1835	Dan[iel] Tuttle & Co.	Store No. 48	$9000		
	Hallam Chesebrough				Grocer 48 South St. Home: 76 Front St.
1836	Smith & Town	Store No. 48	$30,700[1]		Commission Merchants 48 South St.
	John S. Smith, Jr.				Merchant 48 South St.
	Charles H. Town				Merchant 48 South St.

[1]Assessed value includes Gouverneurs Lane.

Year	Name	Description	Real Estate	Personal Estate	Directory
1836	Hallam Chesebrough				Grocer 48 South St.
1837	Joseph Foulke	Store No. 48	$33,000		
	Smith & Town				Commission Merchants 48 South St.
	John S. Smith, Jr.				Merchant 48 South St. Home: 626 Broadway
	Charles H. Town				Merchant 48 South St
1838	Joseph Foulke & Sons				48 South St.
	Joseph Foulke				48 South St.
	Joseph Foulke Jr.				48 South St.
	Louis P. Foulke				48 South St.
1839	Joseph Foulke	Store No. 48	$38,000		48 South St.
	Joseph Foulke & Sons				48 South St.
	Joseph Foulke Jr.				48 South St.
	Pierre L. Foulke				48 South St.
1840	Joseph Foulke	Store No. 48	$36,000		48 South St.
	Joseph Foulke & Sons				48 South St.
	Joseph Foulke Jr.				48 South St.
	Pierre L. Foulke				48 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1841	Joseph Foulke	Store No. 48	$36,000		48 South St. Home: Hellgate
	Joseph Foulke Jr.				48 South St. Home: 629 Broadway
	Pierre L. Foulke				48 South St. Home: 68 Amity
1842	Joseph Foulke	Store No. 48	$25,000		
	Joseph Foulke & Sons				Merchants 48 South St.
	Joseph Foulke Jr.				Merchant 48 South St.
	Pierre L. Foulke				Merchant 48 South St.
	William Foulke				Merchant 48 South St.
1843	Joseph Foulke & Sons	Store No. 48	$22,000		Merchants 48 South St.
	Joseph Foulke Jr.				Merchant 48 South St.
	Louis P. Foulke				Merchant 48 South St.
	William Foulke				Merchant 48 South St.
1844	Joseph Foulke & Sons	Store No. 48	$26,000		Merchants 48 South St.
	Joseph Foulke Jr.				Merchant 48 South St.
	Louis P. Foulke				Merchant 48 South St.
	William Foulke				Merchant 48 South St.
	Isaiah C. Whitmore				Merchant 48 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1845	Joseph Foulke & Sons	Store No. 48	$26,000		Merchant 48 South St.
	Joseph Foulke Jr.				Merchant 48 South St.
	Louis P. Foulke				Merchant 48 South St.
	William Foulke				Merchant 48 South St.
	Isaiah C. Whitmore				Merchant 48 South St.
1846	Joseph Foulke & Sons	Store No. 48	$26,000		Merchants 48 South St.
	Joseph Foulke Jr.				Merchant 48 South St.
	Louis P. Foulke				Merchant 48 South St.
	William Foulke				Merchant 48 South St.
	Isaiah C. Whitmore				Merchant 48 South St.
1847	Joseph Foulke	Store No. 48	$26,000		
	Joseph Foulke & Sons				Merchants 48 South St.
	Joseph Foulke Jr.				Merchant 48 South St.
	Louis P. Foulke				Merchant 48 South St.
	William Foulke				Merchant 48 South St.
	Daniel Curtis Jr.				Commission Merchant 48 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1847	Spofford, Tileston & Co.				Commission Merchants 48 South St.
	Paul Spofford				Merchant 48 South St.
	Thomas Tileston				Merchant 48 South St.
1848	Joseph Foulke	Store No. 48	$26,000		
	Joseph Foulke & Sons				Merchants 48 South St.
	Joseph Foulke Jr.				Merchant 48 South St.
	Louis P. Foulke				Merchant 48 South St.
	William Foulke				Merchant 48 South St.
	Daniel Curtis Jr.				Commission Merchant 48 South St.
	Spofford, Tileston & Co.				Commission Merchants 48 South St.
	Paul Spofford				Merchant 48 South St.
	Thomas Tileston				Merchant 48 South St.
1849	Joseph Foulke	Store No. 48	$26,000		
	Joseph Foulke & Sons				Merchants 48 South St.
	Joseph Foulke Jr.				Merchant 48 South St.
	Louis P. Foulke				Merchant 48 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1849	William Foulke				Merchant 48 South St.
	Daniel Curtis Jr.				Commission Merchant 48 South St.
	Spofford, Tileston & Co.				Commission Merchants 48 South St.
	Paul Spofford				Merchant 48 South St.
	Thomas Tileston				Merchant President, Phoenix Bank 48 South St.
1850	Joseph Foulke	Store No. 48	$26,000		
	Joseph Foulke & Sons				Merchants 48 South St.
	Joseph Foulke Jr.				Merchant 48 South St.
	Louis P. Foulke				Merchant 48 South St.
	William Foulke				Merchant 48 South St.
	Daniel Curtis Jr.				Commission Merchant 48 South St.
	Spofford, Tileston & Co.				Commission Merchants 48 South St.
	Paul Spofford				Merchant 48 South St.
	Thomas Tileston				Merchant 48 South St.
	Charles Spofford				Boots 48 South St.

SECTION 6
LOT 42

1807-1850

Year	Name	Description	Real Estate	Personal Estate	Directory
1807	Thomas H. Merry	Store No. 47	$3500		Merchant 47 South St. Home: 116 Liberty
	A. D. Duff				Merchant 47 South St.
1808	John Grozart	Store No. 47	$4000		Merchant 47 South St. Home: 116 Liberty
	A. D. Duff				Merchant 47 South St.
	John Hutchinson				Commission Merchant 93 Front and 47 South Sts.[1]
1809	James [John?] Hutchinson	Store No. 47	$4000		
1810	Gordon & Hutchinson	Store No. 47	$4000		
1811	Daniel W. Coit				Merchant 47 South St.
	Henderson & Cairns				Merchants 47 South St.
1812	Henderson & Cairns	Store No. 47	$4000		47 South St.
	John Goddard				47 South St.
1813	March & Benson	Store No. 47	$4000		Merchants 47 South St.
1814	John Jackson	Store No. 47	$9000		

[1]See also Section 3.

Year	Name	Description	Real Estate	Personal Estate	Directory
1814	Robert Benson Jr.[2]				47 South St. Home: 110 Broadway
1815	March & Benson	Store No. 47	$9000		Merchants 47 South St.
	Robert Benson Jr.				47 South St. Home: 110 Broadway
1816	March & Benson	Store No. 47	$9000		Merchants 47 South St.
	Robert Benson Jr.[2]				47 South St. Home: 110 Broadway
1817	March & Benson	Store No. 47	$9000		Merchants 47 South St.
	Robert Benson Jr.[2]				47 South St. Home: 110 Broadway
1818	March & Benson	Store No. 47	$9000		Merchants 47 South St.
	Robert Benson Jr.[2]				47 South St. Home: 110 Broadway
	Charles March				47 South St. Home: 9 State
1819	Ledger missing.				
	March & Benson				Merchants 47 South St.
	Robert Benson Jr.				47 South St. Home: 82 Chambers
	Charles March				47 South St. Home: 14 Warren
1820	S. Robinson & Co.	Store No. 47	$8000		Merchants 47 South St.
	S. Robinson				Home: Brooklyn
	J. M. Robinson				Merchant 47 South St.

[2]Pages missing in the directory.

Year	Name	Description	Real Estate	Personal Estate	Directory
1821	S. Robinson & Co.	Store No. 47	$7500		Merchants 47 South St.
	Silvester Robinson				Home: 338 Pearl St.
	J. M. Robinson				Merchant
1822	S. Robinson	Store No. 47	$7500		
	S. Robinson & Co.				Merchants 47 South St.
	Silvester Robinson				Merchant 47 South St. 76 Leonard St.
	J. M. Robinson				Merchant 47 South St. 76 Leonard
1823	Thaddius [sic] Phelps	No. 47	$7000		Merchant 47 South St. Home: 109 Liberty
	Silvester Robinson				Merchant 47 South St. Home: 28 Rivington
1824	Thad[deu]s Phelps	No. 47	$7000		Merchant 47 South St. Home: 109 Liberty
	Thadeus Phelps & Co.				Merchants 47 South St.
	Silvester Robinson				Merchant 47 South St. 28 Rivington St.
1825	Thadeus [sic] Phelps & Co.	Store No. 47	$8000		Merchants 47 South St.
	Thadeus Phelps				Merchant 47 South St. Home: 109 Liberty

Year	Name	Description	Real Estate	Personal Estate	Directory
1826	Thadeus [sic] Phelps & Co.	Store No. 47	$8000		Merchants 47 South St.
	Thadeus Phelps				Merchant 47 South St.
	Henry Coit				Merchant 47 South St.
	E. H. Averill & Co.				Merchants 47 South St.
1827	Henry Coit	Store No. 47	$8000		Merchant 47 South St.
	Thadeus [sic] Phelps & Co.				Merchants 47 South St.
	Thadeus Phelps				Merchant 47 South St.
	E. H. Averill & Co.				Merchants 47 South St.
1828	Henry Coit	Store No. 47	$8000		Merchant 47 South St.
	Thadeus [sic] Phelps & Co.				Merchants 47 South St.
	Thadeus Phelps				Merchant 47 South St. Home: 52 Beekman
	E. H. Averill & Co.				Merchants 47 South St.
	A. Averill				47 South St. Home: 16 Cortlandt
	Frederic Bull				Merchant 47 South St.
1829	Henry Coit	Store No. 47	$8000		Merchant 47 South St. Home: 76 White
	Thadeus [sic] Phelps & Co.				Merchants 47 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1829	Thadeus [sic] Phelps				Merchant 47 South St.
	E. H. Averill & Co.				Merchants 47 South St.
1830	Henry Coit	Store No. 47	$10,000		Merchant 47 South St.
	Thadeus [sic] Phelps & Co.				Merchants 47 South St.
	Thadeus Phelps				Merchant 47 South St. Home: 76 Greenwich
	E. H. Averill & Co.				Merchants 47 South St.
	A. Averill				Merchant 47 South St.
	Thomas B. Richards				Merchant 47 South St.
1831	Henry Coit	Store No. 47	$11,000		Merchant 47 South St. Home: 76 White
	Thadeus [sic] Phelps & Co.				Merchants 47 South St.
	Thadeus Phelps		Merchant		47 South St.
	E. H. Averill & Co.				Merchants 47 South St.
	A. Averill				Merchant 47 South St. Home: 54 Exchange Place
	Thomas B. Richards				Merchant 47 South St.
1832	T. Phelps	Store No. 47	$12,500		Merchants 47 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1832	Henry Coit & Co.				Merchants 47 South St.
	Thadeus Phelps				Merchant 47 South St. Home: 76 Greenwich
	E. H. Averill & Co.				Merchants 47 South St.
	A. Averill				Merchant 47 South St.
	Joseph Otis				Merchant 47 South St.
1833	H. & A. Averill	Store No. 47	$12,500		
	Thadeus [sic] Phelps & Co.				Merchants 47 South St.
	Thadeus Phelps				Merchant 47 South St.
	E. H. Averill & Co.				Merchants 47 South St.
	A. Averill				Merchant 47 South St.
	Joseph Otis				Merchant 47 South St. Home: 80 Franklin
1834	H. & A. Averill	Store No. 47	$12,500		Merchants 47 South St.
	Augustin Averill				Merchant 47 South St. Home: 12 White
	Henry Averill				Boarding House 18 Dover St.
	Joseph Otis				47 South St.
1835	H. & A. Averill	Store No. 47	$12,500		

Year	Name	Description	Real Estate	Personal Estate	Directory
1835	Augustin Averill				Merchant 47 South St. Home: 12 White
1835	Joseph Otis				47 South St. Home: 44 Franklin
1836	Thomas Andrews	Store No. 47	$25,000		
	Augustin Averill & Co.				Merchants 133 Front St. "until 1st September, will then return to 47 South" Home: 77 Amity
1837	Thomas Andrews	Store No. 47	$23,000		47 South St.
1838	Thomas Andrews	Store No. 47	$23,000		47 South St.
1839	Thomas Andrews	Store No. 47	$25,000		47 South St. Home: 15 Rutgers Place
1840	Frederick G. Thurston & Co.	Store No. 47	$24,000		47 South St.
	Thompson & Adams				47 South St.
	Jonathan Thompson, Jr.				47 South St.
	William Adams				47 South St.
1841	Thurston & Co.	Store No. 47	$24,000		47 South St.
	Thompson & Adams				47 South St.
	Jonathan Thompson, Jr.				47 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1841	William Adams				47 South St.
1842	Moses Taylor	No. 47	$21,000		
	Thompson & Adams				47 South St.
	Jonathan Thompson, Jr.				47 South St. Home: 83 Beekman
	William Adams				47 South St.
1843	Moses Taylor	Store No. 47	$17,500		
	Thompson & Adams				Merchants 47 South St.
	Jonathan Thompson, Jr.				Merchant 47 South St.
	William Adams				Merchant 47 South St.
1844	Moses Taylor	Store No. 47	$19,500		
	Thurston & Co.[3]				
	Thompson & Adams				Merchants 47 South St.
	Jonathan Thompson, Jr.				Merchant 47 South St.
1845	Moses Taylor	Store No. 47	$19,500		
	Jonathan Thompson, Jr.				Merchant 47 South St.
1846	Moses Taylor	Store No. 47	$19,500		
	Jonathan Thompson, Jr.				Merchant 47 South St.

[3]Recorded in the tax list; not shown in the directory.

Year	Name	Description	Real Estate	Personal Estate	Directory
1847	Moses Taylor	Store No. 47	$19,500		
	Jonathan Thompson				Merchant 47 South St.
	Isaiah C. Whitmore				Merchant 47 South St.
1848	Moses Taylor	Store No. 47	$19,500		
	Thompson & Adams				Merchants 47 South St.
	Jonathan Thompson				Merchant 47 South St.
	Isaiah C. Whitmore				Merchant 47 South St.
	A. Averill & Co.				Commission Merchants 47 South St.
	Augustin Averill				Merchant 47 South St.
1849	Moses Taylor	Store No. 47	$19,500		
	Jonathan Thompson				Merchant 47 South St.
	Isaiah C. Whitmore				Merchant 47 South St.
	A. Averill & Co.				Commission Merchants 47 South St.
	Augustin Averill				Merchant 47 South St.
1850	Moses Taylor	Store No. 47	$19,500		
	Jonathan Thompson				Merchant 47 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1850	Isaiah C. Whitmore				Merchant 47 South St.
	A. Averill & Co.				Commission Merchants 47 South St.
	Augustin Averill				Merchant 47 South St.
	James Couper Lord				Merchant 47 South St.

SECTION 7
LOT 43

1807-1850

Year	Name	Description	Real Estate	Personal Estate	Directory
1807	John D. Aymar	House No. 46	$3500		Block & pumpmaker Bache's wharf
1808	John D. Aymar	House No. 46	$3000	$ 200	Block & pumpmaker Bache's wharf
	Melick & Burgher				Merchants 46 South St. or 33 Old Slip
1809	John D. Aymar	House No. 46	$3000	$ 500	Block & pumpmaker 46 South St. and Bache's wharf
1810	John D. Aymar	House No. 87	$3000[1]		Block & pumpmaker 46 South St. and Bache's wharf
1811	John D. Aymar				Block & pumpmaker 46 South St.
1812	John D. Aymar	House & Shop No. 46	$3000	$ 200	46 South St.
1813	John D. Aymar	House & Shop No. 46	$3000	$ 200[2]	Block & pumpmaker 46 South St.
1814	John D. Aymar	House & Shop No. 46	$7500	$ 200[3]	Block & pumpmaker 46 South St.
	Daniel Aymar				Shipmaker 46 South St.
1815	John D. Aymar	House & Shop No. 46	$7500	$ 200[3]	Block & pumpmaker 46 South St.
	Daniel Aymar				Shipmaker 46 South St.

[1]Next entry is for Aymar's wharf, valued at $2000.

[2]Next entry is for Aymar's wharf, valued at $2000.

[3]Next entry is for Aymar's wharf and pier, valued at $2000.

Year	Name	Description	Real Estate	Personal Estate	Directory
1816	John D. Aymar	House & Shop No. 46	$7500	$ 200[3]	Block & pumpmaker 46 South St.
1817	John D. Aymar	House & Shop No. 46	$7500	$ 200[3]	Block & pumpmaker 46 South St.
1818	John D. Aymar	House & Shop No. 46	$7500	$ 200[4]	Block & pumpaker 46 South St.
1819	Missing ledger.				
	John D. Aymar				Block & pumpmaker 46 South St.
1820	John D. Aymar	House & Store No. 46	$5000	$2000	Block & pumpmaker 46 South St.
1821	John D. Aymar	No. 46	$5000	$2000	Block & pumpmaker 46 South St.
1822	John D. Aymar	House & Store No. 46	$5000	$2000	Block & pumpmaker 46 South St.
1823	John D. Aymar	No. 46	$4500	$2000	Block & pumpmaker 46 South St.
1824	John D. Aymar	Lot No. 46	$4000		Block & pumpmaker 46 South St. and 105 Water St.
1825	John D. Aymar	Store No. 46	$8000		Block & pumpmaker 46 South St. and 105 Water St.
1826	John D. Aymar	Store No. 46	$8000		Block & pumpmaker 46 South St. and 91 Water St.
1827	John D. Aymar	Store No. 46	$8000		Block & pumpmaker 46 South St. and 91 Water St.
	Frederick Dull				Merchant 46 South St.

[3]Next entry is for Aymar's wharf and pier, valued at $2000.

[4]Next entry is for Joshua Jones's pier and wharf, valued at $4000; this entry is followed by Aymar's pier and wharf, valued at $4000.

Year	Name	Description	Real Estate	Personal Estate	Directory
1828	John D. Aymar	Store No. 46	$8000		Block & pumpmaker 46 South St. and 91 Water St.
1829	John D. Aymar	No. 46	$8000		Block & pumpmaker 46 South St. and 91 Water St.
1830	John D. Aymar	Store No. 46	$10,000		Block & pumpmaker 46 South St. and 91 Water St.
	Osborn & Youngs				Merchants 46 South St.
	E. F. Osborn				Merchant 46 South St.
	Thomas F. Youngs				Merchant 46 South St.
	Stephen Whitney				Home: 7 Bowling Green
1831	William Whitlock Jr.	Store No. 46	$11,000		Merchant 46 South St.
	Osborn & Youngs				Merchants 46 South St.
	E. F. Osborn				Merchant 46 South St.
	Thomas F. Youngs				Merchant 46 South St.
1832	William Whitlock Jr.	Store No. 46	$12,500		Merchant 46 South St.
	Osborn & Youngs				Merchants 46 South St.
	E. F. Osborn				Merchant 46 South St. Home: 683 Broadway
	Thomas F. Youngs				Merchant 46 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1833	William Whitlock Jr.	Store No. 46	$13,000		Merchant 46 South St. Home: 26 Beach
	Osborn & Youngs				Merchants 46 South St.
	E. F. Osborn				Merchant 46 South St.
	Thomas F. Youngs				Merchant 46 South St. Home: 11 Barclay
1834	William Whitlock Jr.	No. 46	$12,500		Merchant 46 South St.
	Osborn & Youngs				Merchants 46 South St.
	E. F. Osborn				Merchant 46 South St. Home: 47 Franklin
	Thomas F. Youngs				Merchant 46 South St. Home: 533 Pearl St.
	Francis Osborn				Wine Merchant 46 South St. Home: 47 Franklin
1835	William Whitlock Jr.	Store No. 46	$12,500		46 South St.
	Osborn & Youngs				Merchants 46 South St.
	E. F. Osborn				Merchant 46 South St.
	Thomas F. Youngs				Merchant 46 South St.
	Henry and William Delafield				46 & 40 South St. Home: 104 Franklin
1836	William Whitlock Jr.	Store No. 46	$21,000		Merchant 46 South St. 32 Beach

Year	Name	Description	Real Estate	Personal Estate	Directory
1836	Osborn & Youngs				Merchants 46 South St.
	E. F. Osborn				Merchant 46 South St. 47 Franklin
	Thomas F. Youngs				Merchant 46 South St. Home: 533 Pearl St.
1837	William Whitlock Jr.	Store No. 46	$21,000		Merchant 46 South St.
1838	William Whitlock Jr.				Merchant 46 South St.
1839	William Whitlock Jr.	Store No. 46	$22,000		Merchant 46 South St.
1840	William Whitlock Jr.	Store No. 46	$22,000		Merchant 46 South St.
1841	William Whitlock Jr.	Store No. 46	$22,000		Merchant 46 South St. Home: 32 Beach
1842	William Whitlock Jr.	No. 46	$19,000		Merchant 46 South St.
1843	William Whitlock Jr.	Store No. 46	$17,000		Merchant 46 South St.
	Averill & Co.				Commission Merchants 46 South St.
	Augustin Averill				Merchant 46 South St. Home: 99 Amity
1844	William Whitlock Jr.	Store No. 46	$18,500		Merchant 46 South St.
	A. Averill & Co.				Commission Merchants 46 South St.
	Augustin Averill				Merchant 46 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1845	William Whitlock Jr.	Store No. 46	$18,500		
	A. & G. Averill & Co.				Commission Merchants 46 South St.
	Augustin Averill				Merchant 46 South St.
1846	William Whitlock Jr.	Store No. 46	$18,500		Merchant 46 South St.
	A. Averill & Co.				Commission Merchants 46 South St.
	Augustin Averill				Merchant 46 South St.
1847	William Whitlock Jr.	Store No. 46	$18,500		Merchant 46 South St.
	A. Averill & Co.				Commission Merchants 46 South St.
	Augustin Averill				Merchant 46 South St.
1848	William Whitlock Jr.	Store No. 46	$18,500		Merchant 46 South St.
	A. Averill & Co.				Commission Merchants 46 South St.
	Augustin Averill				Merchant 46 South St.
1849	William Whitlock Jr.	Store No. 46	$18,500		Merchant 46 South St.
	Benjamin Richards				Commission Merchant 46 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1850	William Whitlock Jr.	Store No. 46	$18,500		Merchant 46 South St.
	Benjamin Richards				Commission Merchant 46 South St.

SECTION 8
LOT 44

1807-1850

Year	Name	Description	Real Estate	Personal Estate	Directory
1807	Melick & Burgher	Store No. 45	$3500		Merchants 46 South St. or 33 Old Slip[1]
	Alexander Coffin, Jr.				Merchant 45 South St.
1808	Melick & Burgher	Store No. 45	$4500		
1809	Melick & Burgher	Store No. 45	$4500		
	Goodhue & Swett	Store No. 45			
1810	Hoyt & Tom	Store No. 45	$4500		"Hoyt & Tom's Office 47 South St.
1811	Smith & Hubbell				Merchants 45 South St.
	Joseph Smith				Merchant 45 South St. Home: 5 Bridge St.
	Anson Hubbell				Merchant 45 South St. Home: 26 Beekman
1812	Hoyt & Tom & Co.	Store No. 45	$4500		Hoyt, Tom & Co. 45 South St.
	Smith & Hubbell				45 South St.
1813	Hoyt & Tom & Co.	Store No. 45	$4500		Hoyt, Tom & Co. 45 South St.
	Smith & Hubbell				Merchants 45 South St.

[1]See Section 7.

Year	Name	Description	Real Estate	Personal Estate	Directory
1813	Joseph Smith				Merchant 45 South St. Home: 5 Bridge St.
	Anson Hubbell				Merchant 45 South St. Home: 106 Greenwich
1814	Hoyt & Tom & Co.	Store No. 45	$10,500		Hoyt, Tom & Co. 45 South St.
	Smith & Hubbell				Merchants 45 South St.
	Joseph Smith				Merchant 45 South St. Home: 5 Bridge St.
	Anson Hubbell				Merchant 45 South St.
1815	Smith & Hubble [sic] & Co.	Store No. 45	$10,500		Merchants 45 South St.
	Joseph Smith				Merchant 45 South St.
	Anson Hubbell				Merchant 45 South St. Home: 106 Greenwich
	Hoyt & Tom				45 South St.
1816	Smith & Hubble [sic] & Co.	Store No. 45	$10,000		45 South St.
	Joseph Smith				Merchant 45 South St.
	Anson Hubbell				Merchant 45 South St. Home: 106 Greenwich
	Hoyt & Tom				45 South St.
	Goold Hoyt				Merchant 45 South St. Home: 30 Broadway

Year	Name	Description	Real Estate	Personal Estate	Directory
1815	Philip Hoyt				Merchant 45 South St.
1816	Joseph Smith				Merchant 45 South St.
	Anson Hubbell				Merchant 45 South St. Home: 106 Greenwich
1817	Smith & Hubble [sic] & Co.	Store No. 45	$10,000		Merchants 45 South St.
	Joseph Smith				Merchant 45 South St. Home: 7 Bridge St.
	Anson Hubbell				Merchant 45 South St. Home: 30 Whitehall
	Hoyt & Tom				45 South St.
	Goold Hoyt				Merchant 45 South St. Home: 30 Broadway
1818	Smith & Hubble [sic] & Co.	Store No. 45	$10,000		Merchants 45 South St.
	Joseph Smith				Merchant 45 South St. Home: 7 Bridge St.
	Hoyt & Tom				45 South St.
	Goold Hoyt				Merchant 45 South St. Home: 30 Broadway
1819	Ledger missing.				
	Smith & Hubbell				Merchants 45 South St.
	Joseph Smith				Merchant 45 South St. Home: 7 Bridge St.
	Hoyt & Tom				45 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1819	Goold Hoyt				Merchant 45 South St. Home: 30 Broadway
1820	Hoyt & Tom	Store No. 45	$8500		45 South St.
	Goold Hoyt				Merchant 45 South St. Home: 30 Broadway
	Smith & Hubbell				Merchants 45 South St.
	Joseph Smith				Merchant 45 South St. Home: 7 Bridge St.
1821	Hoyt & Tom	No. 45	$8000		45 South St.
	Goold Hoyt				Merchant 45 South St. Home: 30 Broadway
	Joseph Smith				Merchant 45 South St. Home: 19 Bridge St.
1822	Hoyt & Tom	Store No. 45	$8000		45 South St.
	Goold Hoyt				Merchant 45 South St. Home: 30 Broadway
1823	Goold Hoyt	No. 45	$7500		45 South St. Home: 30 Broadway
	Hoyt & Tom				45 South St.
1824	Goold Hoyt	Store No. 45	$7500		45 South St. Home: 27 Park Pl.
	Hoyt & Tom				45 South St.
1825	Goold Hoyt	Store No. 45	$8500		Merchant 45 South St. Home: 27 Park Pl.
	Hoyt & Tom				45 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1825	James Hoyt				Merchant 45 South St. Home: 136 Duane St.
1826	Goold Hoyt	Store No. 45	$8500		Merchant 45 South St.
	Hoyt & Tom				Merchants 45 South St.
	James Hoyt				Merchant 45 South St.
1827	Goodhue & Swett	Store No. 45	$8500		
	Goold Hoyt				Merchant 45 South St. Home: 27 Park Pl.
1828	George Douglas	Store No. 45	$8500		Not listed.
1829	George Douglas	No. 45	$8500		
	George Douglass & Co. [sic]				Merchants 45 South St.
1830	George Douglas	Store No. 45	$10,000		
	George Douglass & Co. [sic]				Merchants 45 South St. Home: 64 Liberty
1831	George Douglass [sic]	Store No. 45	$12,500		
	George Douglass & Co. [sic]				Merchants 45 South St.
1832	H. Coit	Store No. 45	$12,500		
	Henry Coit & Co.				Merchants 45 South St. Home: 76 White

Year	Name	Description	Real Estate	Personal Estate	Directory
1832	George Douglass & Co. [sic]				Merchants 45 South St. Home: 57 Bleeker St
	Thomas B. Richards				Merchant 45 South St.
1833	H. Coit & Co.	Store No. 45	$12,500		45 South St. Home: 76 White
	Thomas B. Richards				Merchant 45 South St.
1834	H. Coit & Co.	Store No. 45	$12,500		Merchants 45 South St. Home: 76 White
	Thomas B. Richards				Merchant 45 South St.
1835	H. Coit & Co.	Store No. 45	$12,500		Merchants 45 South St. Home: 76 White
	Thomas B. Richards				Merchant 45 South St.
1836	Charles G. Hecksher	Store No. 45	$21,000		
	Charles A. & E. Heckscher[2]				Merchants 45 South St.
	C. A. Heckscher				Consul 45 South St. Home: 539 Broadway
	Edward Heckscher				Merchant Home: 26 Park Pl.
	John A. Williams				Merchant Home: Madison
1837	Charles Hecksher	Store No. 45	$23,000		
	Charles A. & E. Heckscher				Merchants 45 South St.

[2]The surname is spelled "Hecksher" in the tax lists and "Heckscher" in the city directories.

Year	Name	Description	Real Estate	Personal Estate	Directory
1837	C. A. Heckscher				Consul 45 South St. Home: 539 Broadway
	Edward Heckscher				Merchant Home: 26 Park Pl.
1838	C. A. Heckscher				Consul 45 South St. Home: 539 Broadway
	Edward Heckscher				Merchant Home: 26 Park Pl.
	Heckscher, Coster & Matfield				45 South St.
	Gustavus Matfield				Home: 169 Sullivan
	Gerard H. Matfield				Banker 45 South St.
1839	Charles Hecksher	Store No. 45	$22,000		
	C. A. Heckscher				Consul 45 South St.
	Edward Heckscher				Merchant 45 South St.
	Heckscher, Coster & Matfield				45 South St.
	Gustavus Matfield				Home: 169 Sullivan
	Gerard H. Matfield				Banker 45 South St.
1840	Charles Hecksher	Store No. 45	$22,000		
	C. A. Heckscher				Consul 45 South St.
	Edward Heckscher				Merchant 45 South St.

Year	Name	Description	Real Estate	Personal Estate	Directory
1840	Heckscher, Coster & Matfield				45 South St.
	Gustavus Matfield				Home: 169 Sullivan
	Gerard H. Matfield				Banker 45 South St.
1841	Charles Hecksher	Store No. 45	$22,000		
	C. A. Heckscher				Consul 45 South St. Home: 515 Broadway
	Heckscher & Coster				45 South St.
	Gerard H. Coster				Banker 45 South St.
1842	John G. Coster	No. 45	$19,000		
	Heckscher & Coster				Merchants 45 South St.
	Charles A. Heckscher				Merchant 45 South St.
	Edward Heckscher				45 South St.
	Peter Heckscher				Clerk 45 South St.
	Gerard A. Coster				Merchant 45 South St.
1843	Moses Taylor	Store No. 45	$17,000		
	A. Averill & Co.[3]				
	Isaiah C. Whitmore				Merchant 45 South St.

[3]Reported in the tax list but not in the city directory.

Year	Name	Description	Real Estate	Personal Estate	Directory
1844	Moses Taylor	Store No. 45	$19,000		
	Mason & Co.[4]				
	William D. Thompson				Merchant 45 South St.
1845	Moses Taylor	Store No. 45	$19,000		
	William D. Thompson				Merchant 45 South St.
1846	Moses Taylor	Store No. 45	$19,000		
	William D. Thompson				Merchant 45 South St.
1847	Moses Taylor	Store No. 45	$19,000		
	William D. Thompson				Merchant 45 South St.
	Brower & Neilson				Commission Merchants 45 South St.
	John H. Brower				Merchant and Agent, New Jersey Insurance Company 45 South St.
	William Neilson				Commission Merchant 45 South St.
1848	Moses Taylor	Store No. 45	$19,000		
	Brower & Neilson				Commission Merchants and Agents, Texas and New York Packet Line 45 South St.

[4]Reported in the tax list but not in the city directory.

Year	Name	Description	Real Estate	Personal Estate	Directory
	John H. Brower				Merchant and Agent, New Jersey Insurance Company 45 South St.
	William Neilson				Commission Merchant 45 South St.
1849	Moses Taylor	Store No. 45	$19,000		
	Brower & Neilson				Commission Merchants and Agents, Texas and New York Packet Line 45 South St.
	John H. Brower				Merchant and Agent, New Jersey Insurance Company 45 South St.
1850	Moses Taylor	Store No. 45	$19,000		
	Brower & Neilson				Commission Merchants and Agents, Texas and New York Packet Line 45 South St.
	John H. Brower				Merchant and Agent, New Jersey Insurance Company 45 South St.
	Charles A. Heckscher				Consul 45 South St.

SECTION 9

FEDERAL CENSUS OF 1810

The following list of names was taken from the federal census of 1810 and checked against Longworth's American Almanac, New York Register and City Directory (1810). The sequence represents the order in which the names were found in the census, which in turn reflects the census taker's route.

Name	Address	Occupation	Total in Household	White Men	White Women	Slaves	"Others"
William Hunter	129 Front St.	Baker	9	4	5	0	0
James Mathews	129 Front St.	Grocer	6	3	3	0	0
Samuel Paxton	127 Front St.	Auctioneer	4	1	3	0	0
		102 Water St.					
Solomon Levy	125 Front St.	Merchant	11	4	6	1	0
Mary Tapp	123 Front St.	Boarding House	23	11	9	2	1
John W. Hinton	43 Stone St.	Sailmaker	14	10	3	1	0
Joseph Sinklair	Not listed		3	2	1	0	0
Joseph Smith	Not listed		2	2	0	0	0
John Goodhue	13 Broadway	Merchant	2	1	1	0	0
		44 South St.					
Garrett Sickles	93 Front St.	Boot/shoemaker	11	6	5	0	0
Cort. VanBeuren	91 Front St.	Grocer	10	3	6	0	0
Isaac Hodges	93 Front St.	Accountant	4	2	2	0	0
John C. Hasbrouck	91 Front St.[1]		5	2	3	0	0
William Gibbins	89 Front St.	Grocer	5	1	4	0	0
Robert Elkins	89 Front St.	Cooper	7	4	3	0	0
James Sinkleter	28 Catherine St.	Shipmaster	1	1	0	0	0
Robert Sterling	89 Front St.	Cooper	4	2	2	0	0
		85 Front St.					
William Murdock	87 Front St.	Grocer	1	1	0	0	0

[1]Not listed in the directory but identified in the tax list.

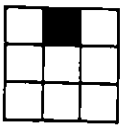
APPENDIX 3

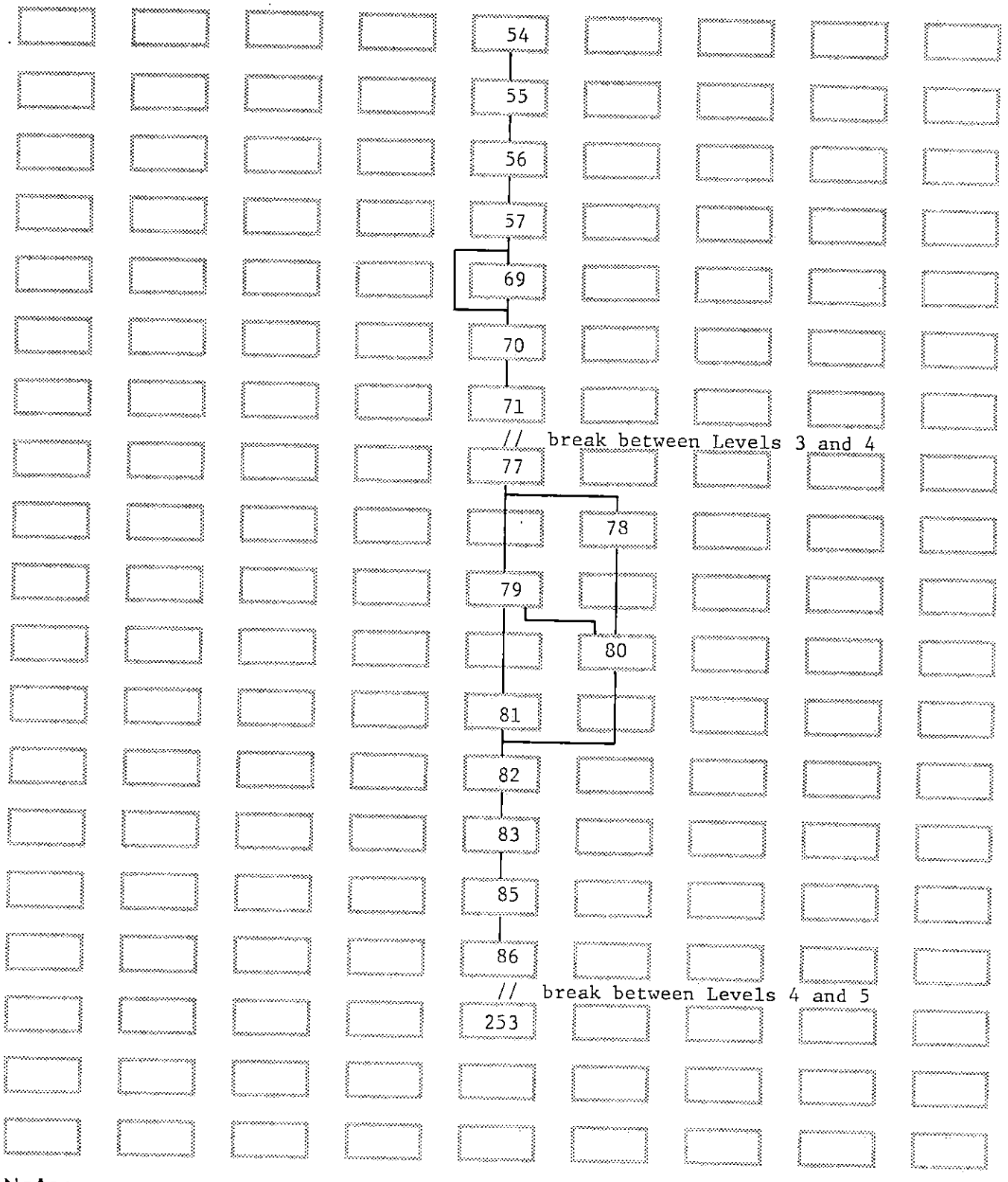
HARRIS MATRICES

NOTE: The following Harris Matrices were developed by LBA based on GCI's field forms and preliminary Harris Matrices.

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT A, Test Trench West, Lot 7

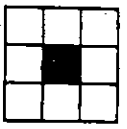




Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT A, Test Trench West, Lot 7



86

// break between Levels 4 and 5

253

254

255

256

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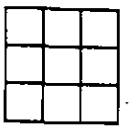
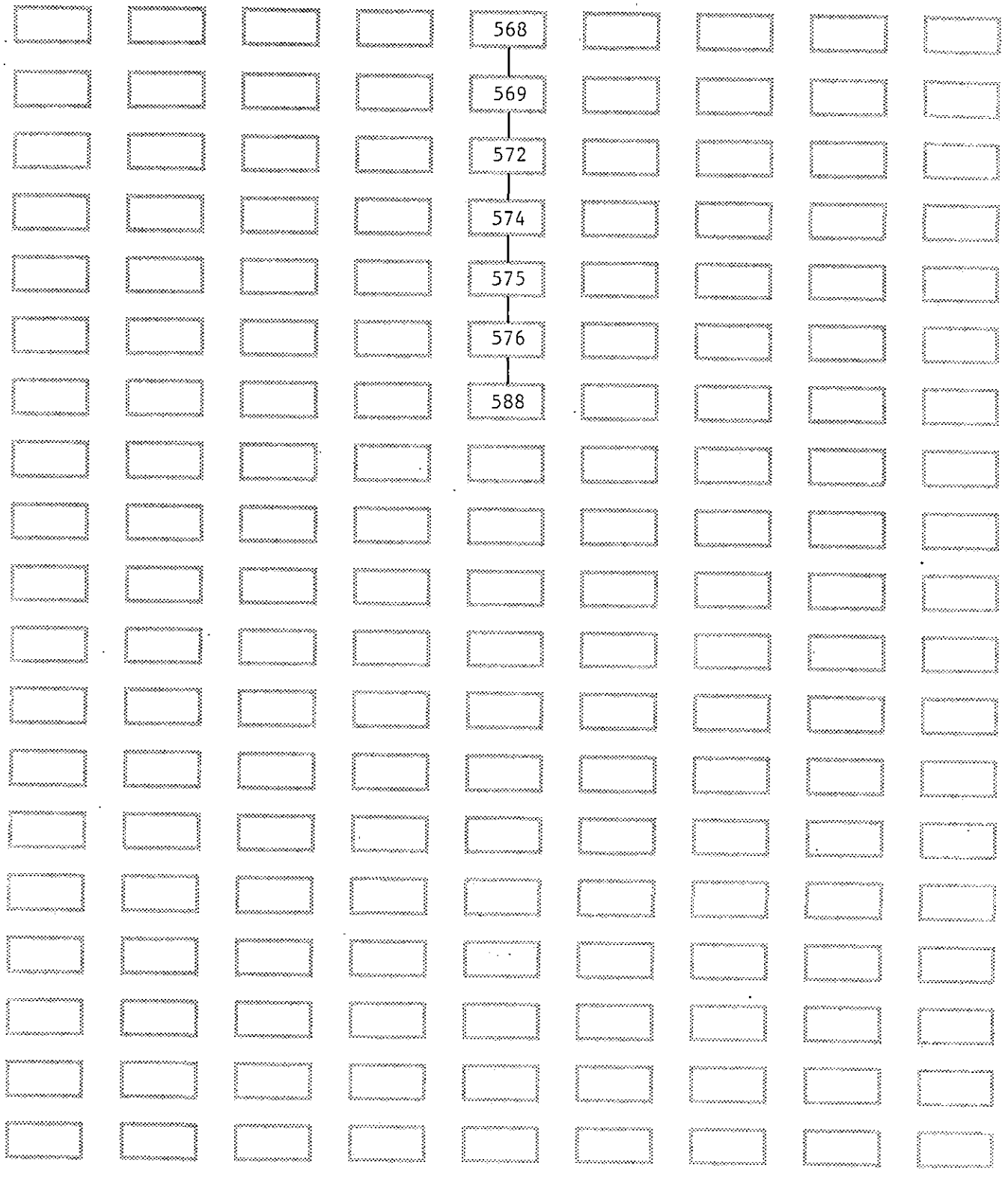
260

Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUTS AA and AB, Lot 43

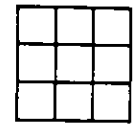


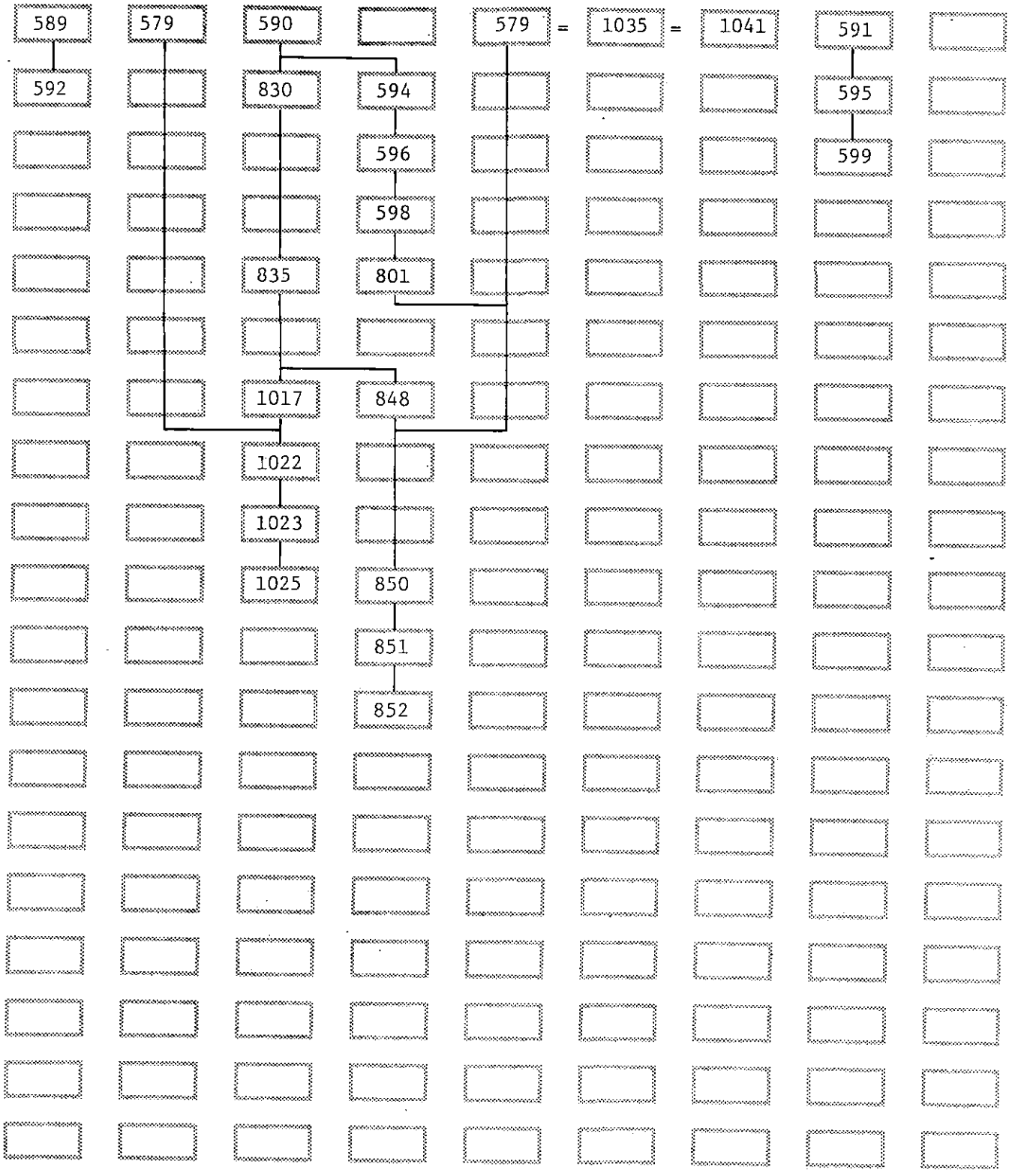


Notes: cx'x 568-576 -- Test Cut AA
cx 588--Test Cut AB

HARRIS MATRIX WORKSHEET

LOCUS: Test Cuts AC, AE and AJ, Lot 6 Privy

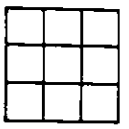


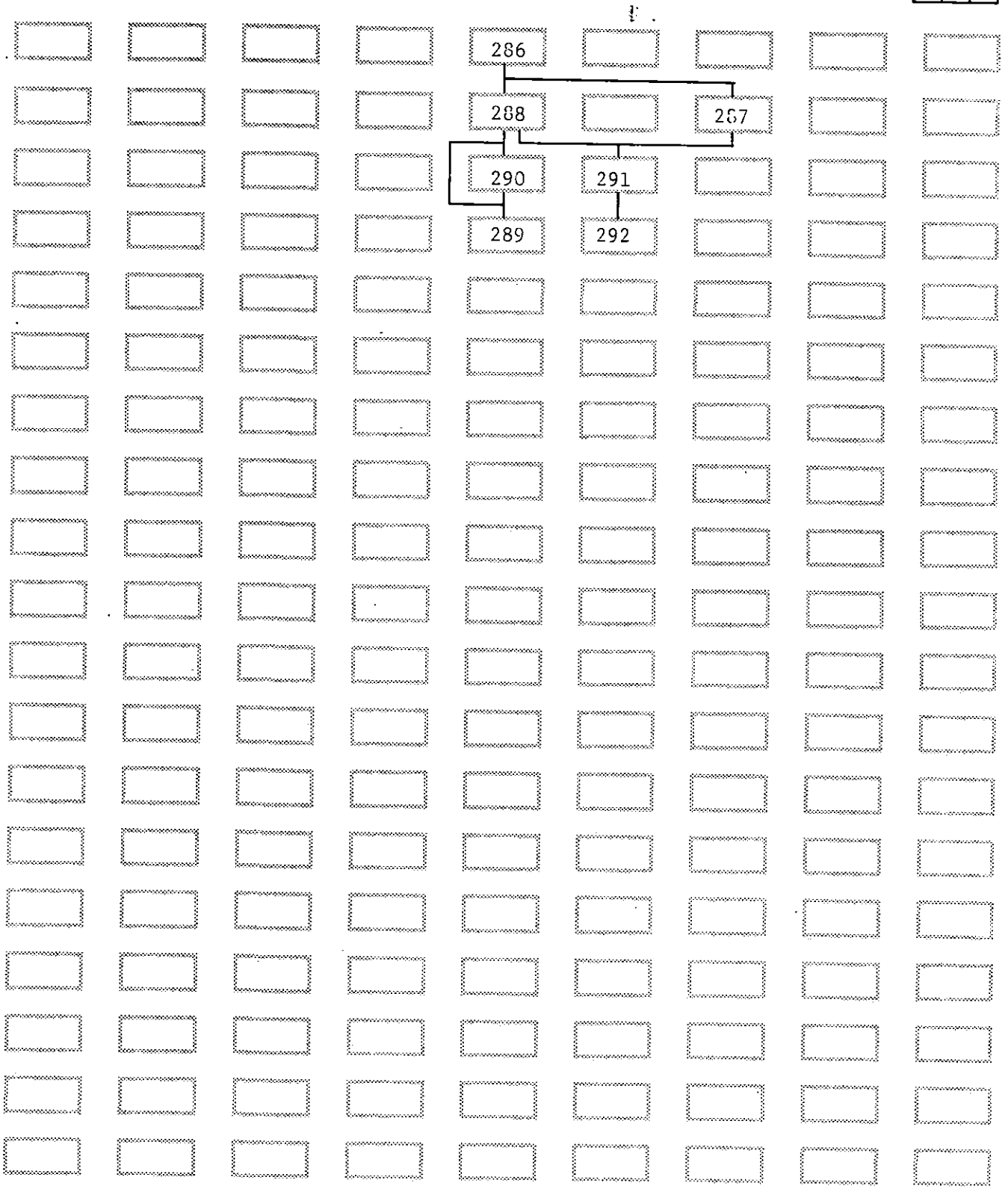


Notes: cx 589 and 592--yard/landfill deposits in north end of Test Cut AC
cx'x 591,595,599--yard/landfill deposits in south end of Test Cut AC
cx 579--inner privy wall
cx 1041--outer extent of privy wall
cx 1035--soil between privy wall (cx's 579 and 1041)

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT AD, Lot 42

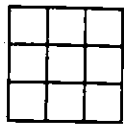


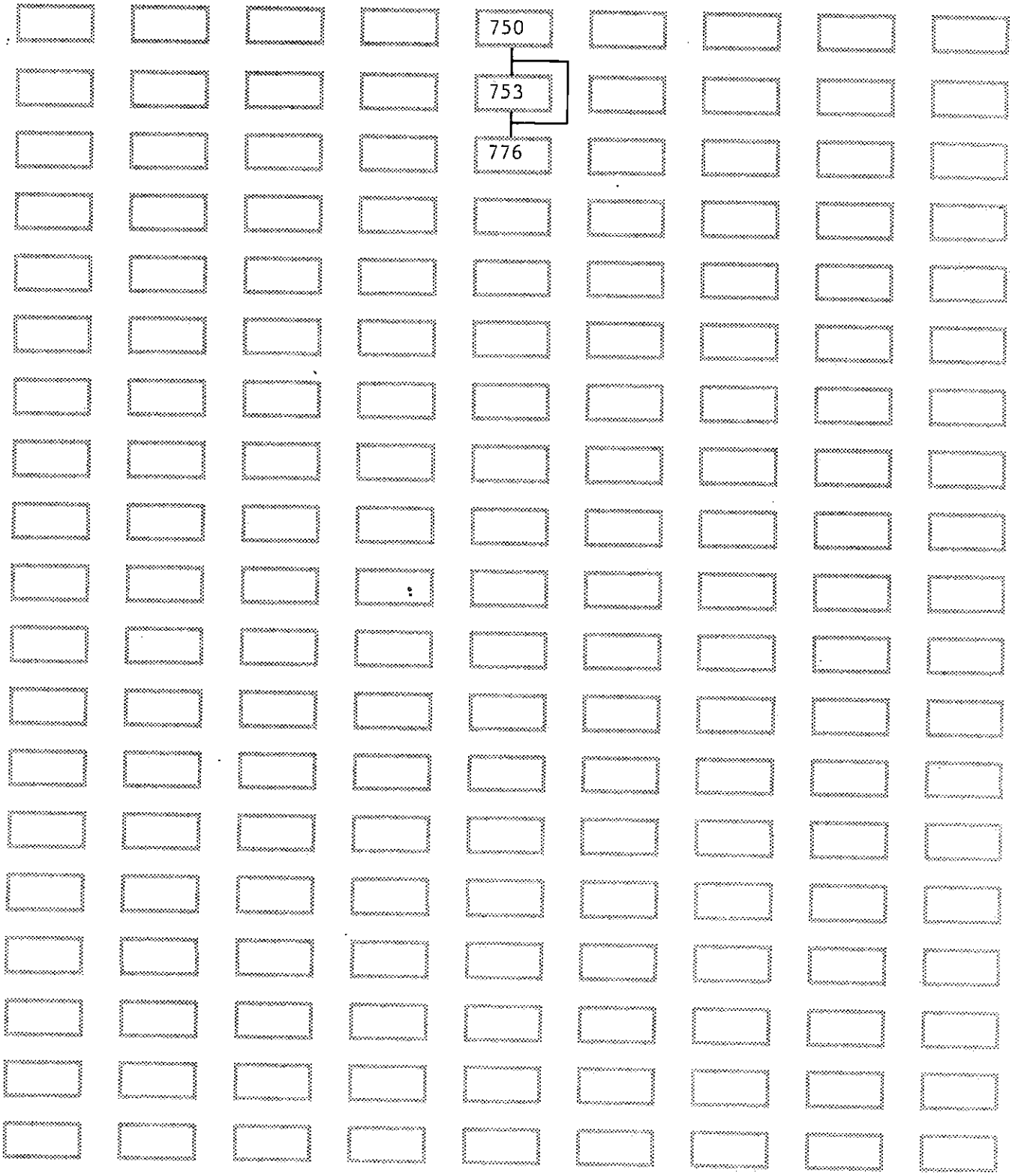


Notes: cx 287--possible post hole

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT AF, Lot 7 Wharf Clearing

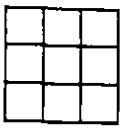




Notes: cx 776--grillwork in wharf

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT AG, Lot 44



760

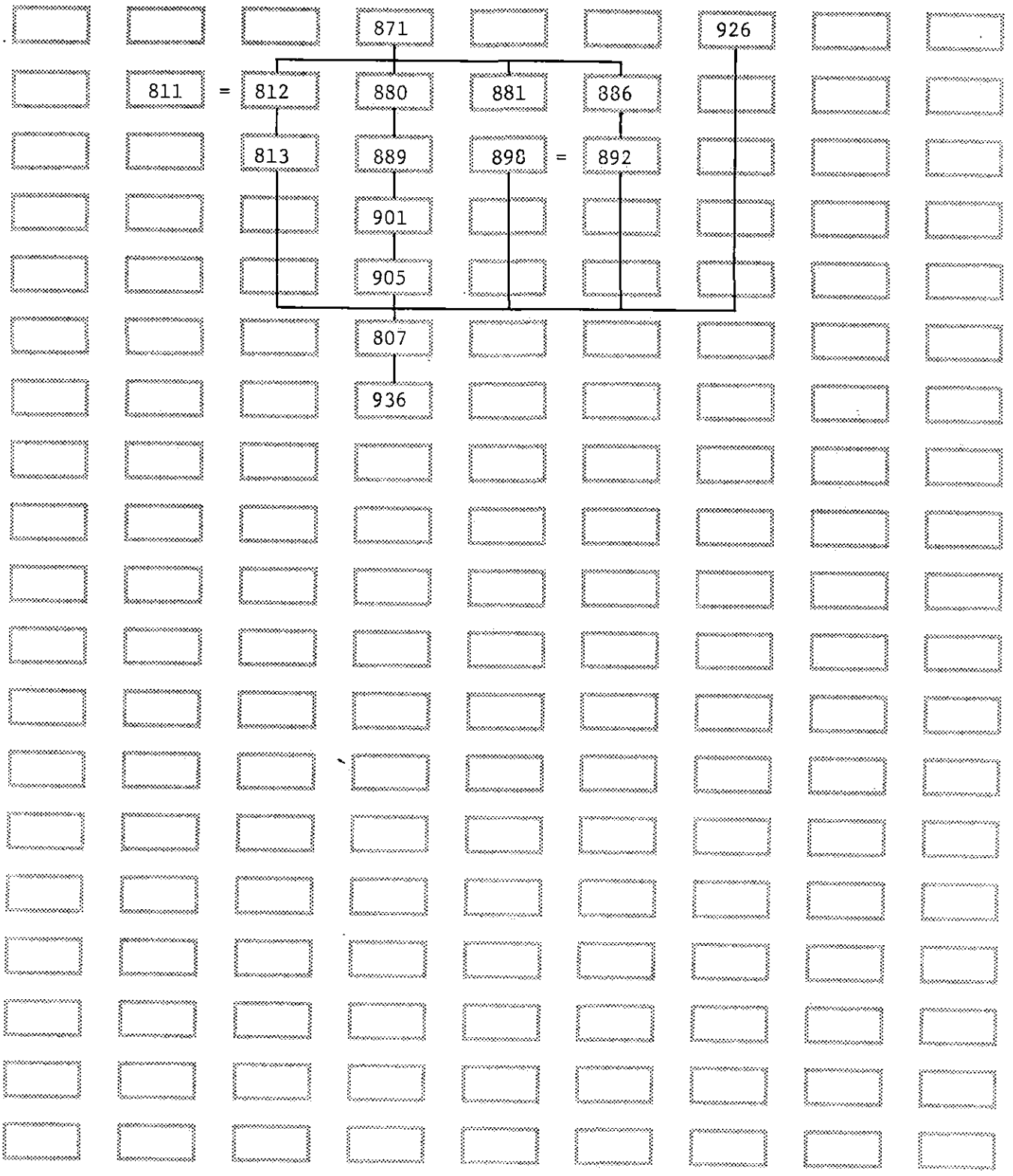
761

762

Notes:

HARRIS MATRIX WORKSHEET

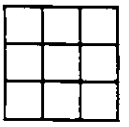
LOCUS: TEST CUT AH, Lot 43 Barrel

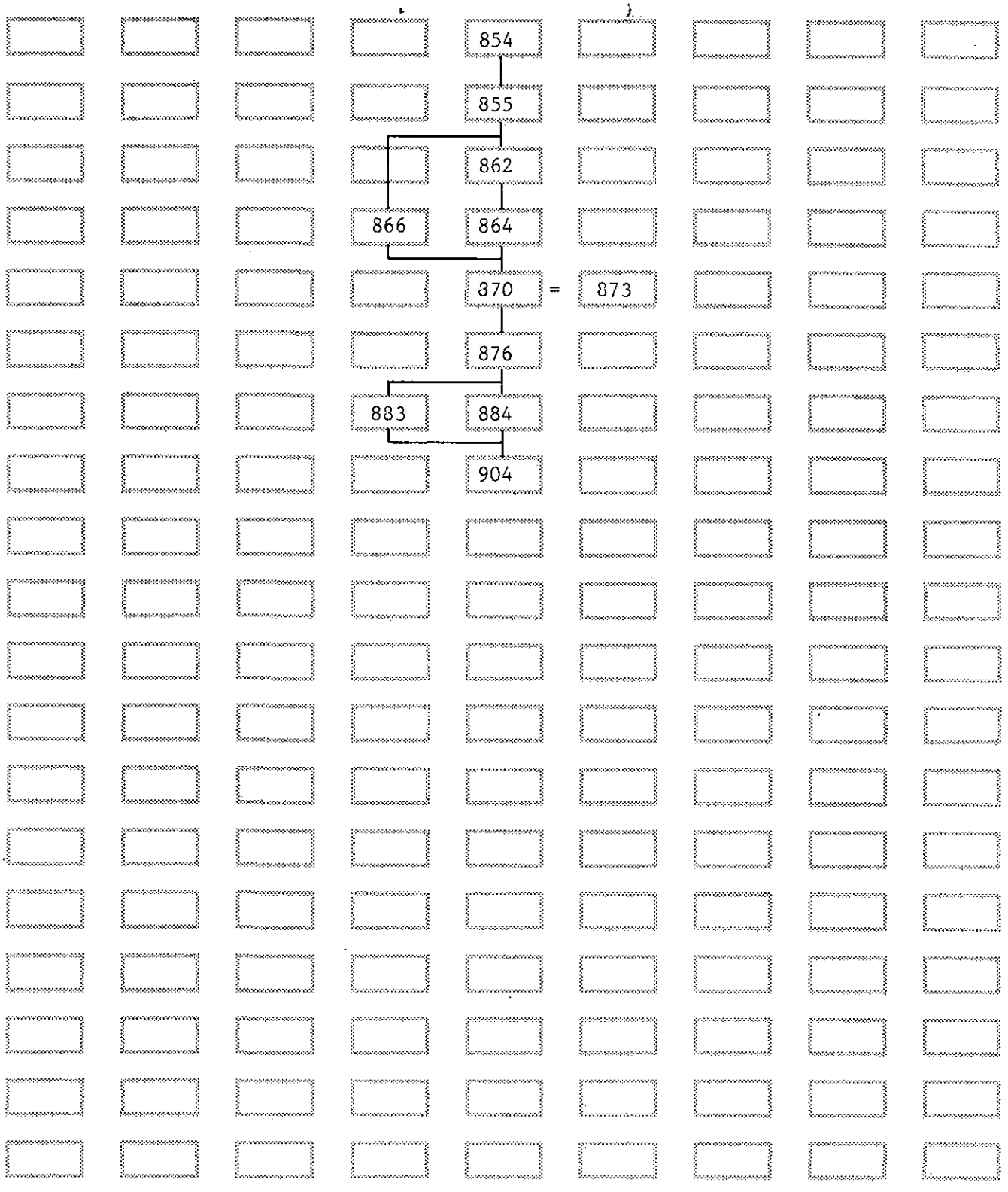


Notes: cx 807--barrel staves and bottom
cx 936--clay below barrel
cx 926--clay liner outside barrel
cx 871--rubble overburden, not screened

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT AK, Lot 6 Box

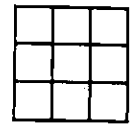


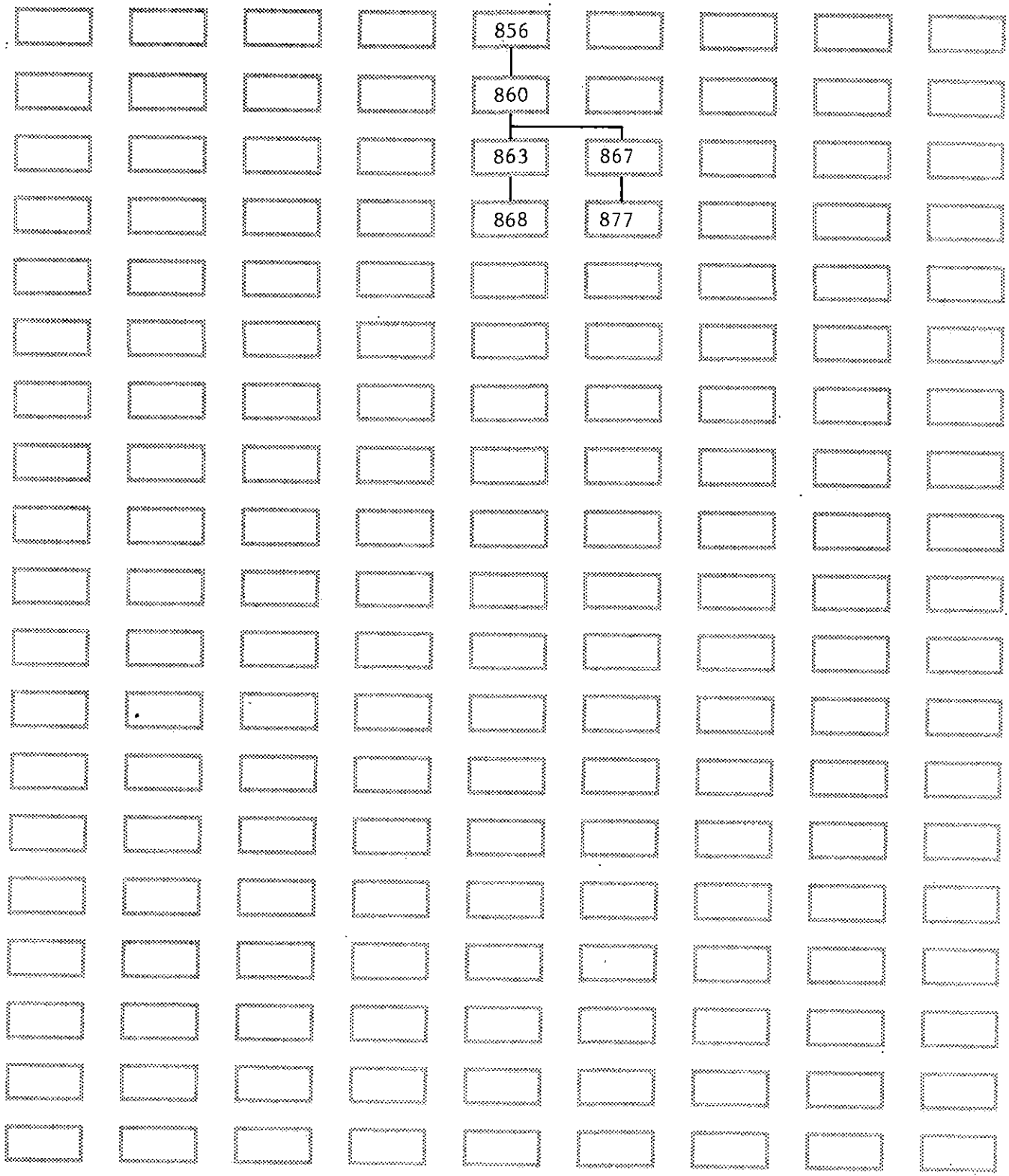


Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT AL, Lot 6 Wharf Clearing

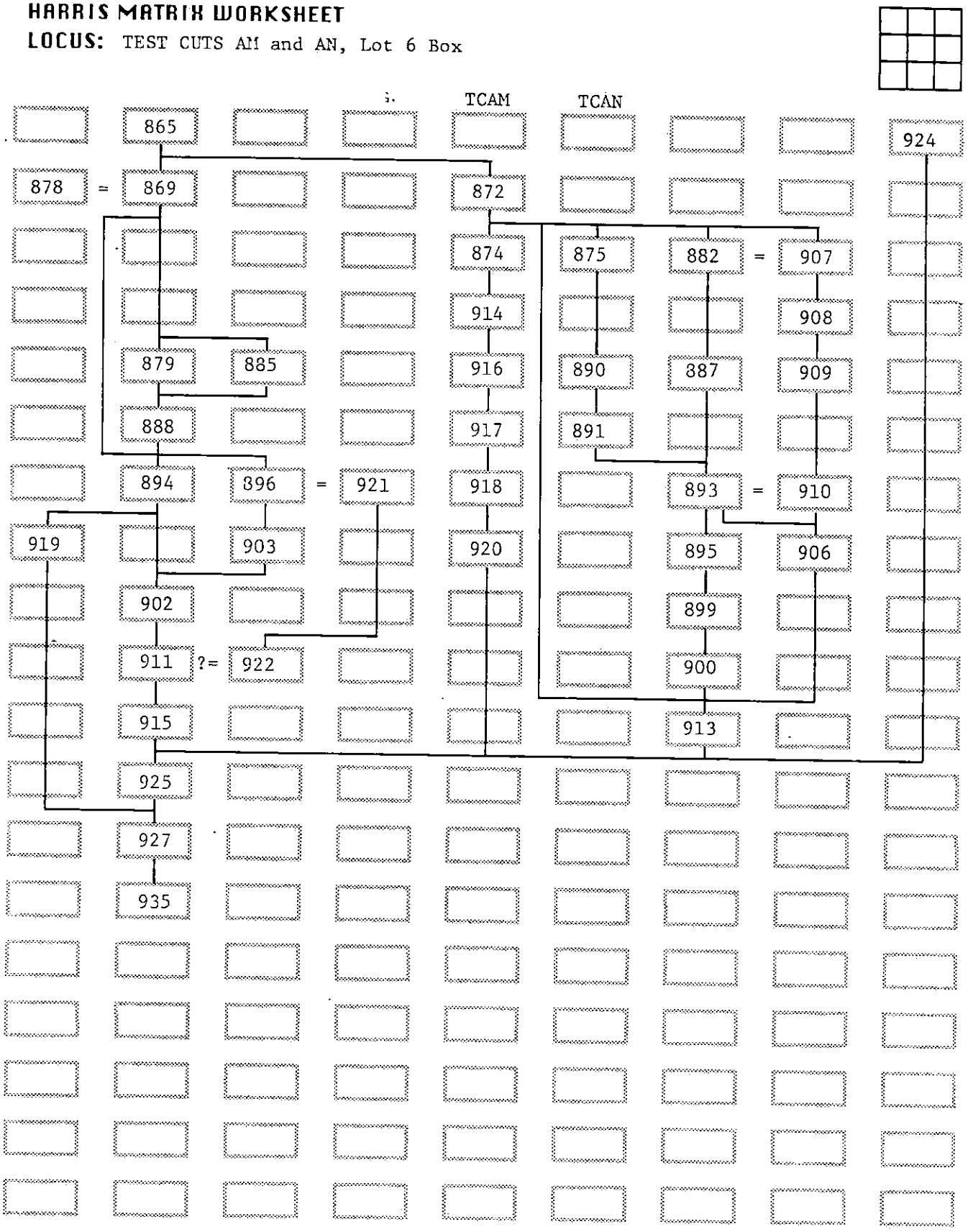




Notes:

HARRIS MATRIX WORKSHEET

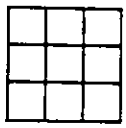
LOCUS: TEST CUTS AM and AN, Lot 6 Box

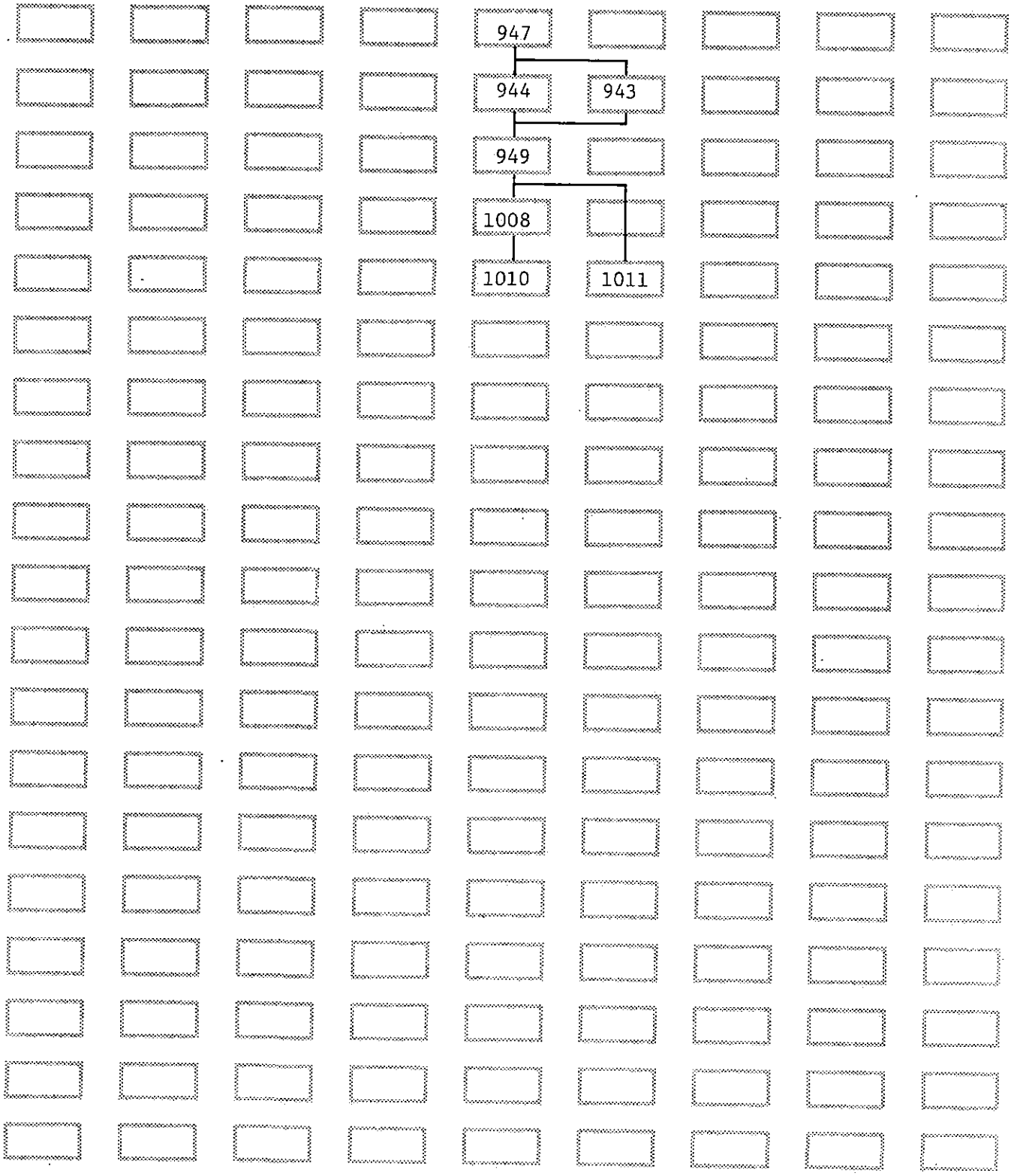


Notes: cx 913--barrel staves
cx 924--profile collapse in Test Cut AM

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT AQ, Lot 43

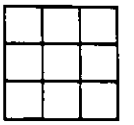


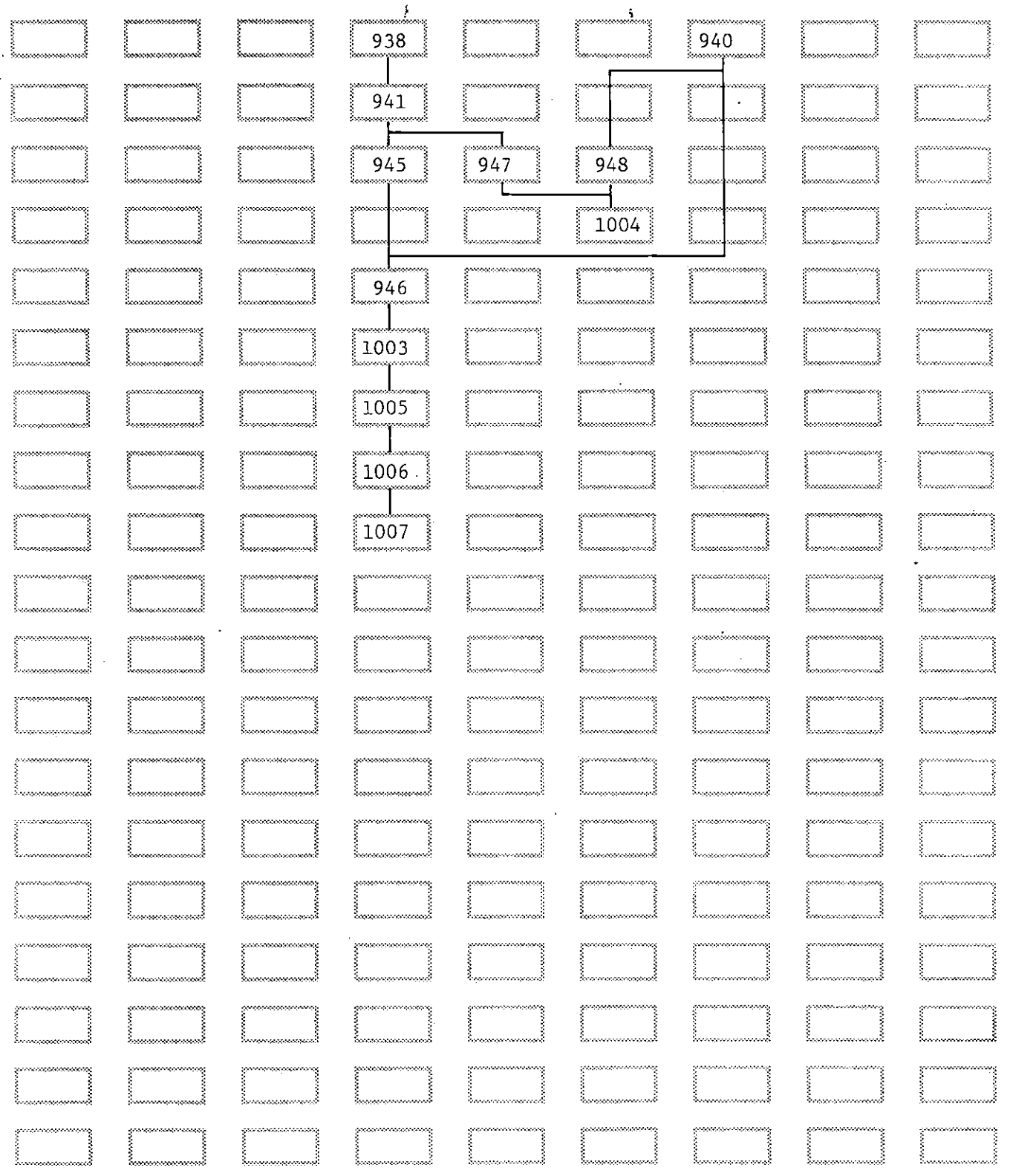


Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT AP, Lot 6 Wharf Clearing

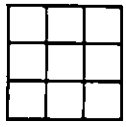


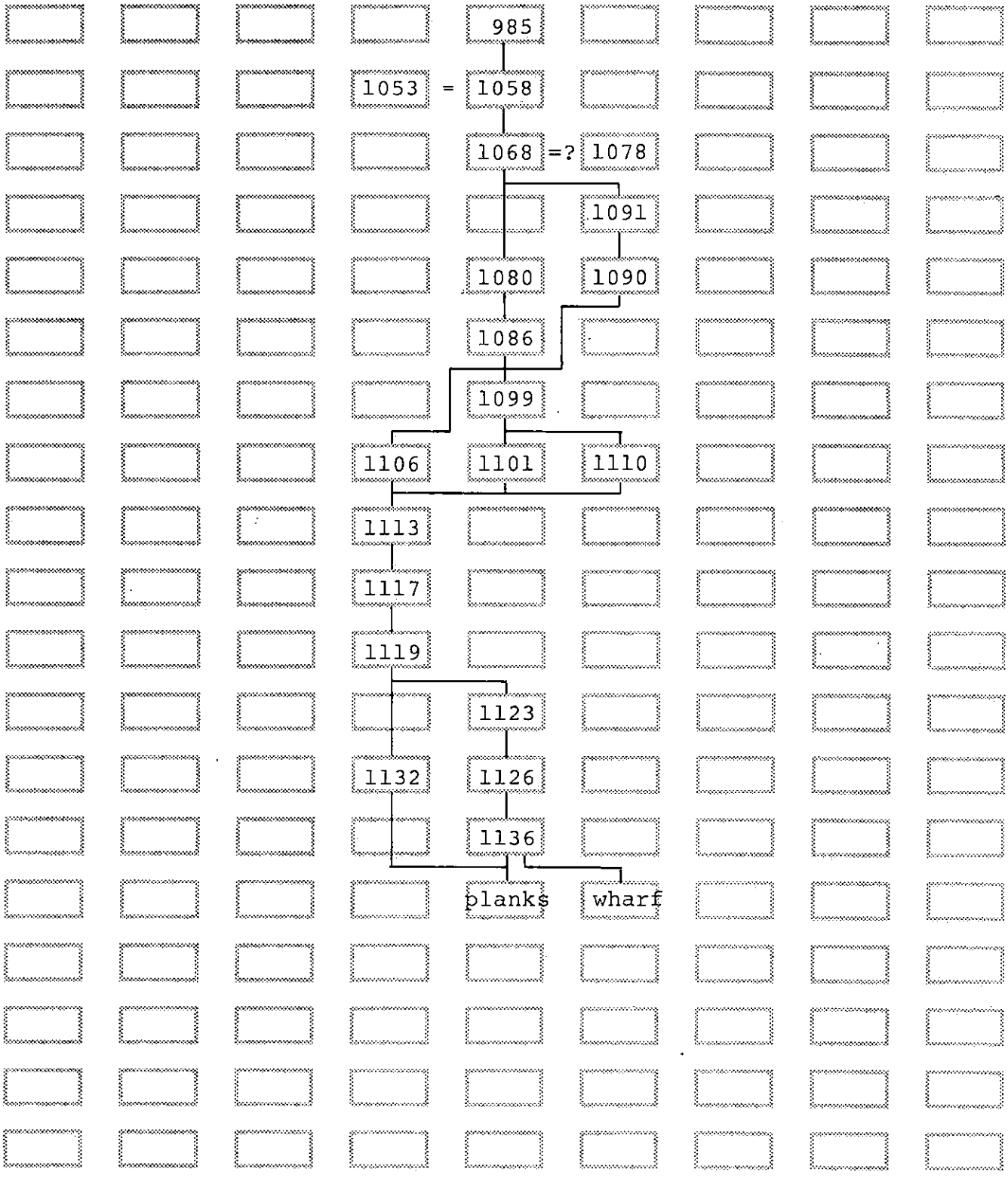


Notes: cx 1003--rock fill in wharf

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT AS, Lot 7 Box

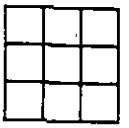


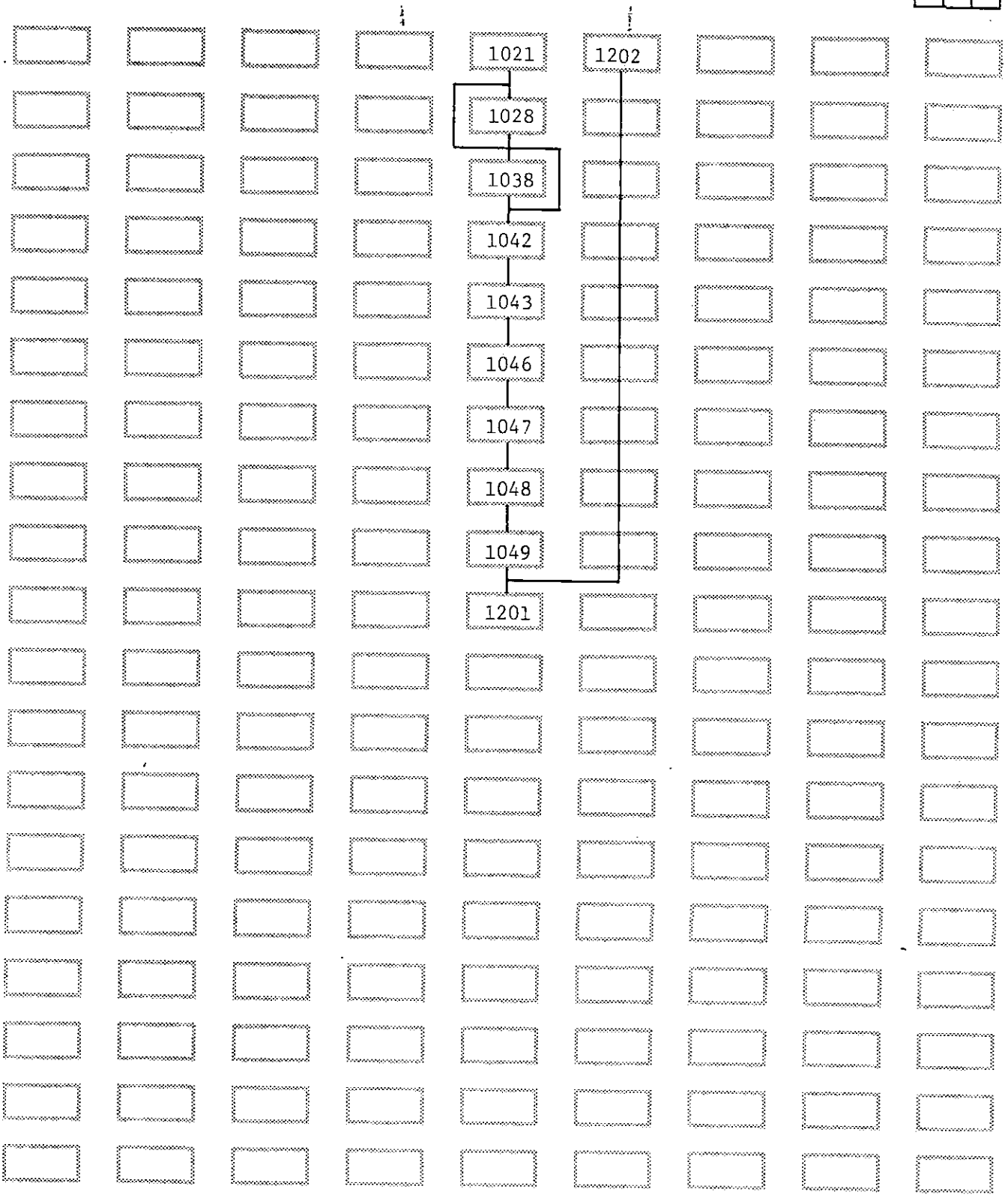


Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT AV, Lot 6 Box

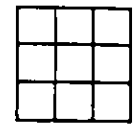


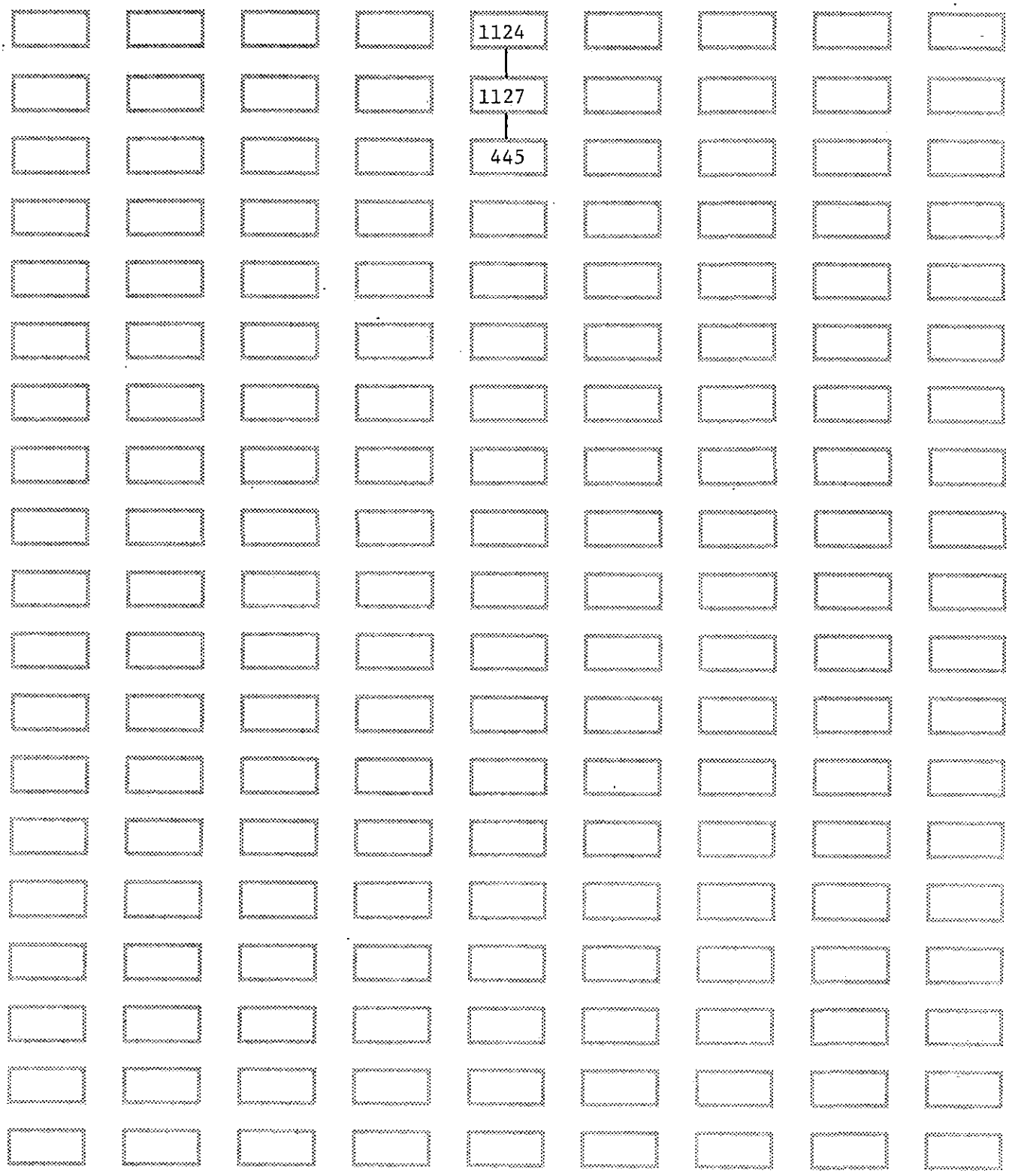


Notes: cx 1201--sump
cx 1202--profile cleaning

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT AX, Lot 8

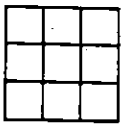


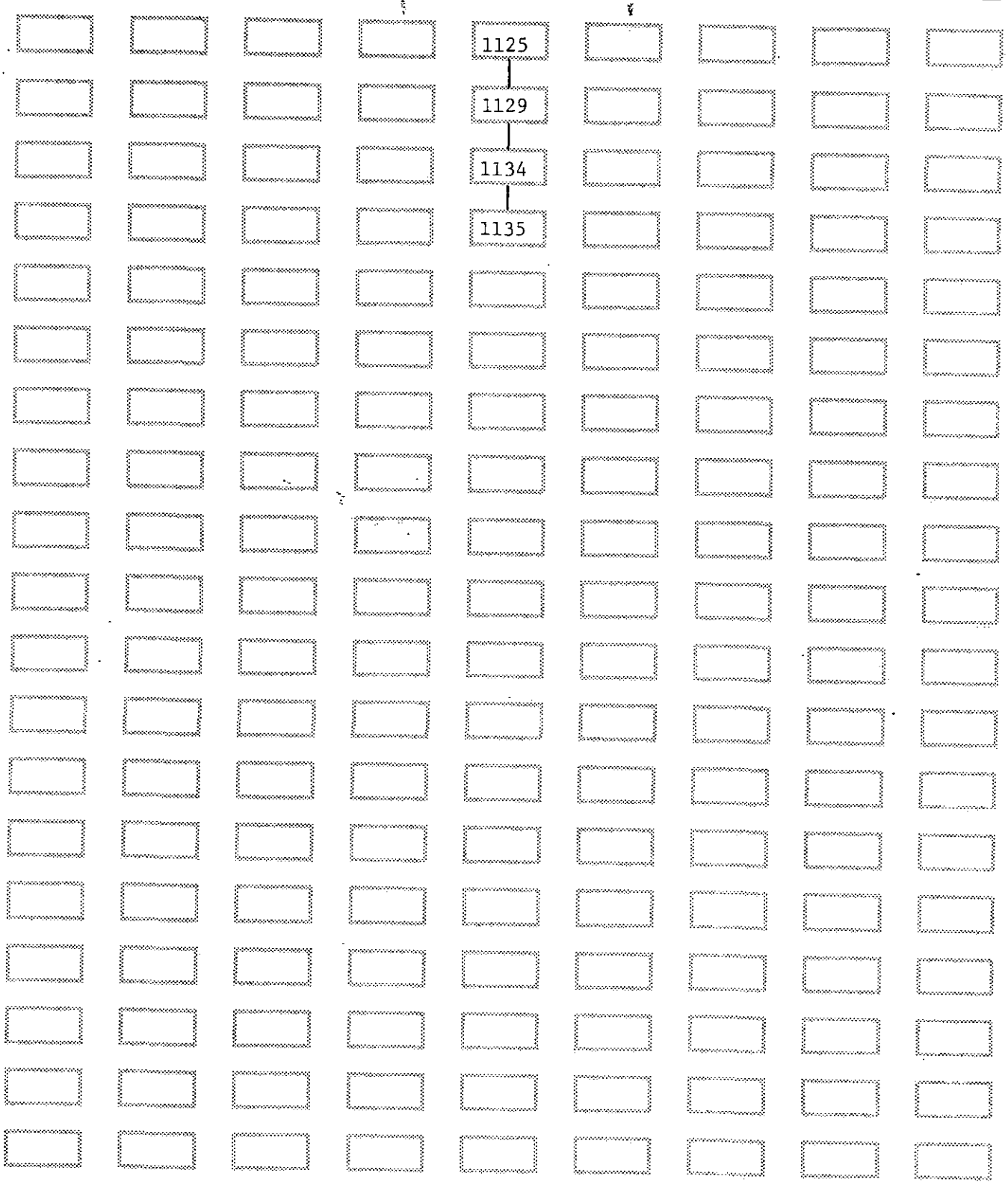


Notes: cx 445--wood bulkhead

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT AY, Lot 8

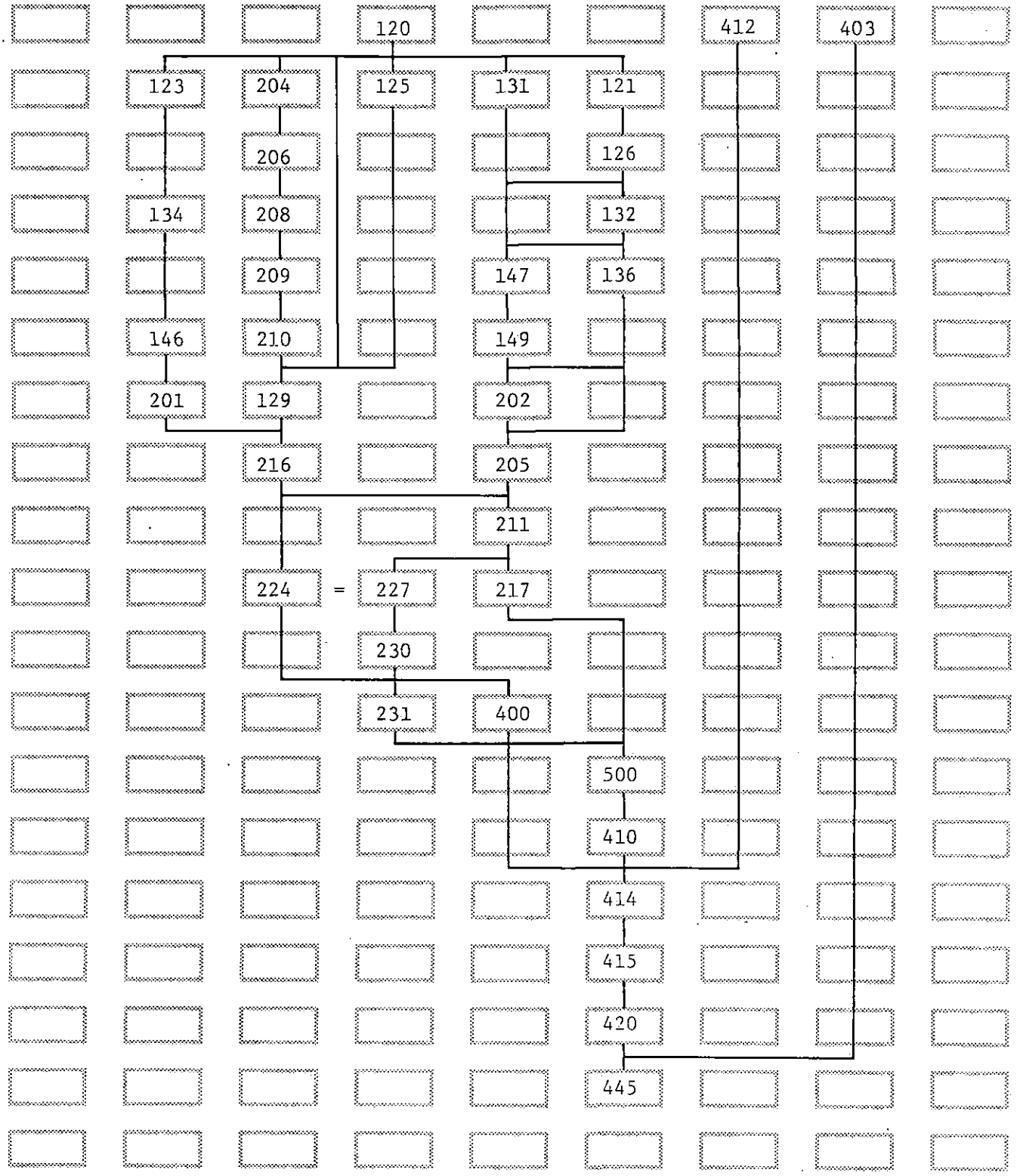




Notes: test cut opened to search for wood bulkhead or wharf structure in rear of Lot 8; none found

HARRIS MATRIX WORKSHEET

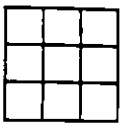
LOCUS: TEST CUT B, Lot 42

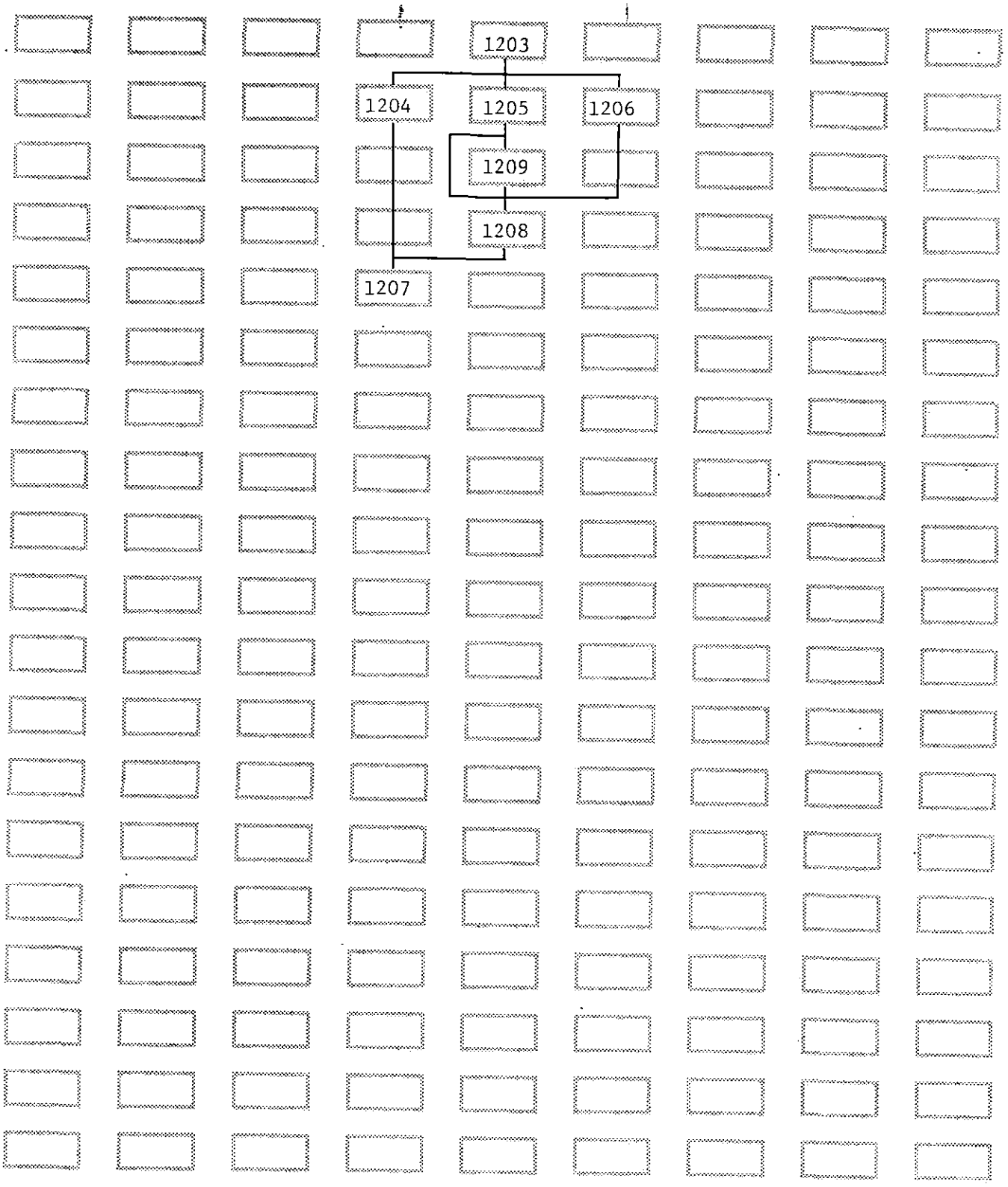


Notes: cx 129--brick shaft
cx 412--wall collapse
cx 445--wood bulkhead
cx 129--builder's trench for shaft (cx 129)
cx 403--test boring hole

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BA, Lot 6 Box

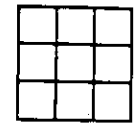


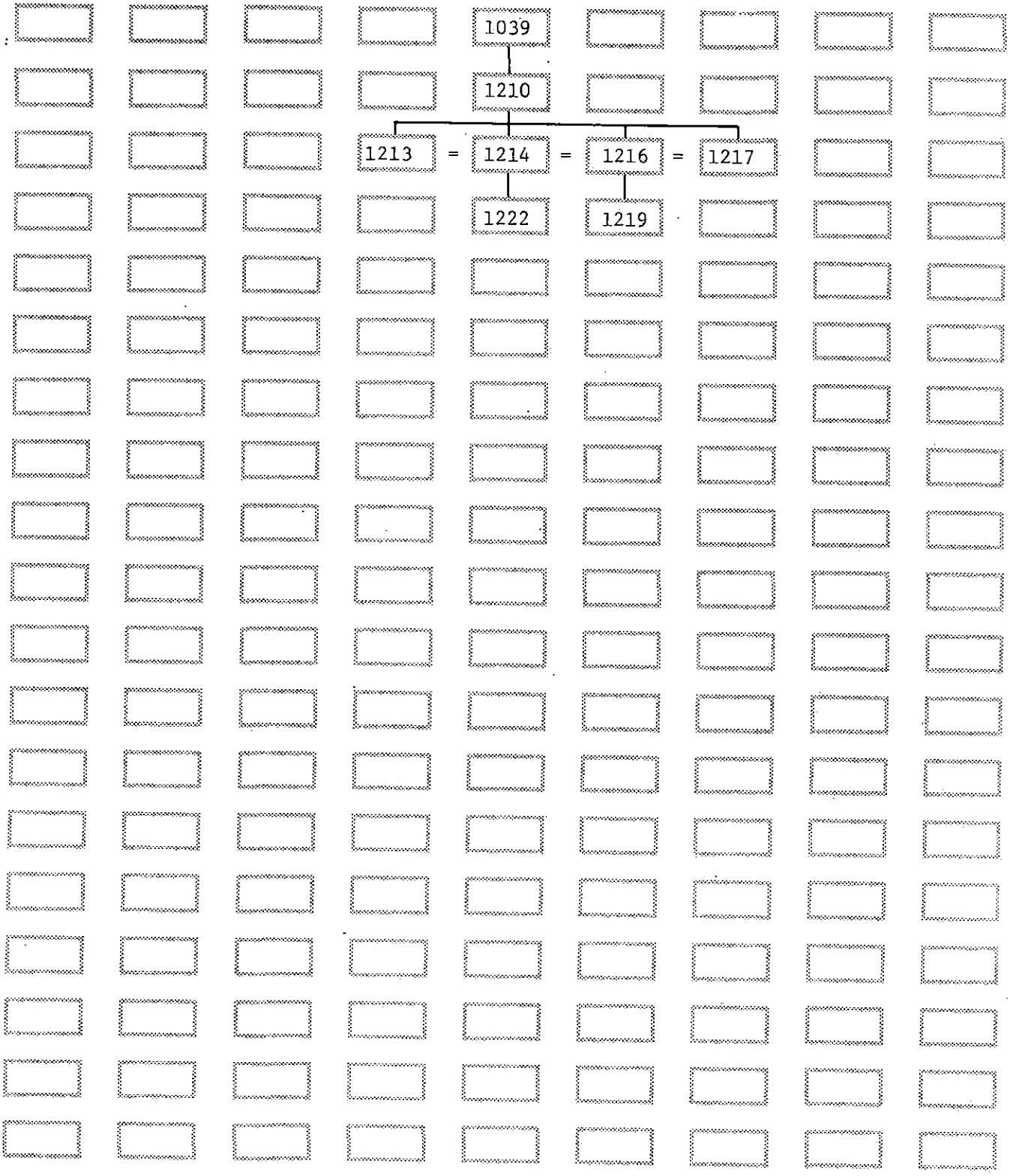


Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BB, Lot 6 Wharf Clearing

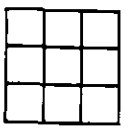


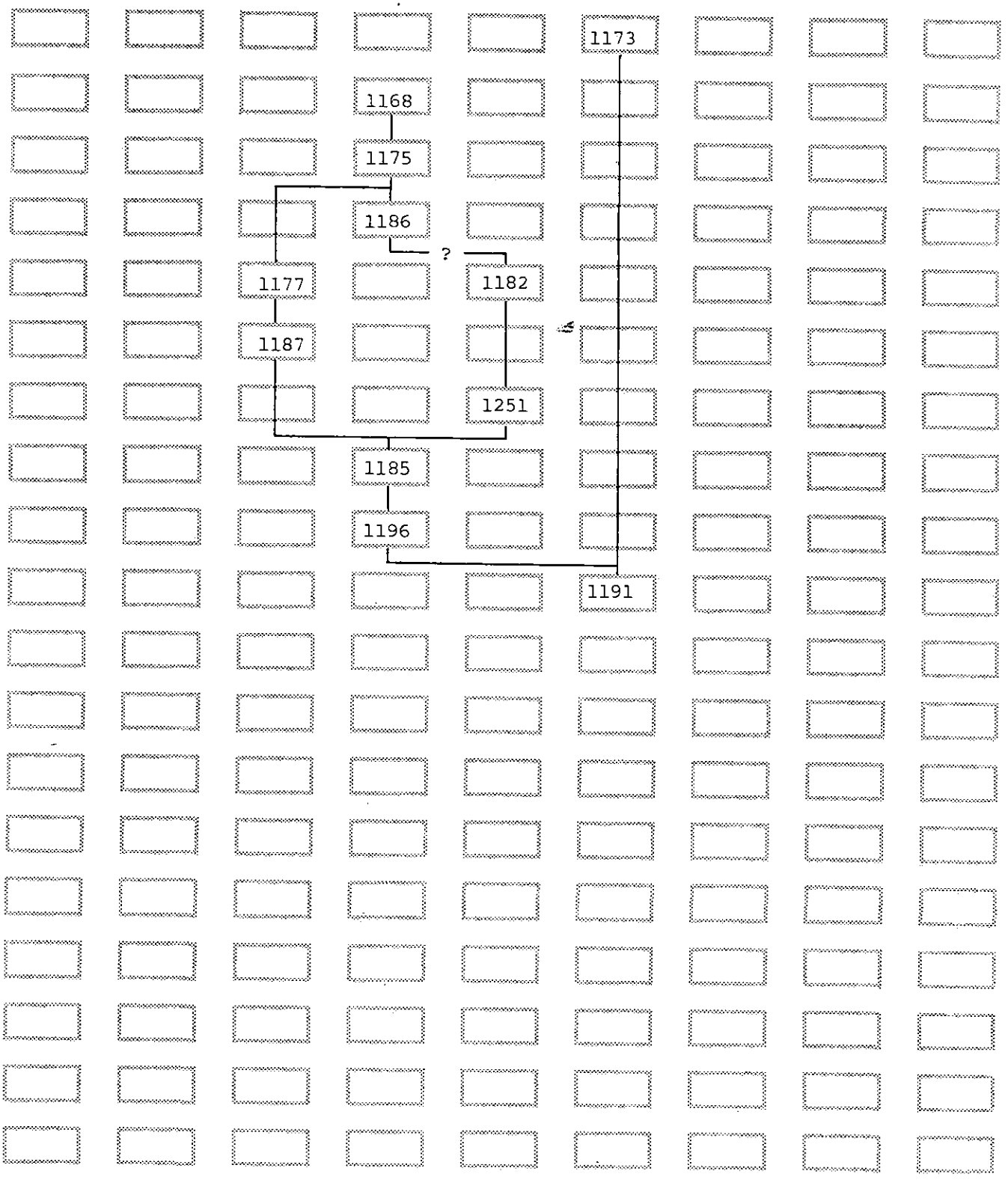


Notes: cx's 1213, 1214, 1216, 1217 are quadrants, separated by wharf timbers

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BD, Lot 9 Warehouse

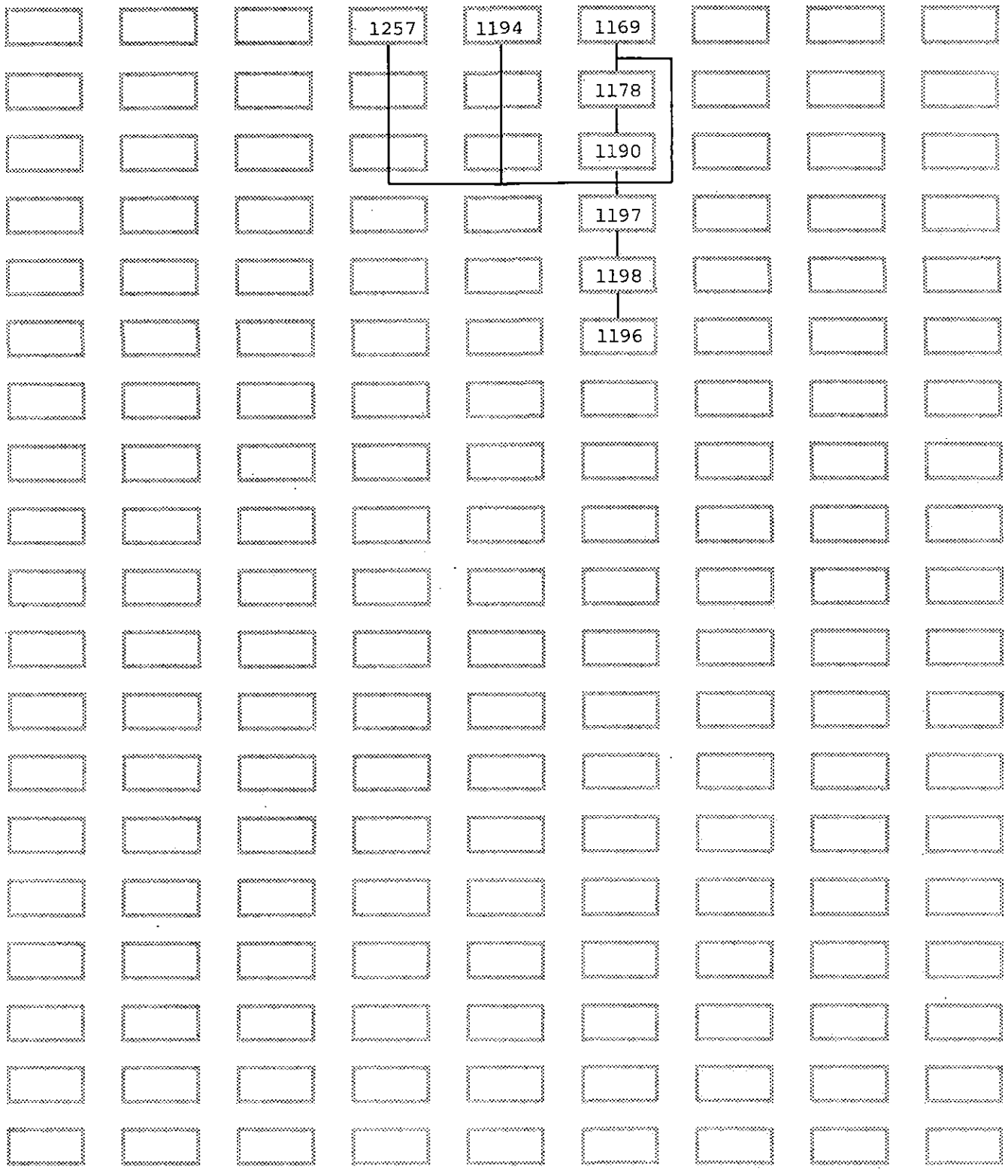




Notes: cx 1168--brick floor
cx 1175--concrete floor
cx 1196--plank floor
cx's 1177, 1187--burnt deposits
cx 1173--overburden disturbed by slurry wall construction

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BE, Lot 9 Warehouse

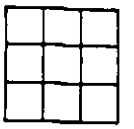


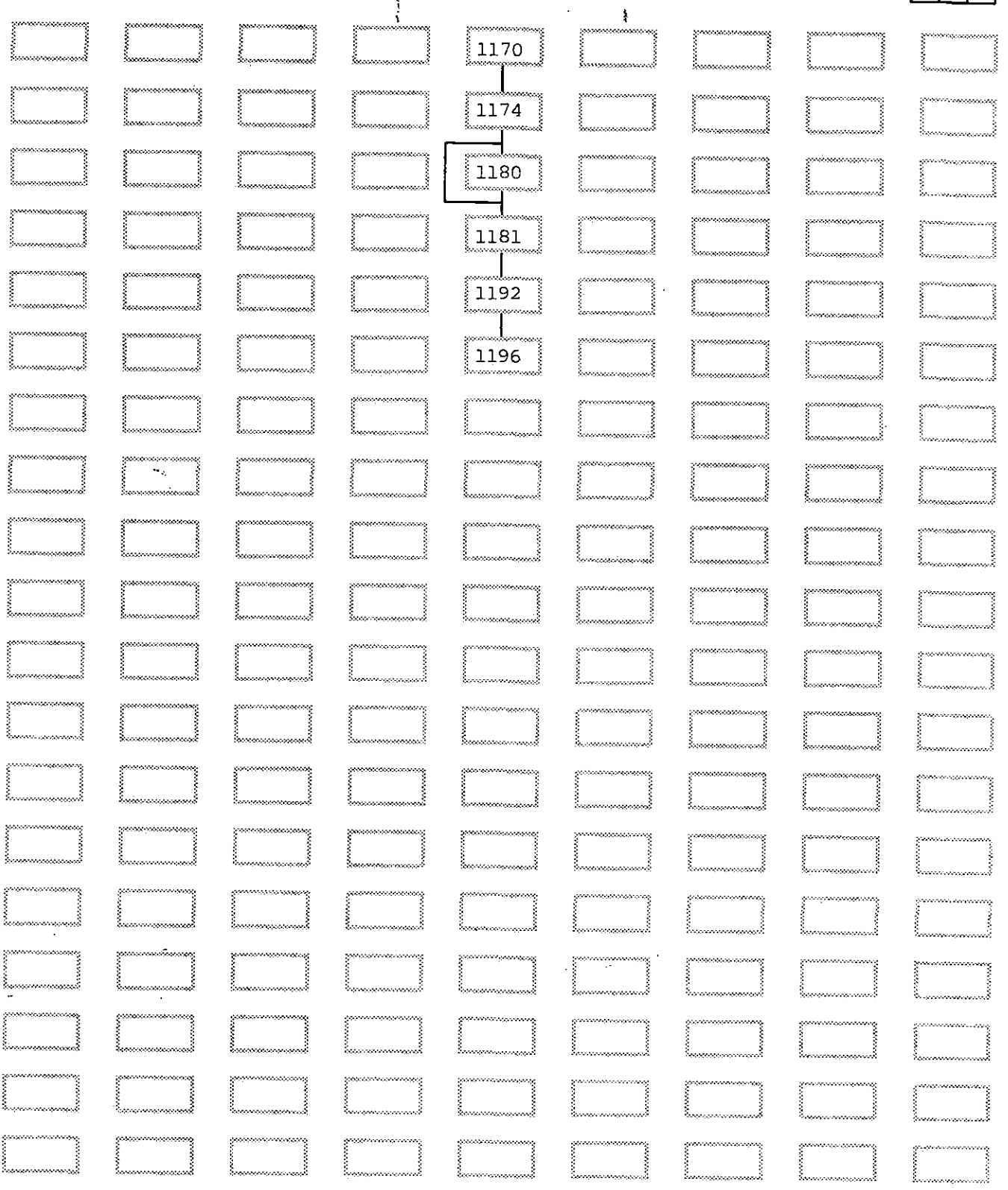
Notes:

cx 1196--plank floor
cx 1197--column
cx 1194--wall collapse
cx's 1178, 1190--burnt deposits
cx 1169--brick floor
cx 1198--support beams
cx 1257--profile cleaning

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BF, Lot 9 Warehouse

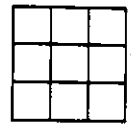


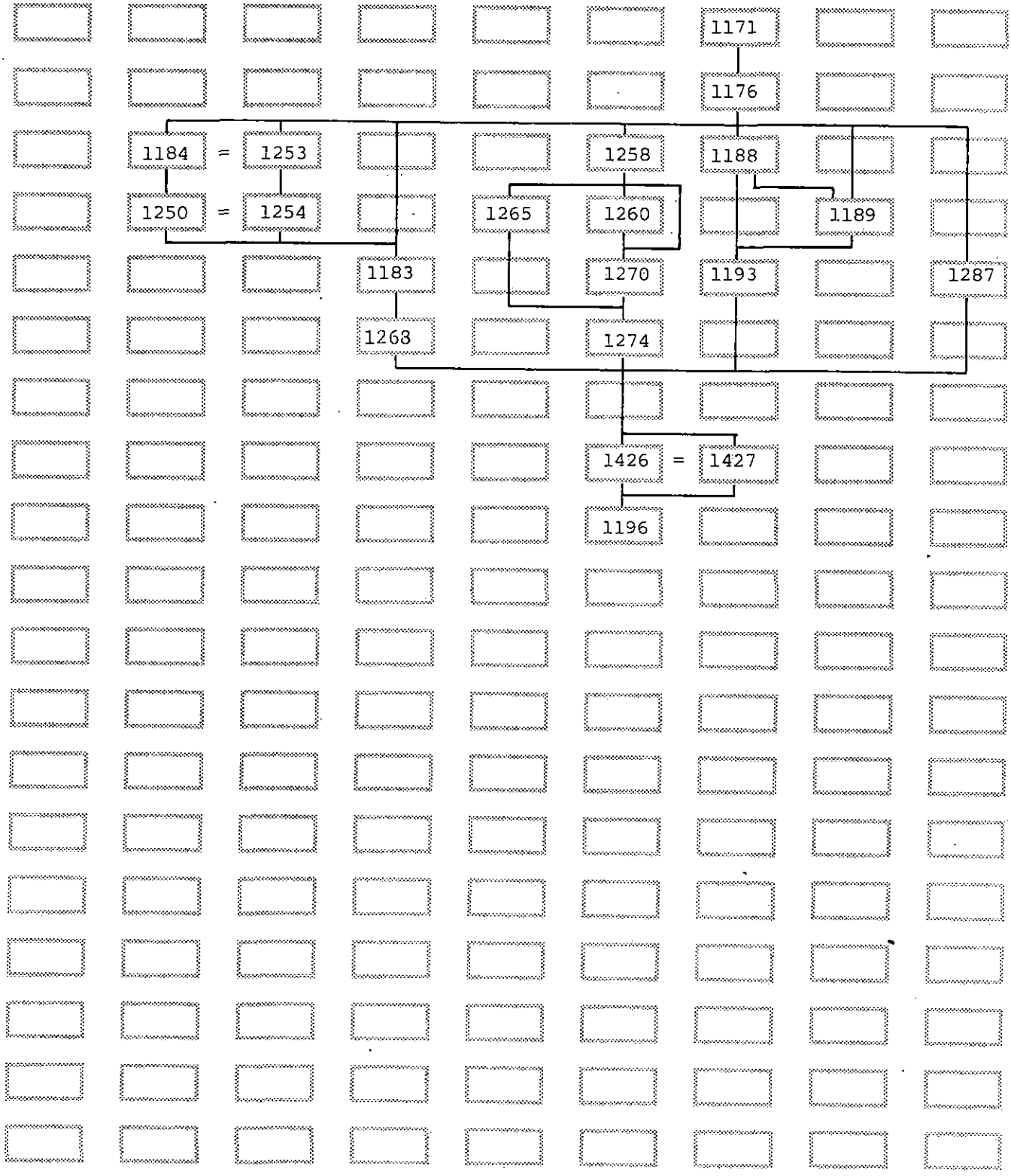


Notes: cx 1170--brick floor
cx 1174--rubble layer
cx 1196--plank floor

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BG, Lot 9 Warehouse



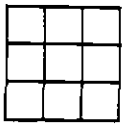


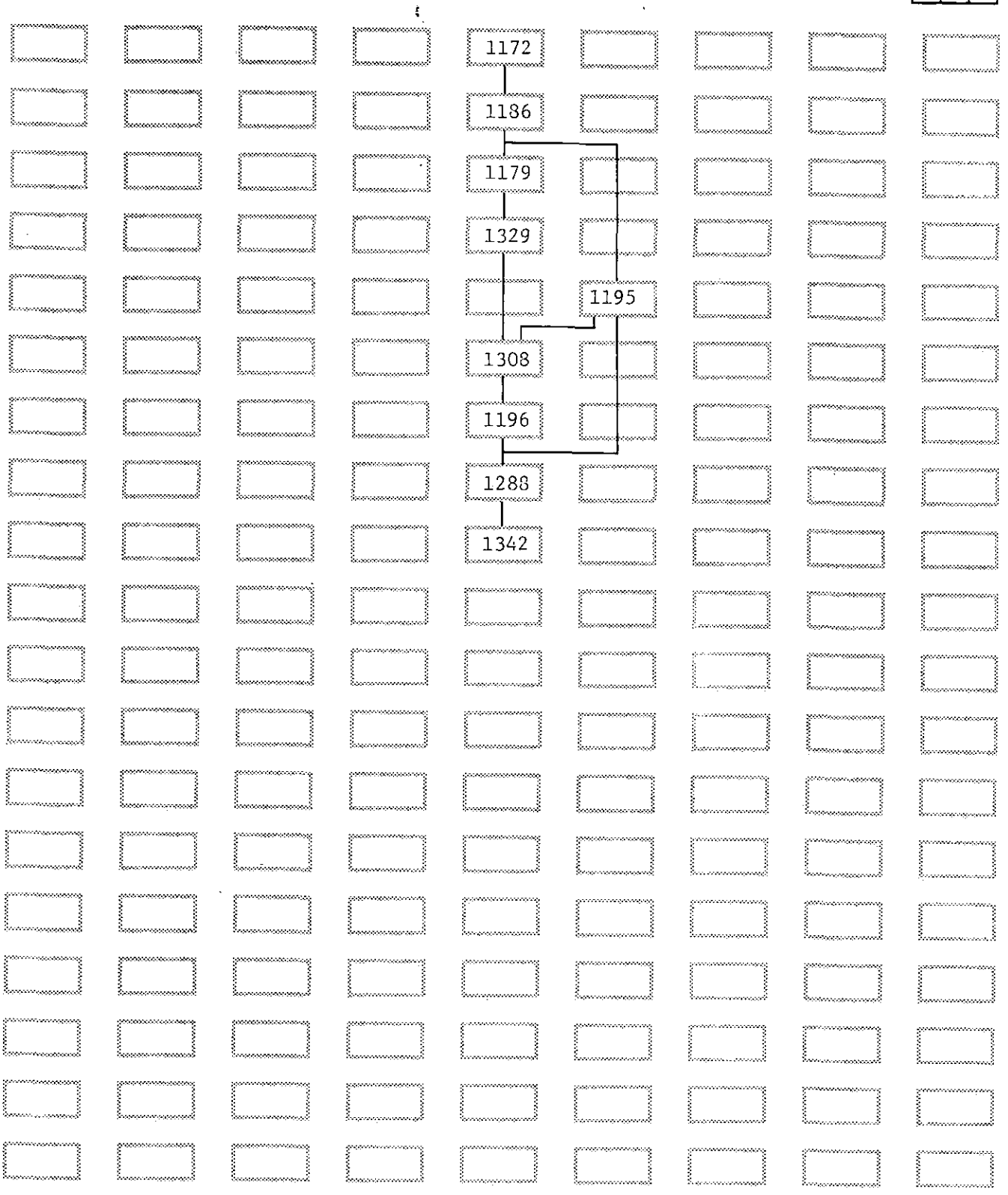
Notes:

cx 1183--barrel
cx 1171--brick floor
cx's 1426, 1427--beams on floor
cx 1196--plank floor
cx 1287--bottle from profile

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BH, Lot 9 Warehouse



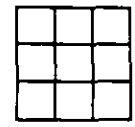


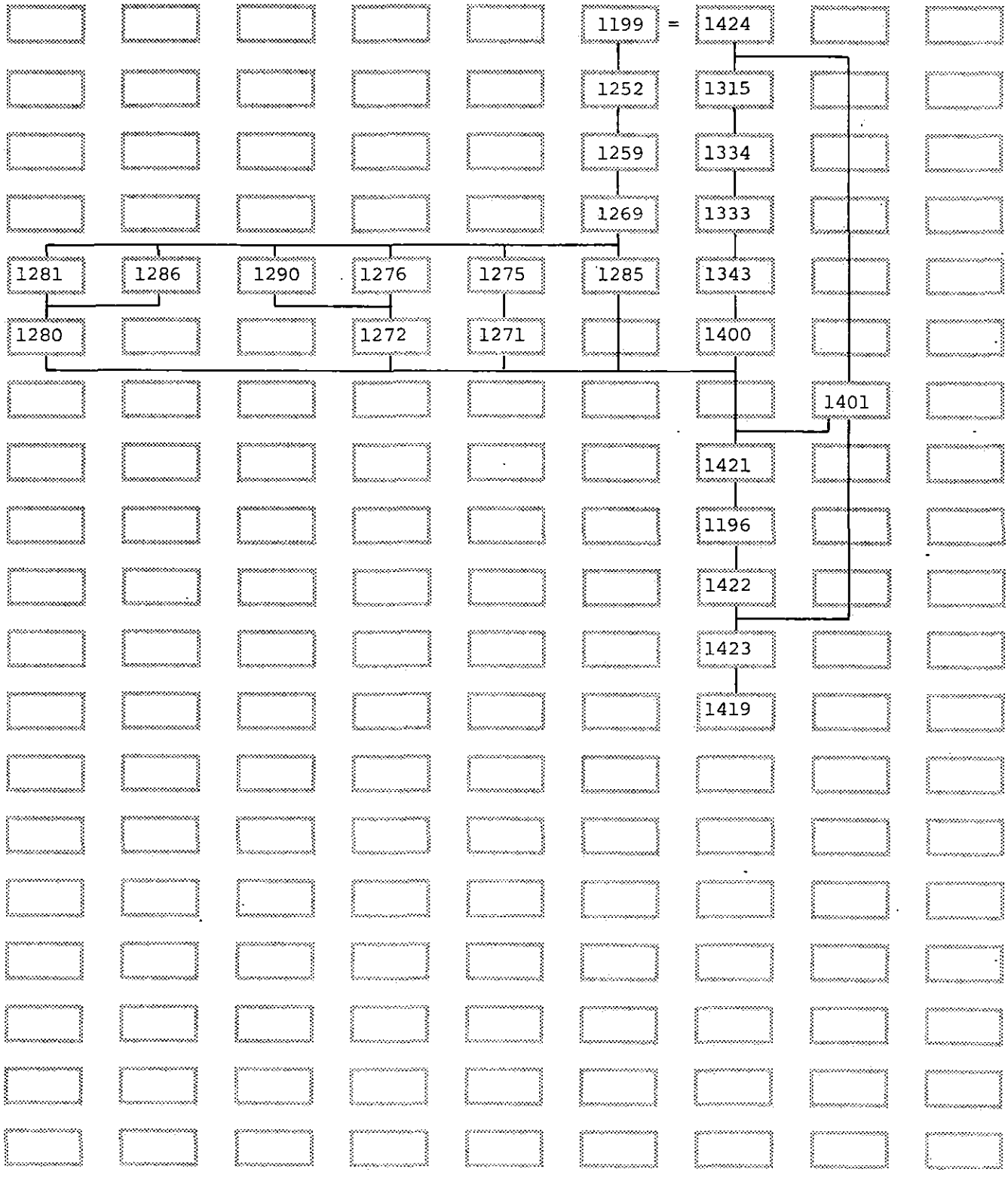
Notes:

cx 1196--plank floor
cx 1338--foundation beams
cx 1329--beam, "possible skid"
cx 1342--landfill below plank floor
cx 1397--joist
cx 1288--stone wall
cx 1308--horizontal plank "baseboard"
cx 1172--brick floor

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BI, Lot 9 Warehouse

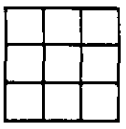


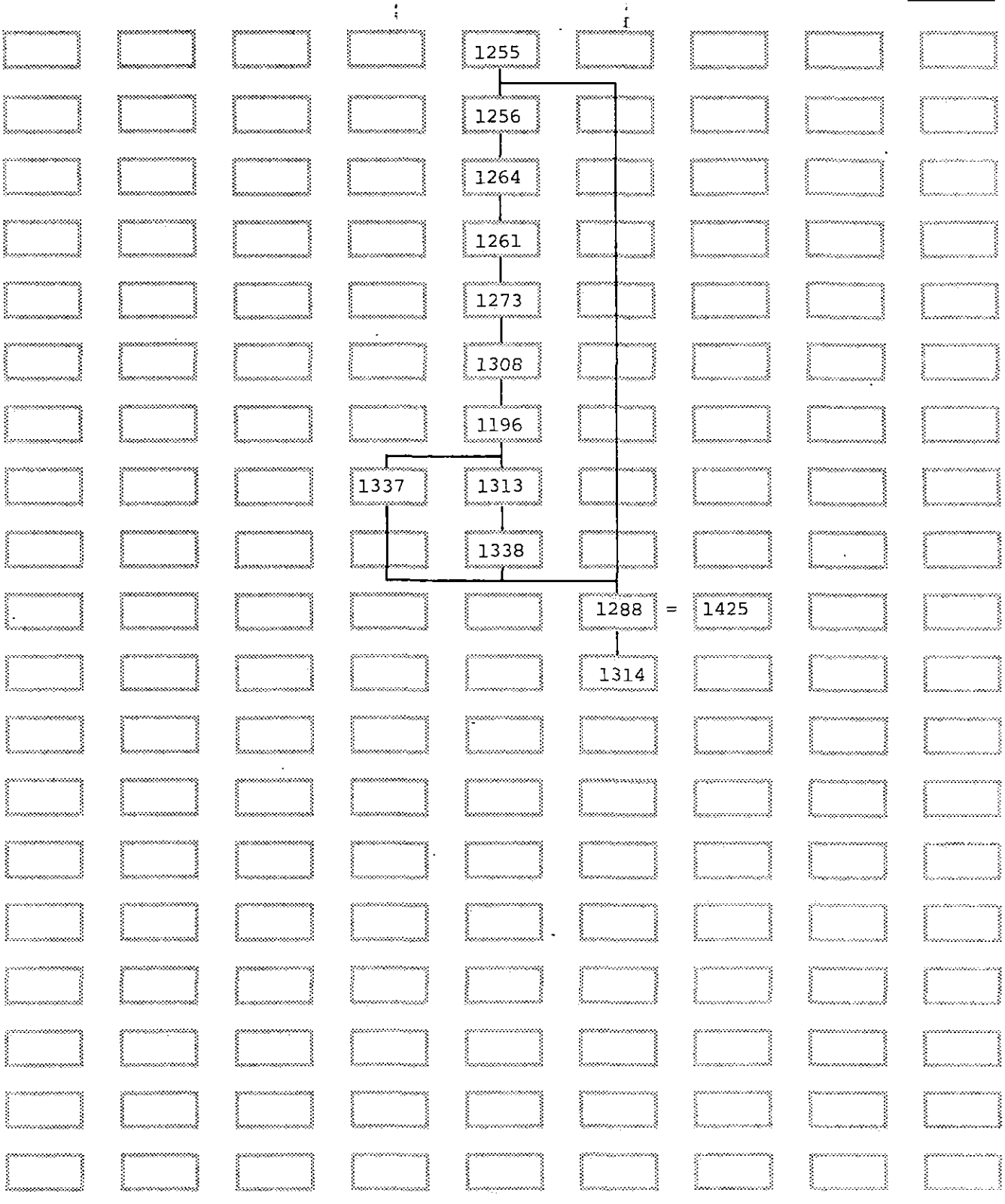


Notes: cx's 1271, 1272, 1280, 1333--barrels
cx 1196--plank floor
cx 1423--stone wall
cx 1419--landfill
cx 1401--deposit between wall (cx 1423) and wall board (cx 1421)

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BJ, Lot 9 Warehouse



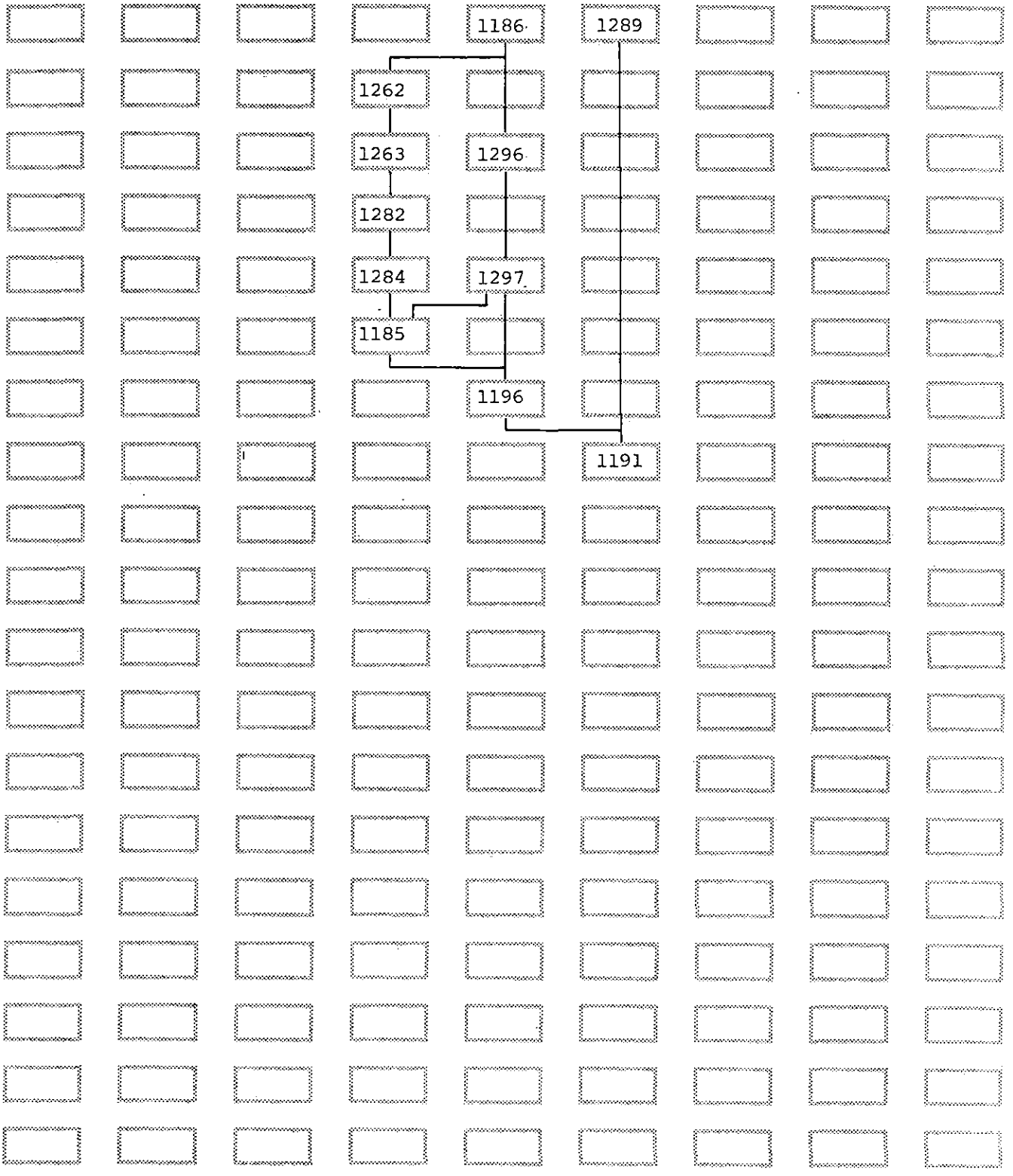


Notes:

cx 1196--plank floor
cx 1314--landfill
cx 1288--stone wall
cx 1255--brick floor

HARRIS MATRIX WORKSHEET

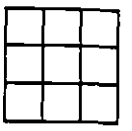
LOCUS: TEST CUT BK, Lot 9 Warehouse

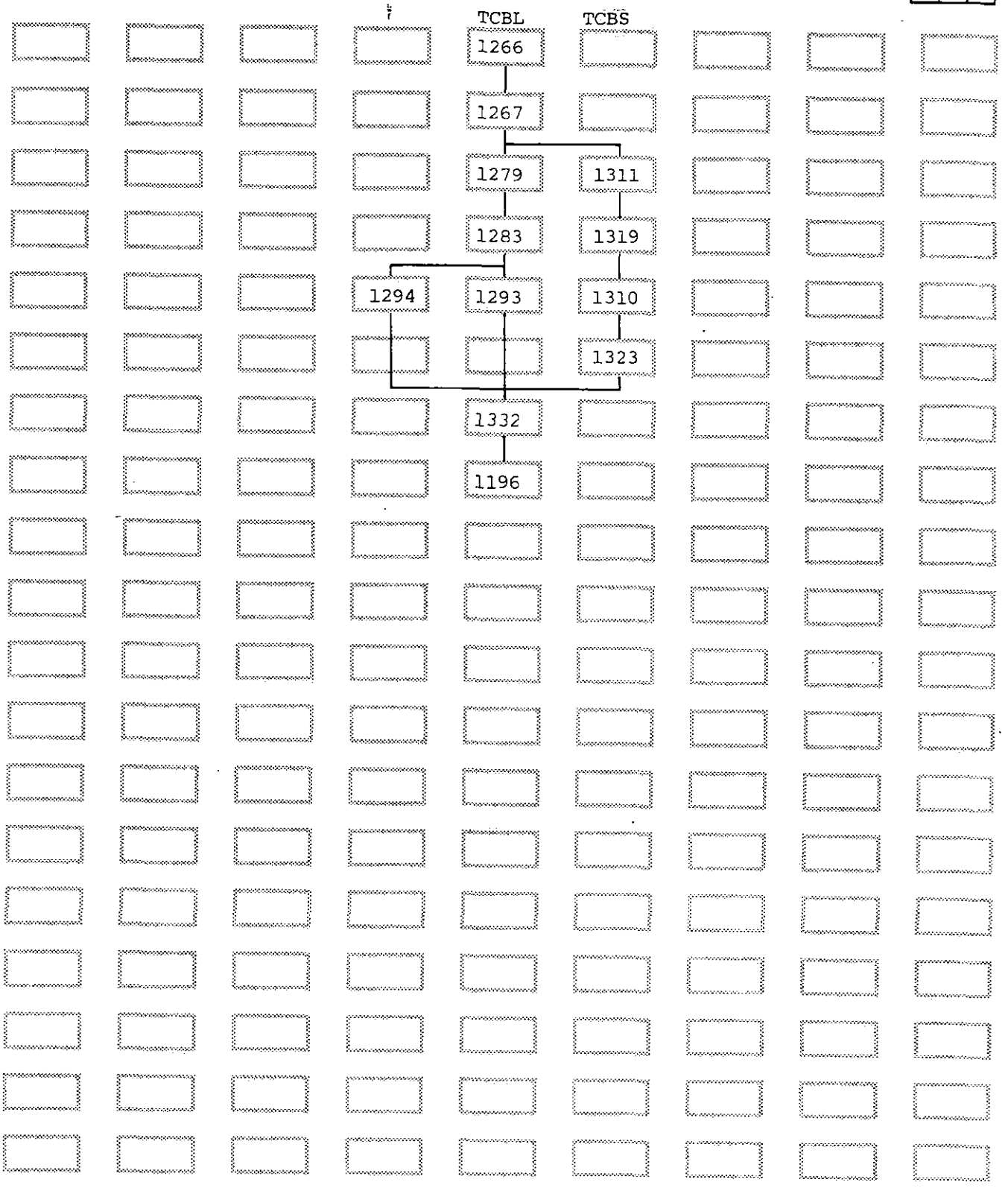


Notes: cx 1262--concrete floor
cx 1191--stone wall
cx 1196--plank floor

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUTS BL and BS, Lot 9 Warehouse



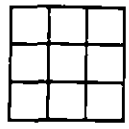


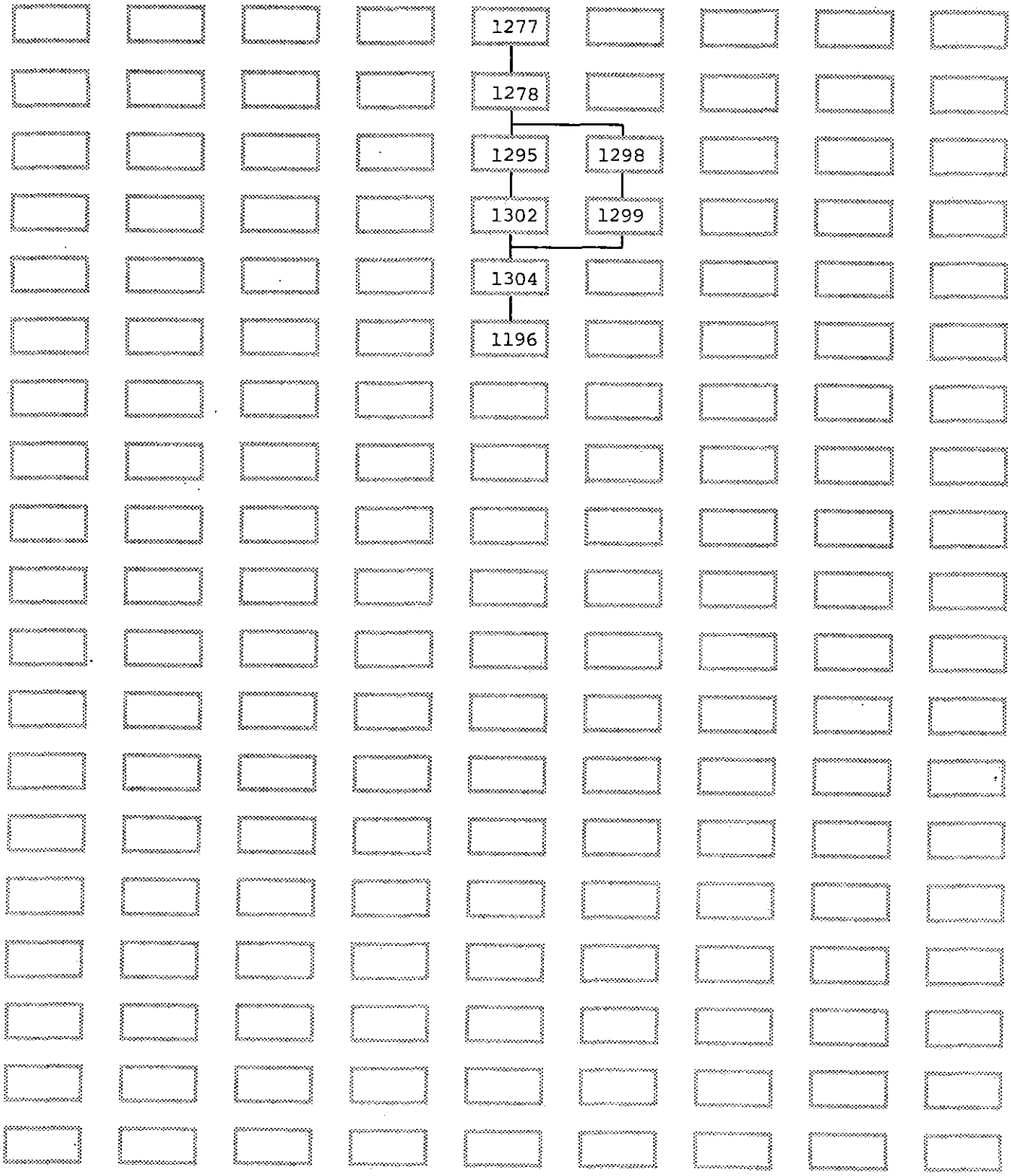
Notes: cx 1310--barrel

cx 1196--plank floor

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BM, Lot 9 Warehouse

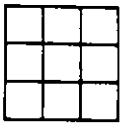


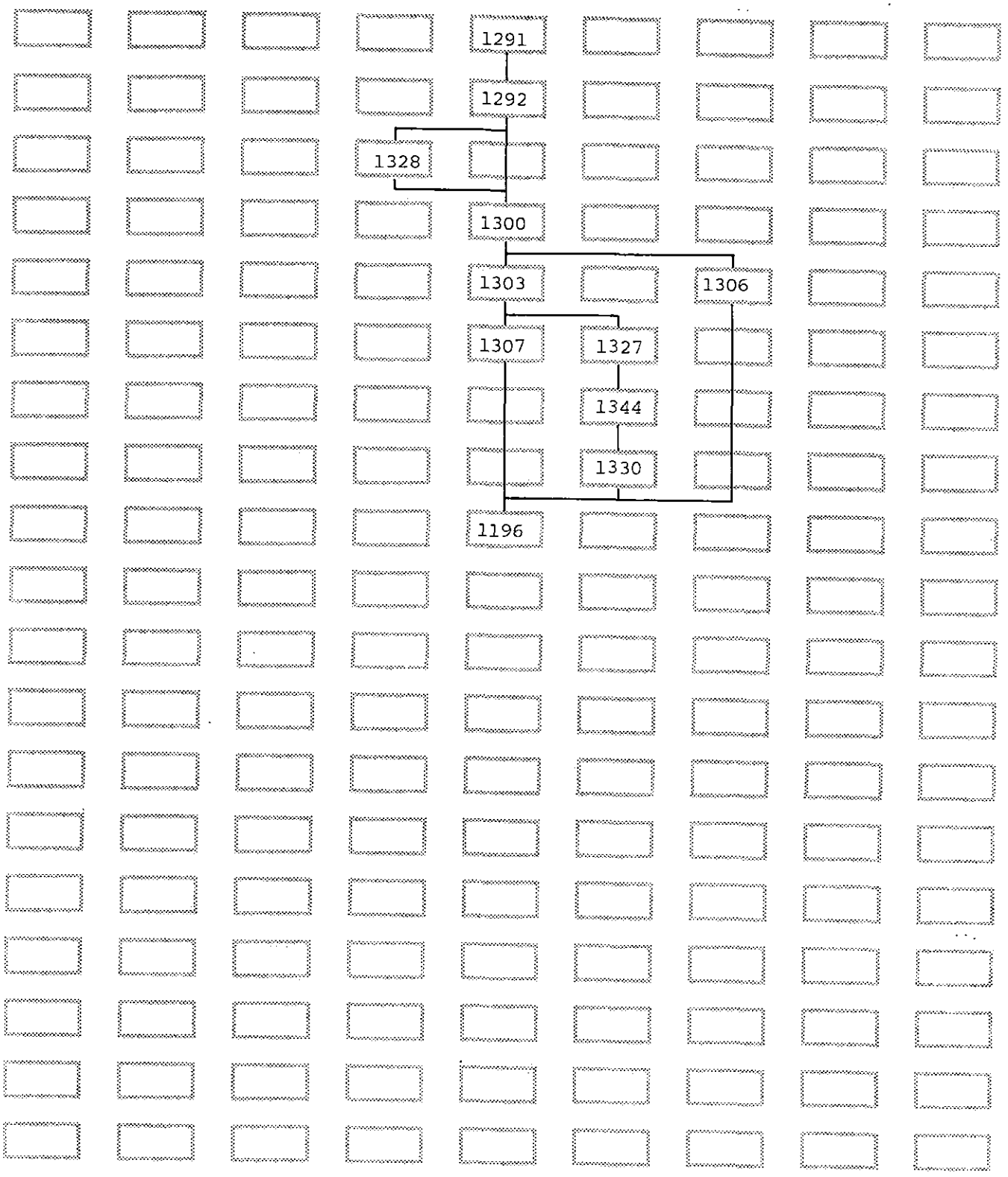


Notes: cx 1277--concrete floor cx 1196--plank floor

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BN, Lot 9 Warehouse

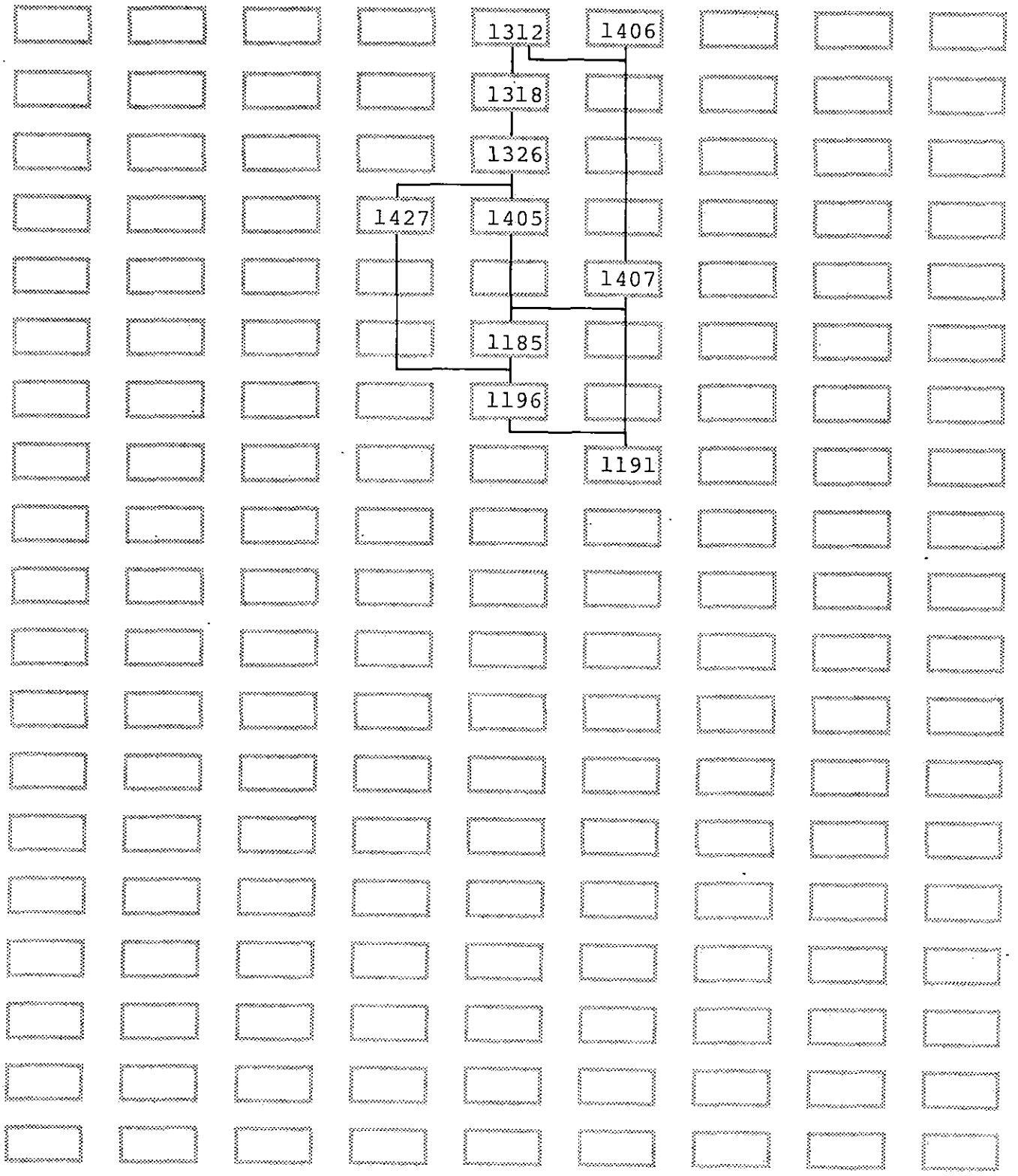




Notes: cx 1291--brick/concrete floor cx 1196--plank floor
cx 1328--wood frame extending from Test Cut BR
cx 1330--wood "A-frame"

HARRIS MATRIX WORKSHEET

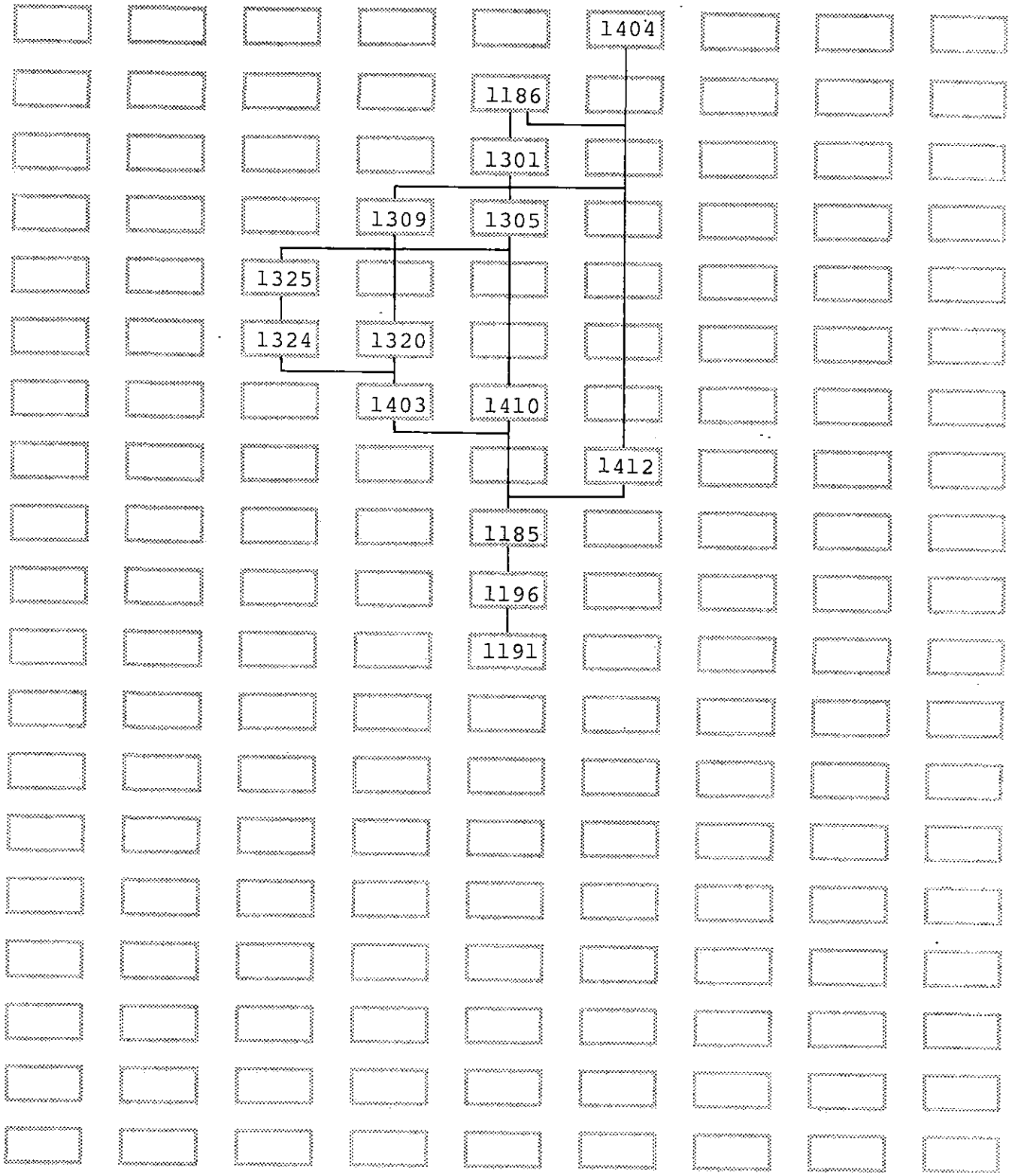
LOCUS: TEST CUT BO, Lot 9 Warehouse



Notes: cx 1191--stone wall cx 1196--plank floor
cx 1407--deposit between baseboard (cx 1185) and stone wall

HARRIS MATRIX WORKSHEET

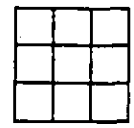
LOCUS: TEST CUT BP, Lot 9 Warehouse

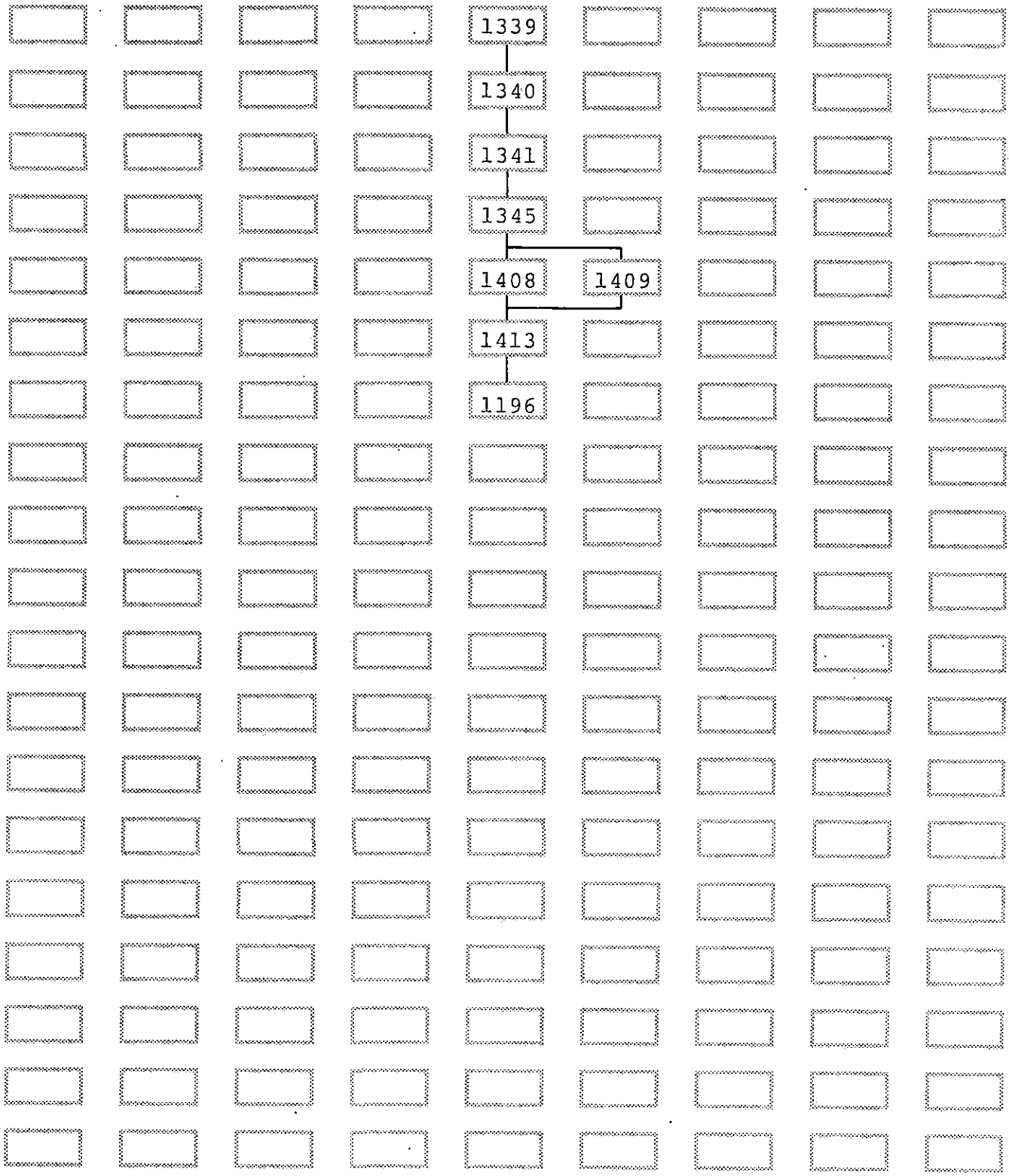


Notes:
cx 1191--stone wall
cx 1185--baseboard
cx 1324--wood crate
cx 1186--edge of brick floor
cx 1196--plank floor

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BQ, Lot 9 Warehouse

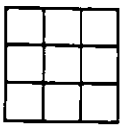


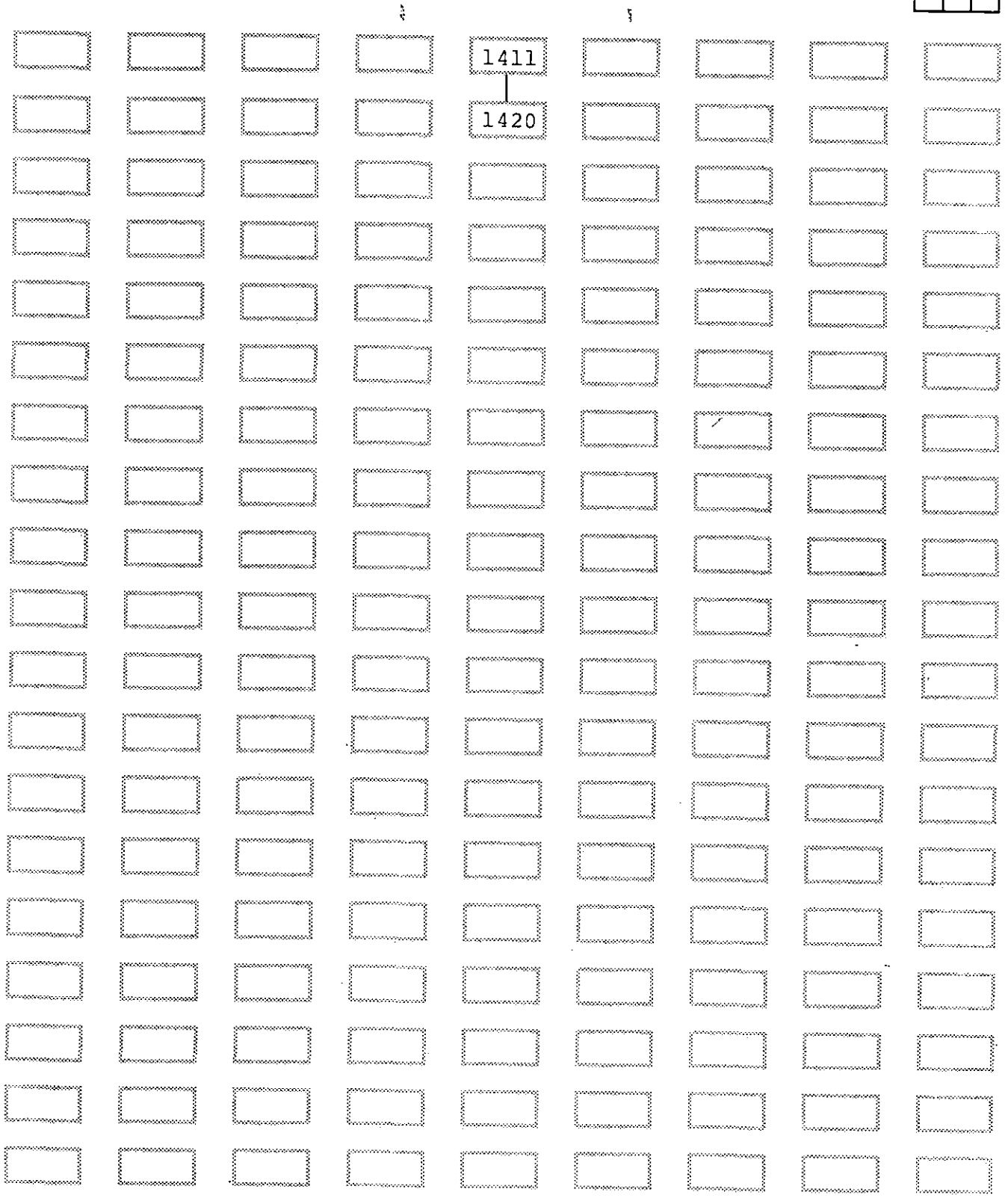


Notes: cx 1339--concrete floor cx 1196--plank floor
cx 1408--intrusive builder's trench with rubble

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BR, Lot 9 Warehouse

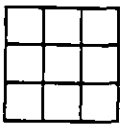


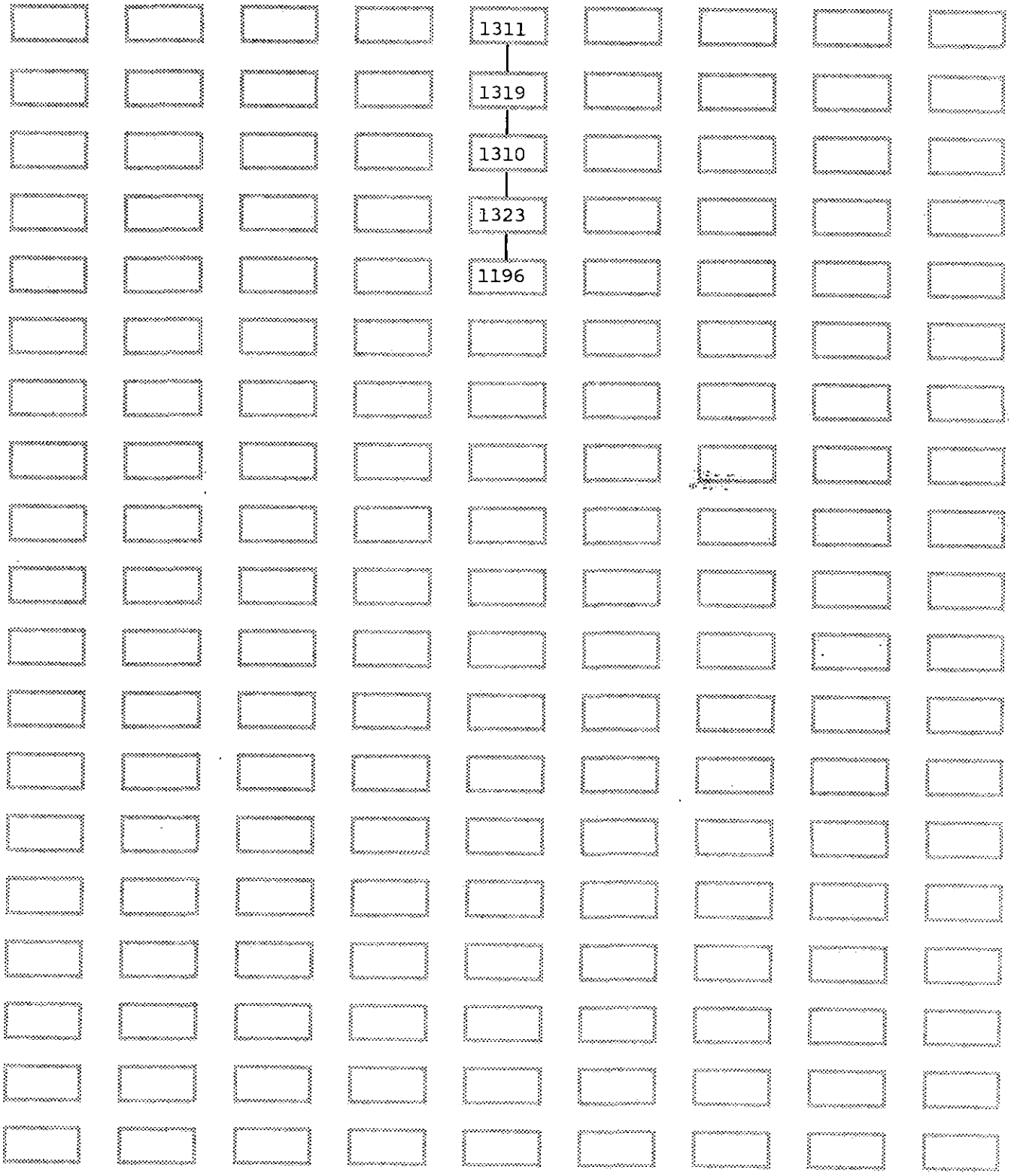


Notes: Test Cut BR opened to remove wood frame (cx 1411) originally found in Test Cut BN, where it was given cx no. 1328
Unit not excavated to plank floor

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BS, Lot 9 Warehouse

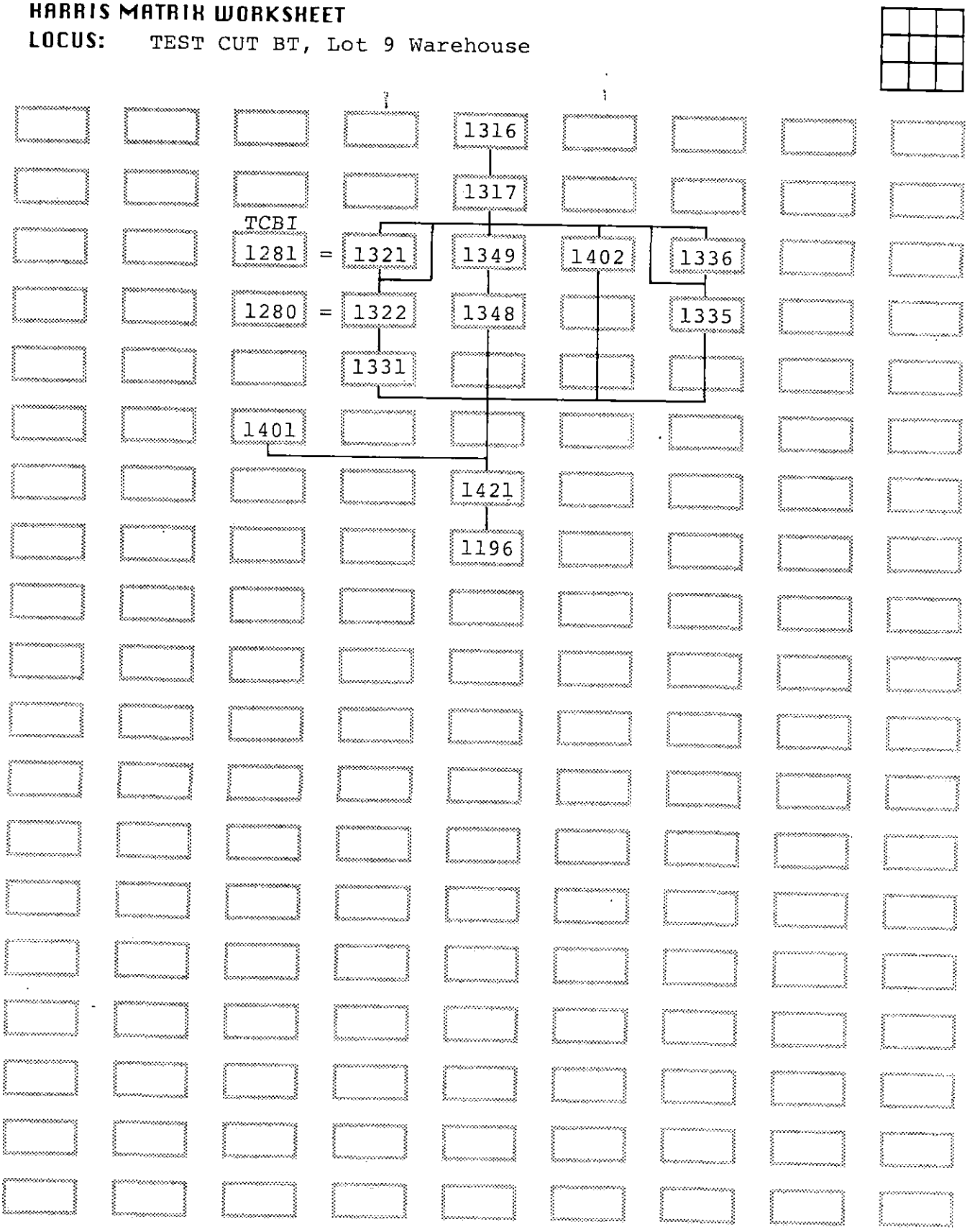




Notes: Test cut opened to excavate remainder of barrel from other units
cx 1196--plank floor
cx 1310--barrel

HARRIS MATRIX WORKSHEET

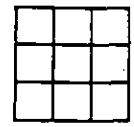
LOCUS: TEST CUT BT, Lot 9 Warehouse

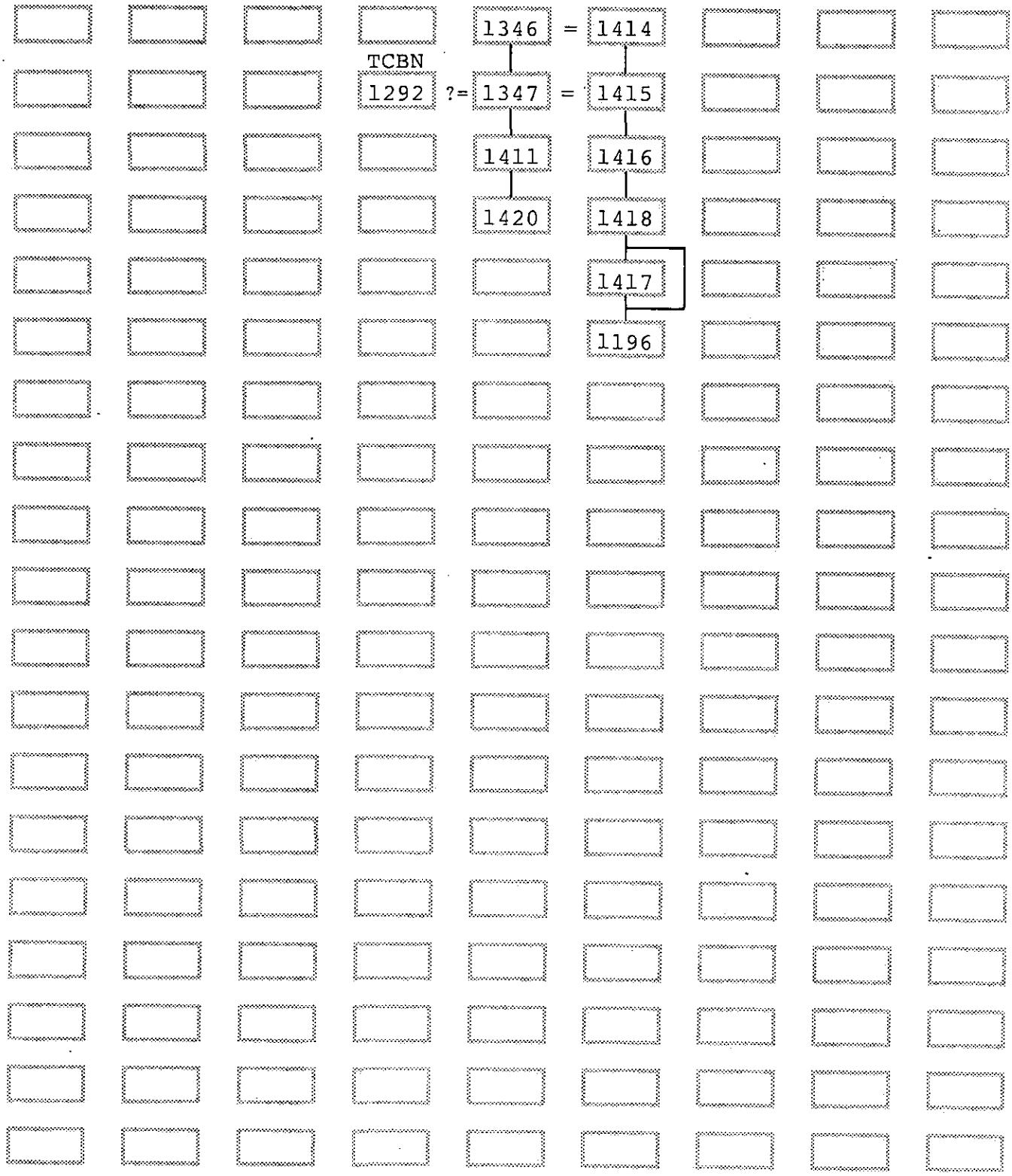


Notes: Test Cut BT opened to remove crate (cx 1335) exposed in Test Cut BI.
cx 1316--concrete floor cx 1196--plank floor

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BU, Lot 9 Warehouse

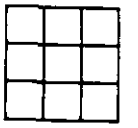


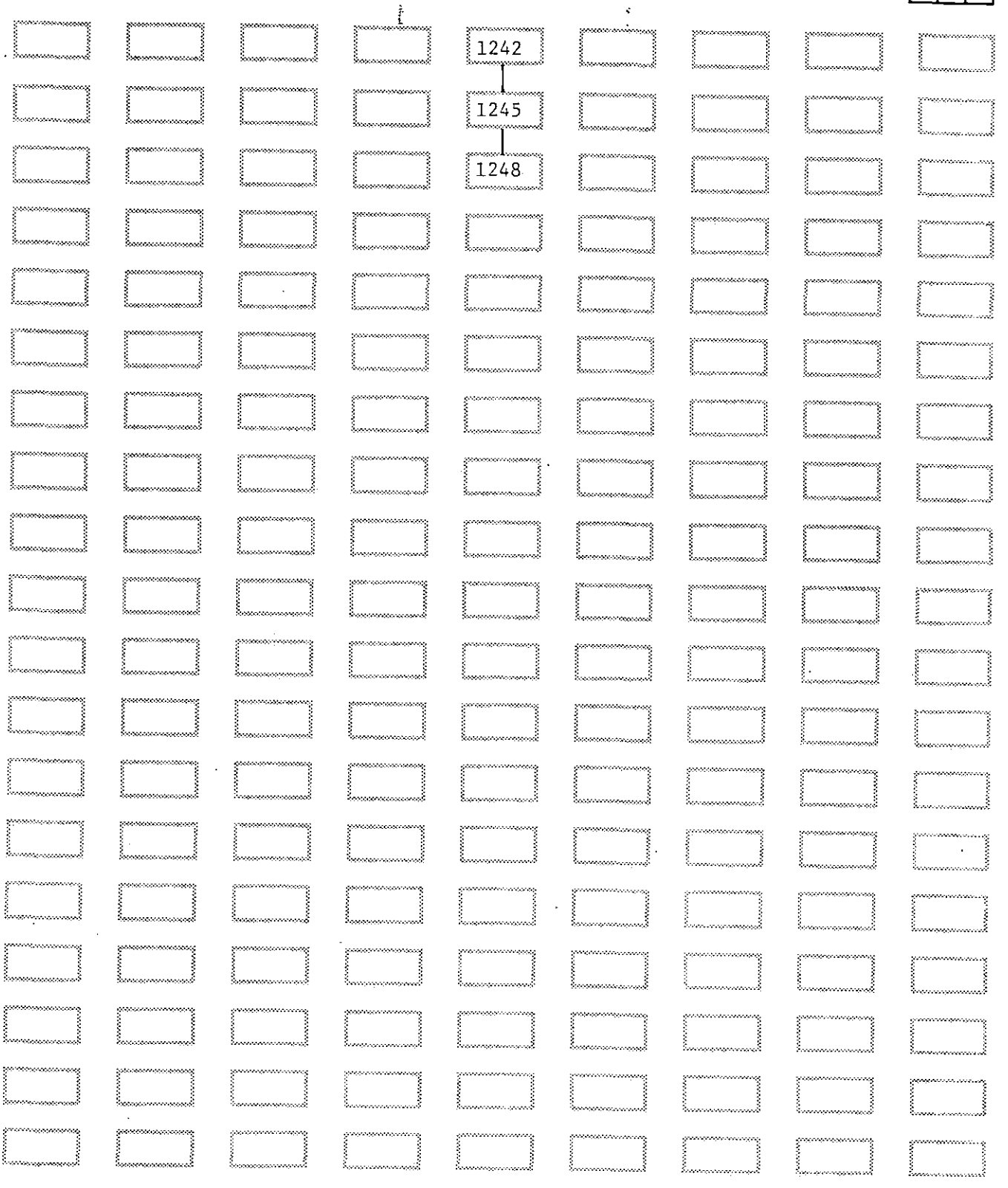


Notes: Test Cut BU opened to expose wood frame (cx 1411) in Test Cut BN.
cx 1346--concrete floor cx 1196--plank floor
cx 1417--beam extending to Test Cut BK

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BV, Lot 8 Wharf Clearing

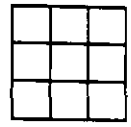


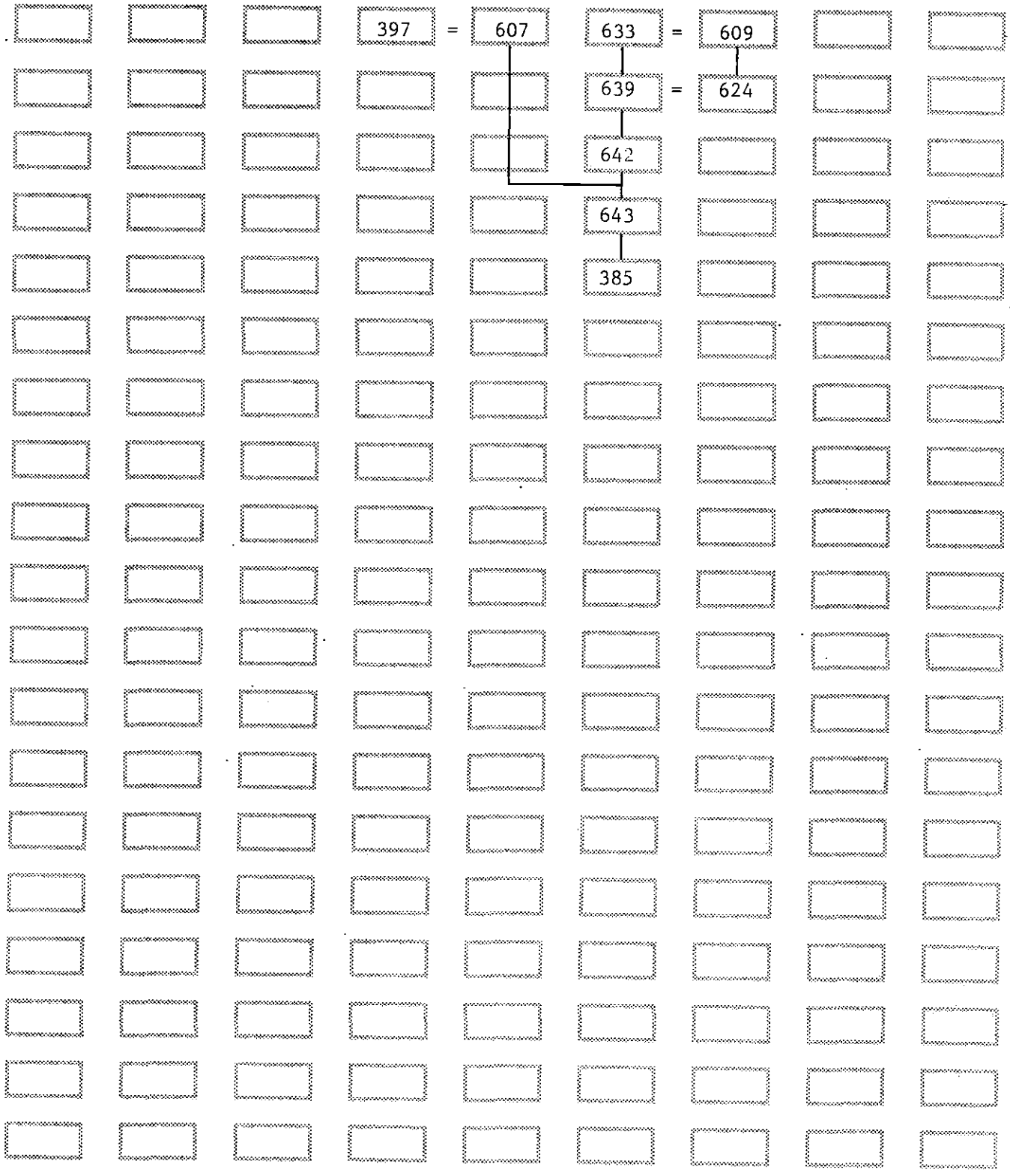


Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BW, Lot 41

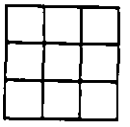


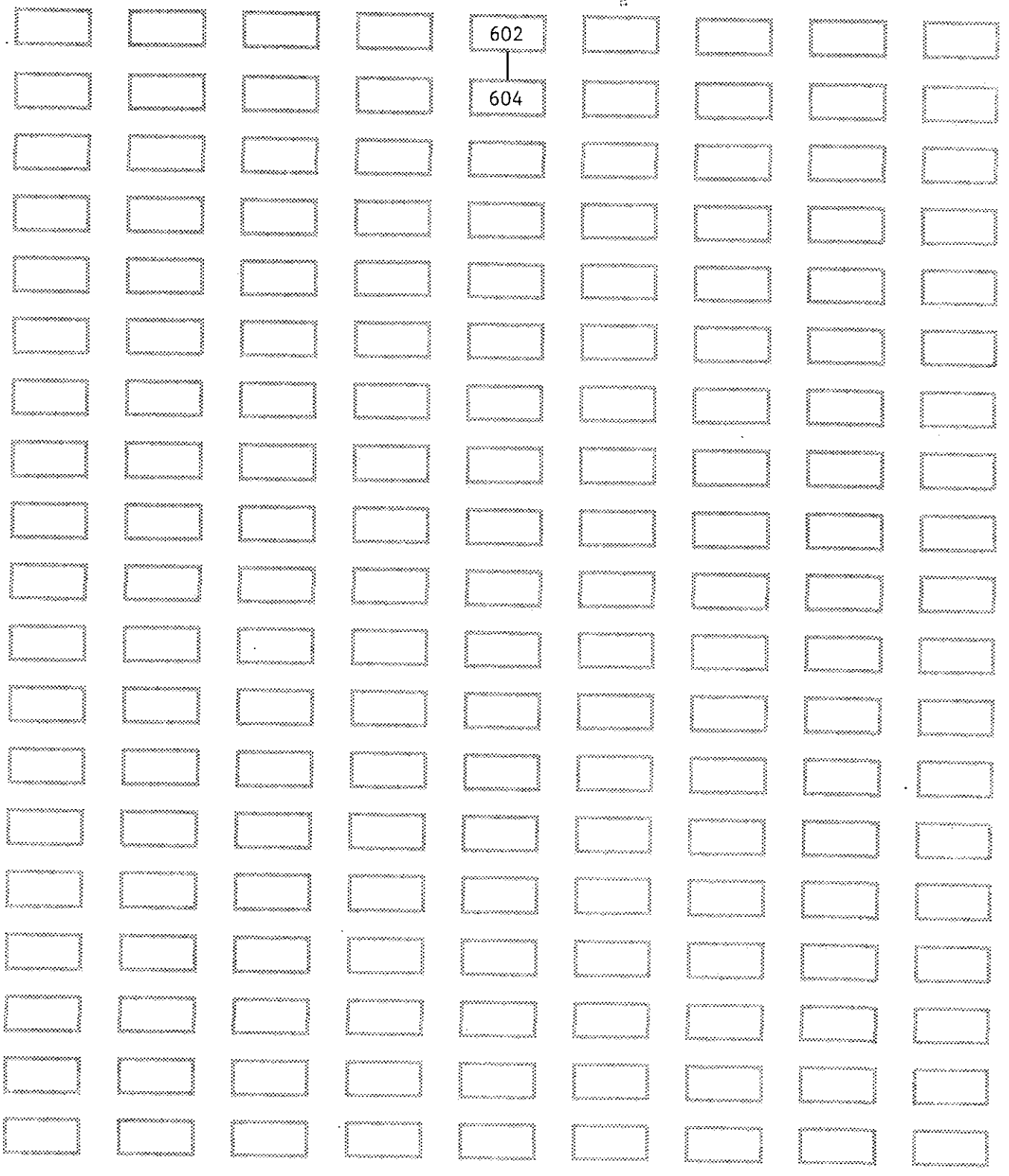


Notes: cx 385--glass from profile cut below wall
cx 643--stone wall
cx's 397,607--wall overburden
cx 642--builder's trench associated with wall (cx 643)

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT BX, Lot 8 clearing

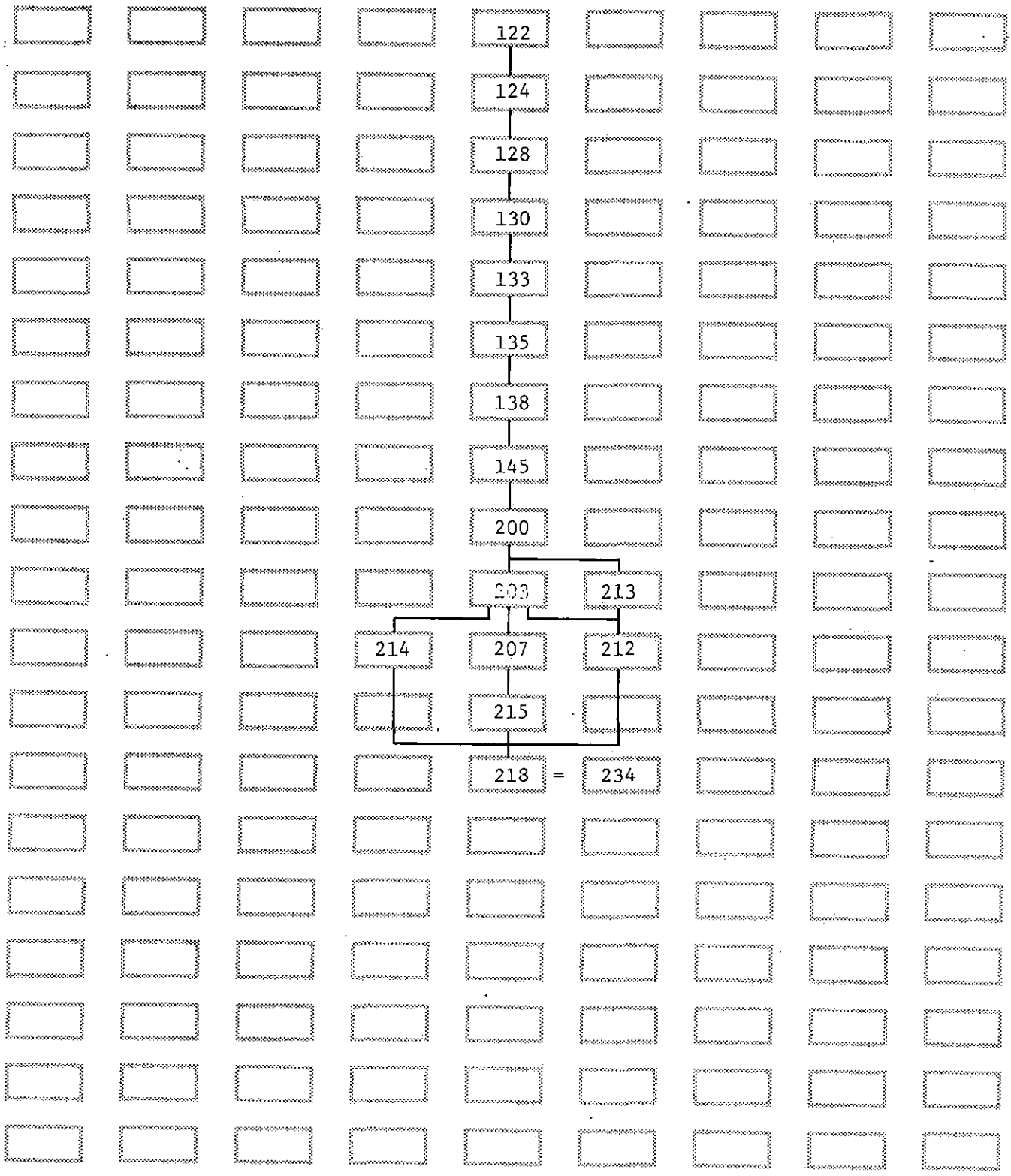




Notes: soils from test cut not screened

HARRIS MATRIX WORKSHEET

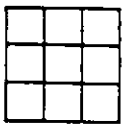
LOCUS: TEST CUT C, Lot 9

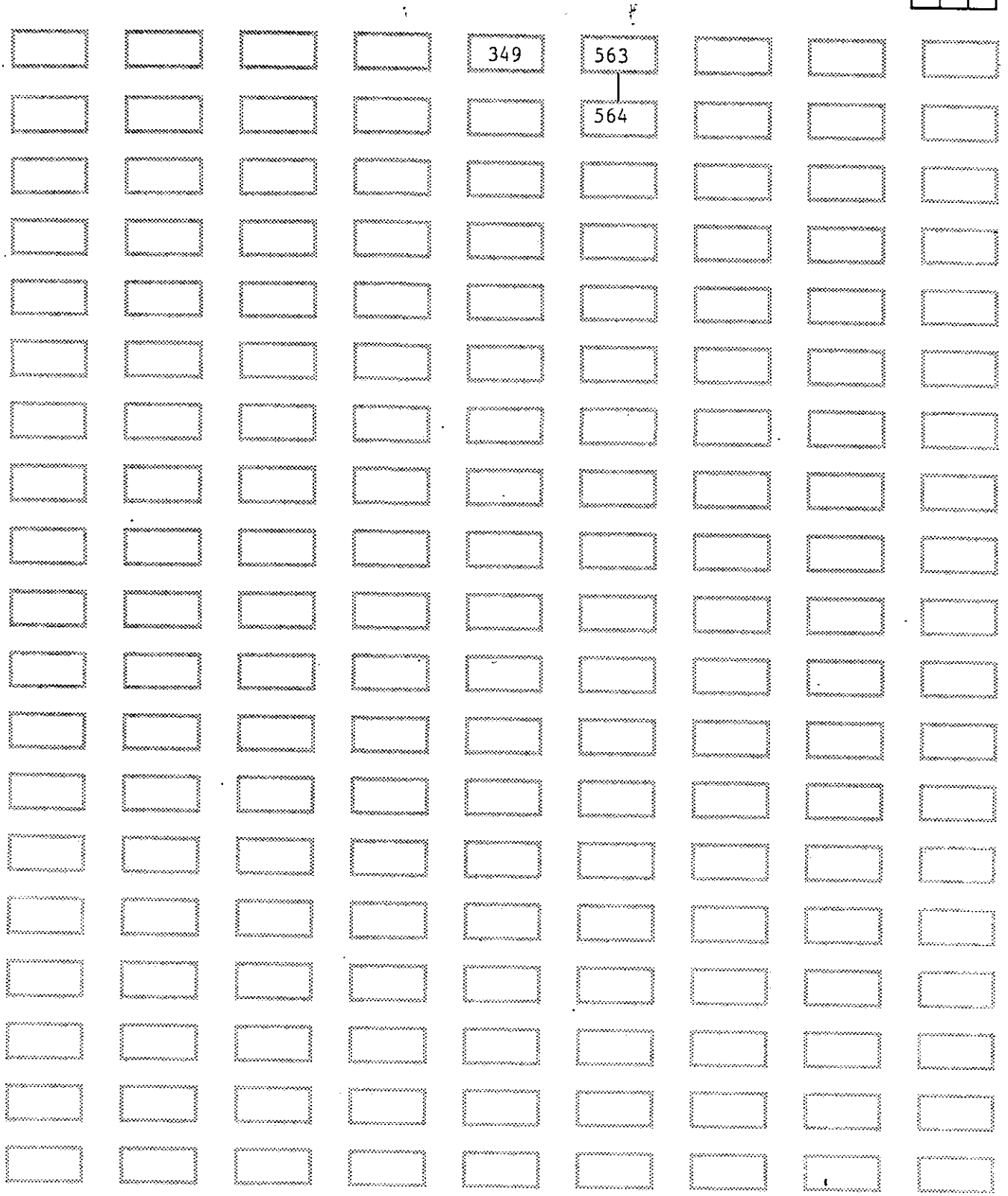


Notes: cx's 212, 213--spread footers
cx 214--footing stone
cx 218--spread footers, probably the same as cx 234 beams

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT CP, Lot 43

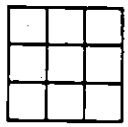




Notes: test cut excavated to sample small ceramic deposit on lot line bordering lots 7 and 43

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT CQ, LOT 7

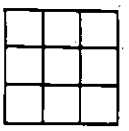


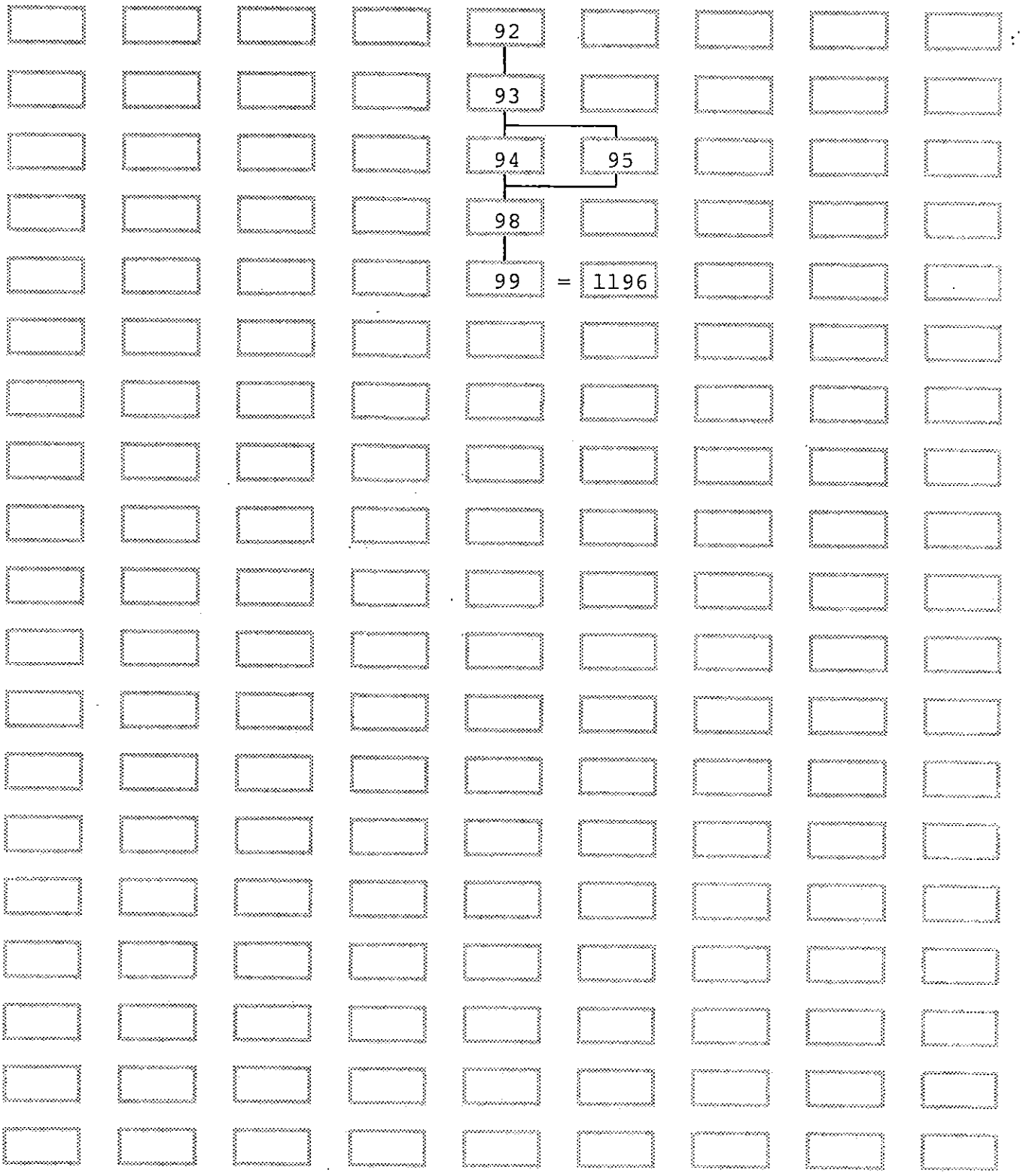
1112 1115 1116

Notes: Test Cut was opened to expose bulkhead at rear of Lot 7

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT D, Lot 9 Warehouse

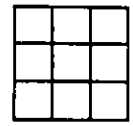


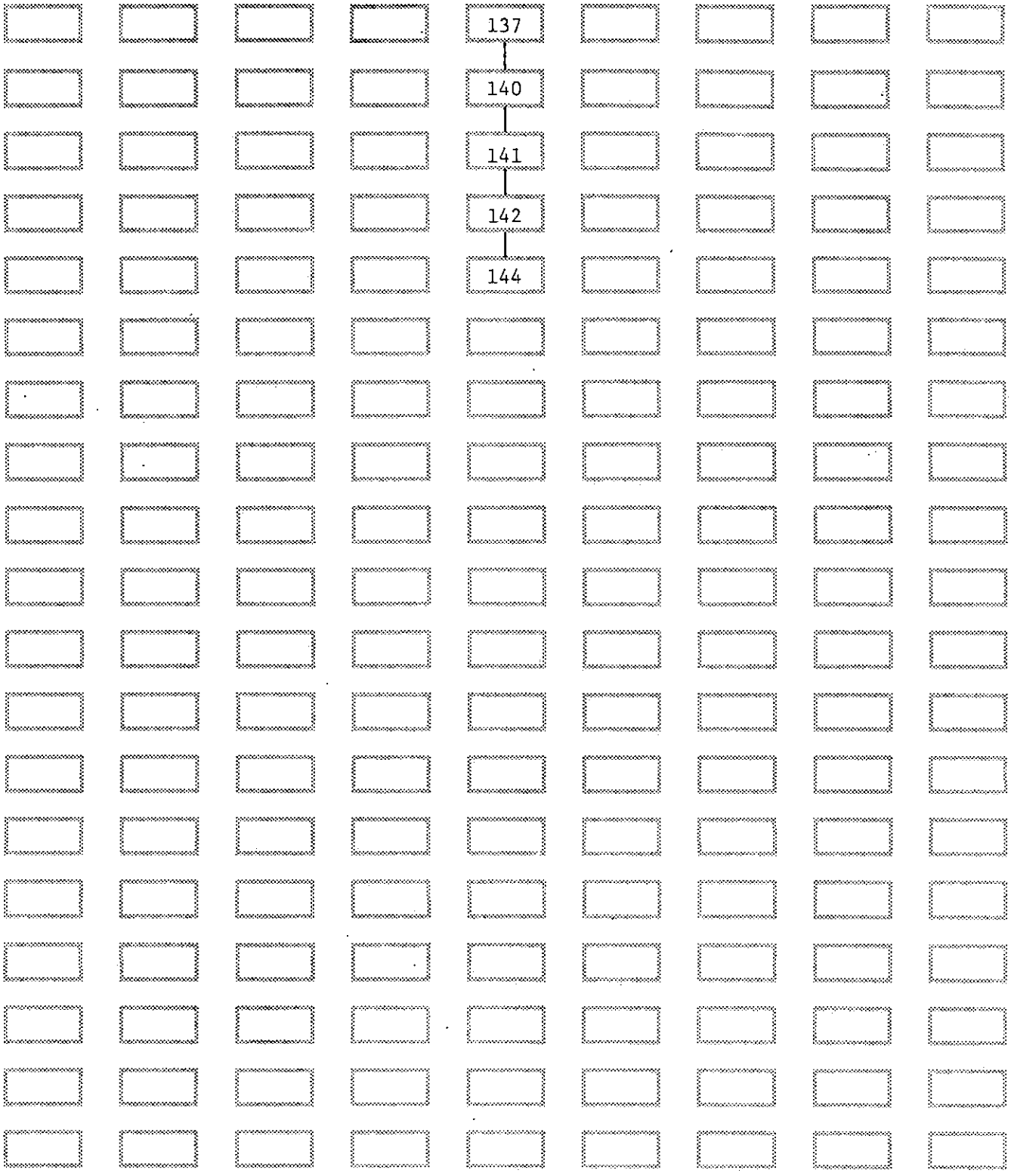


Notes: cx 99--plank floor
cx 92--rubble layer below concrete floor

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT E, LOT 8 Shovel Test

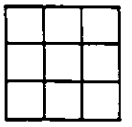


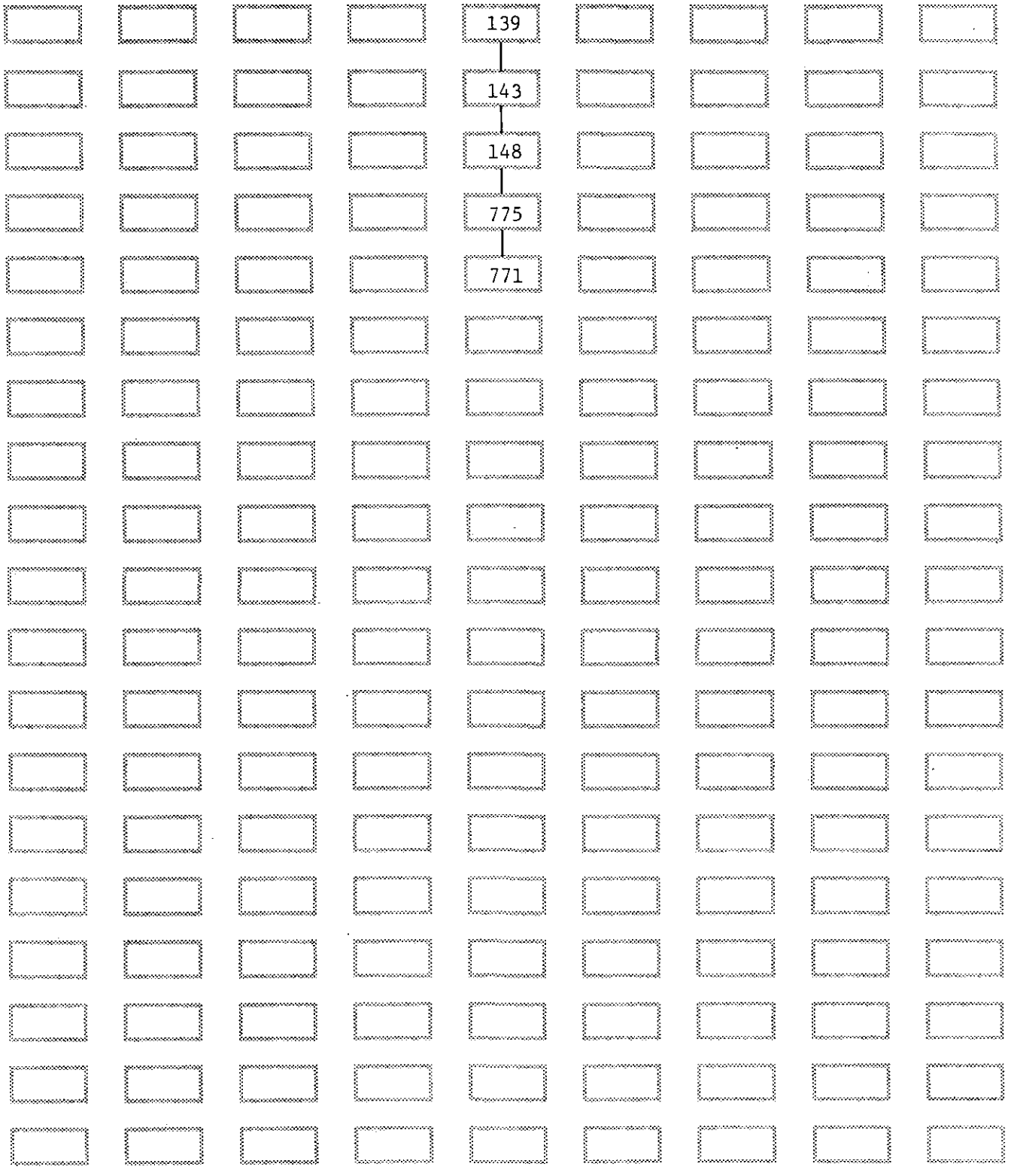


Notes: cx's 137-142 were mostly rubble
cx 144--wood beam, part of cobb wharf in Lots 8 and 9

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT F, Lot 42

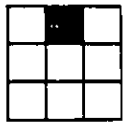




Notes: cx 771--spread footer
cx 775--barrel

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT G, Test Trench East, Lot 43



179

180

181

182

183

184

185

186

187

188

// break between Levels 1 and 2

196

197

199 198

300

302

303

308

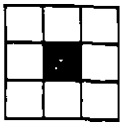
// break between Levels 2 and 3-4

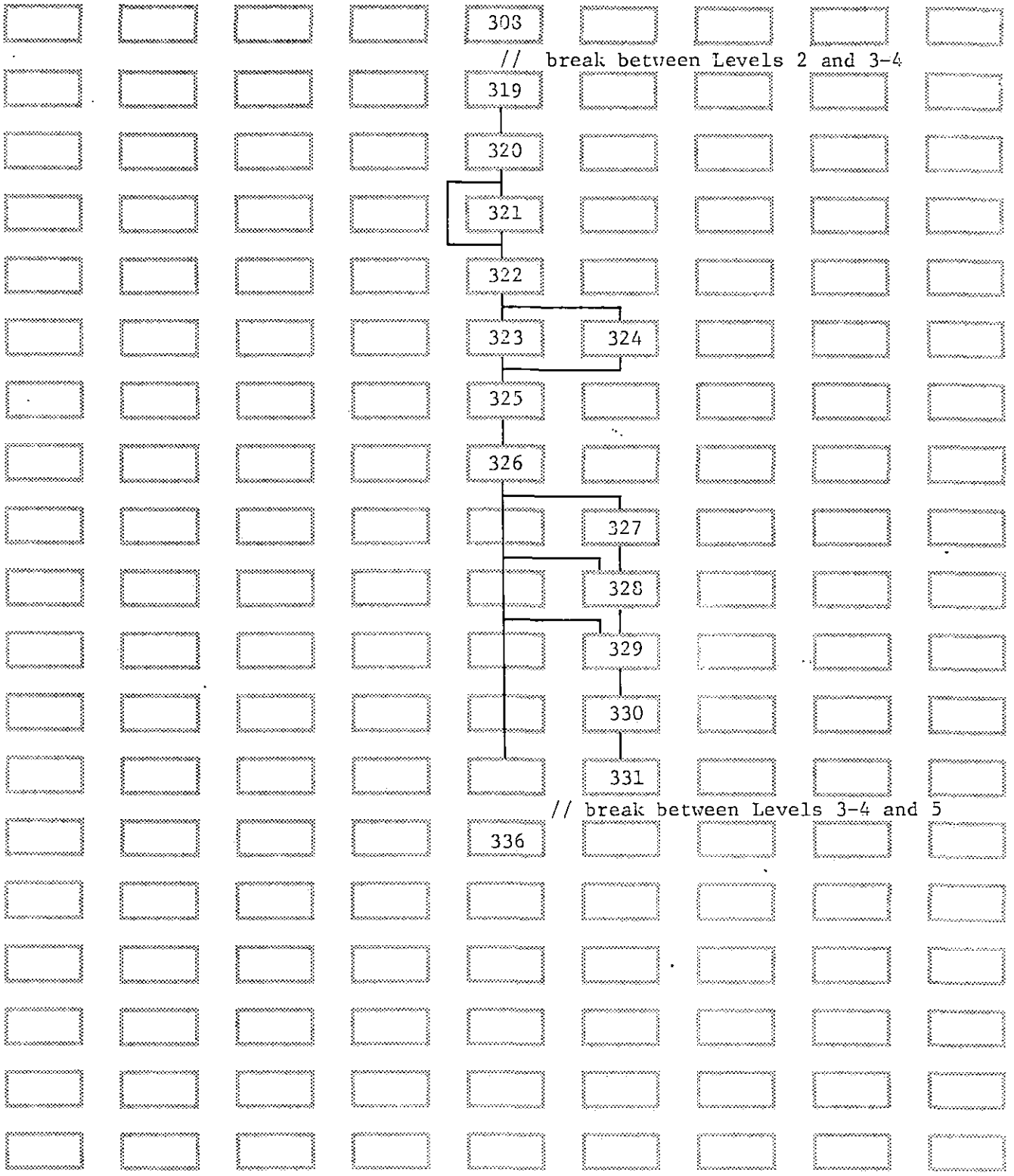
319

Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT G, Test Trench East, Lot 43

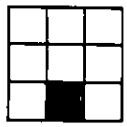




Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT G, Test Trench East, Lot 43



331

// break between Levels 3-4 and 5

336

337

338

343

345

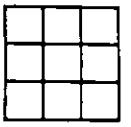
346

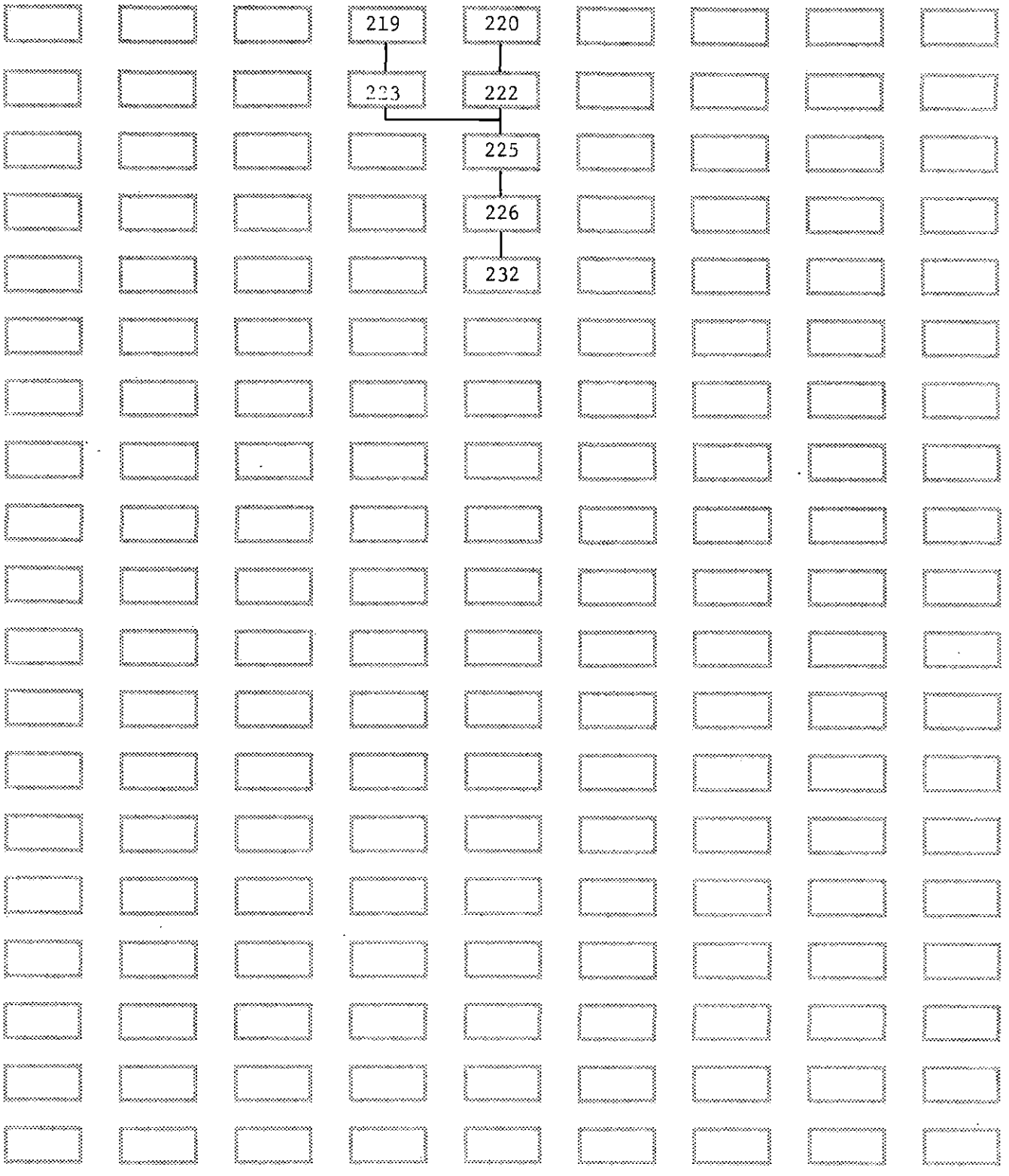
347

Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT H, Lot 41

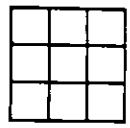


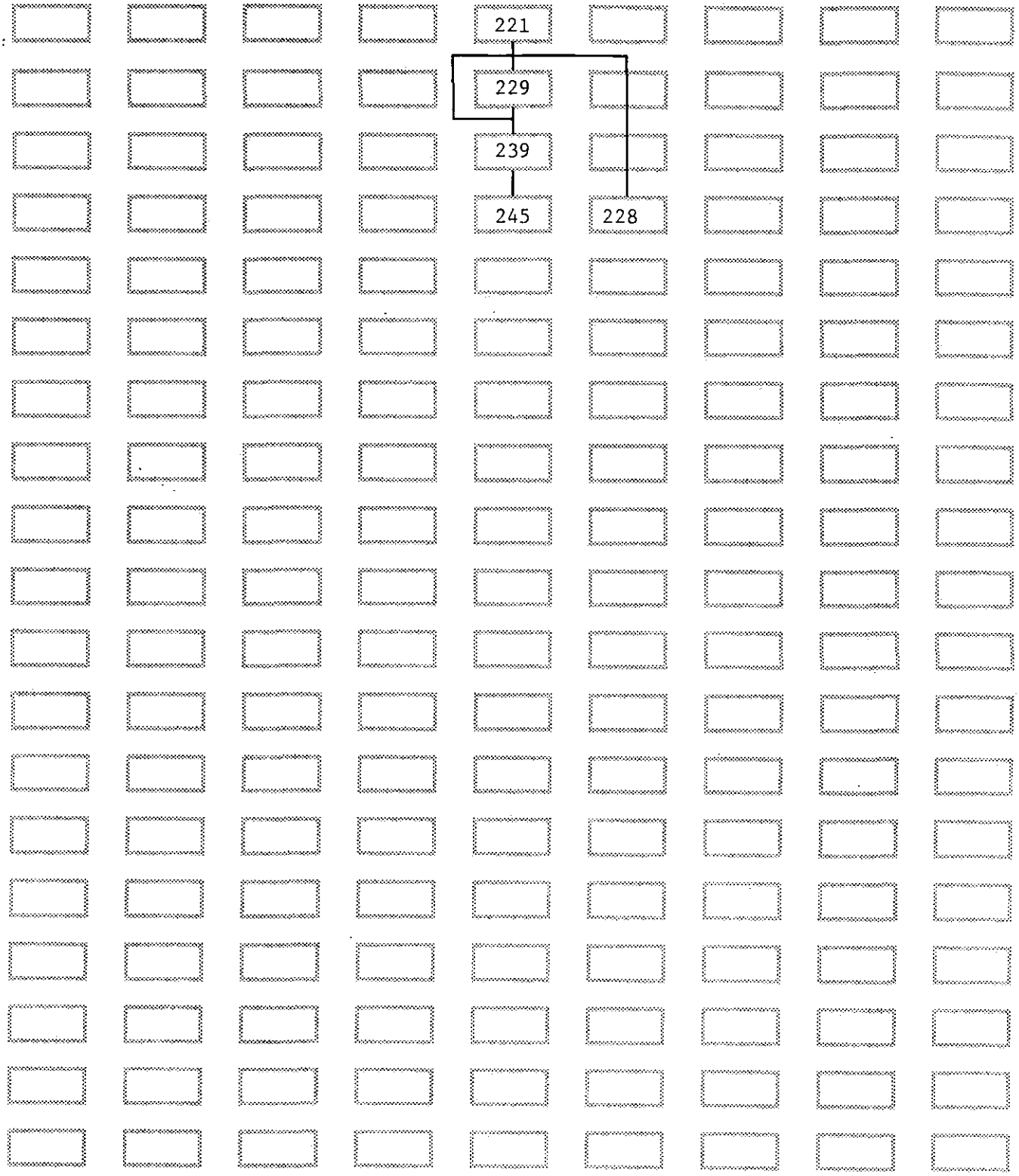


Notes: field records do not permit accurate interpretation of stratigraphy
diagram reflects excavation sequence
test cut appears to have sampled mixed fills throughout

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT I, Lot 43

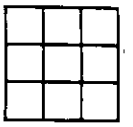


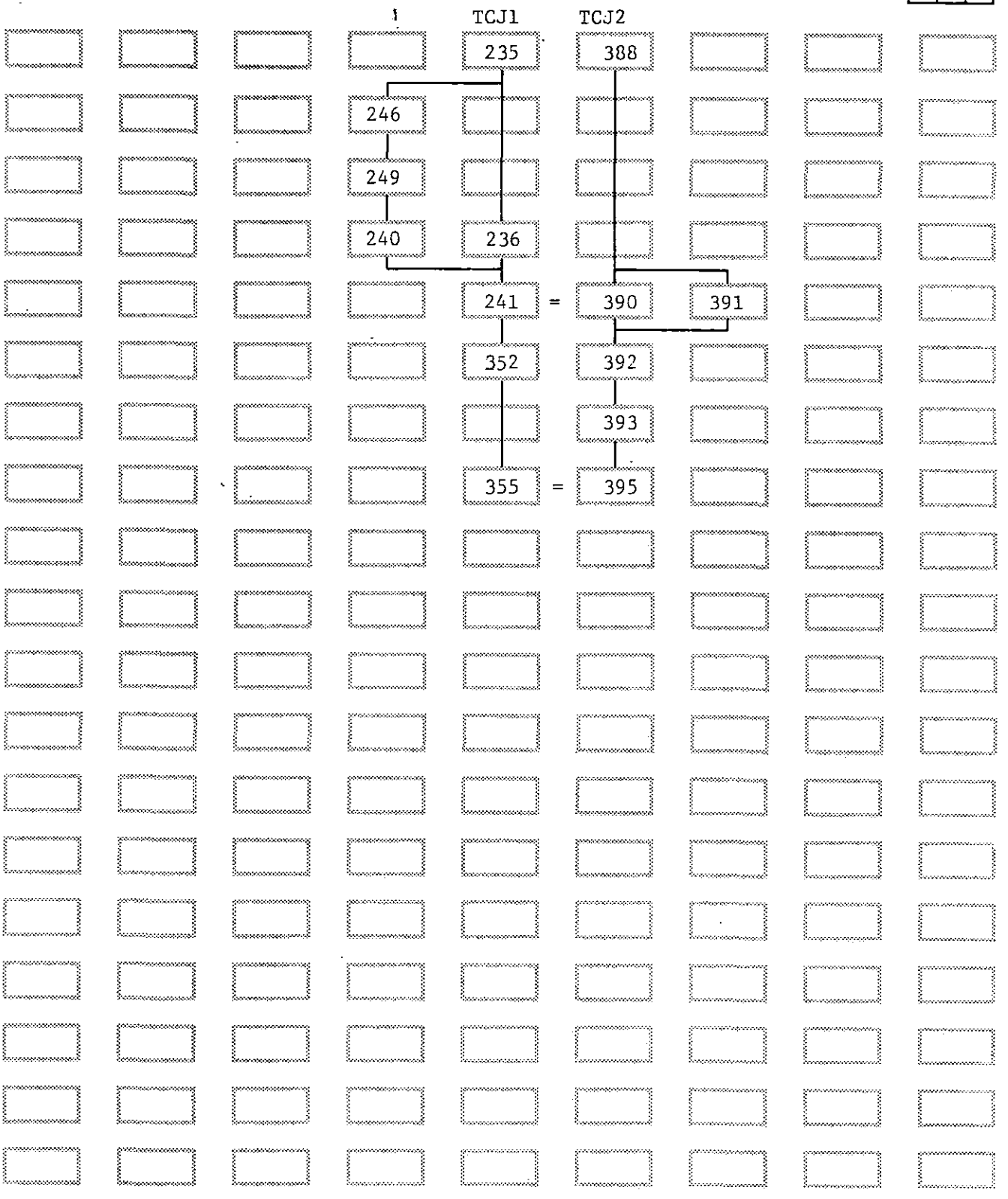


Notes: cx 245--spread footer

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUTS J1 and J2, Lot 9

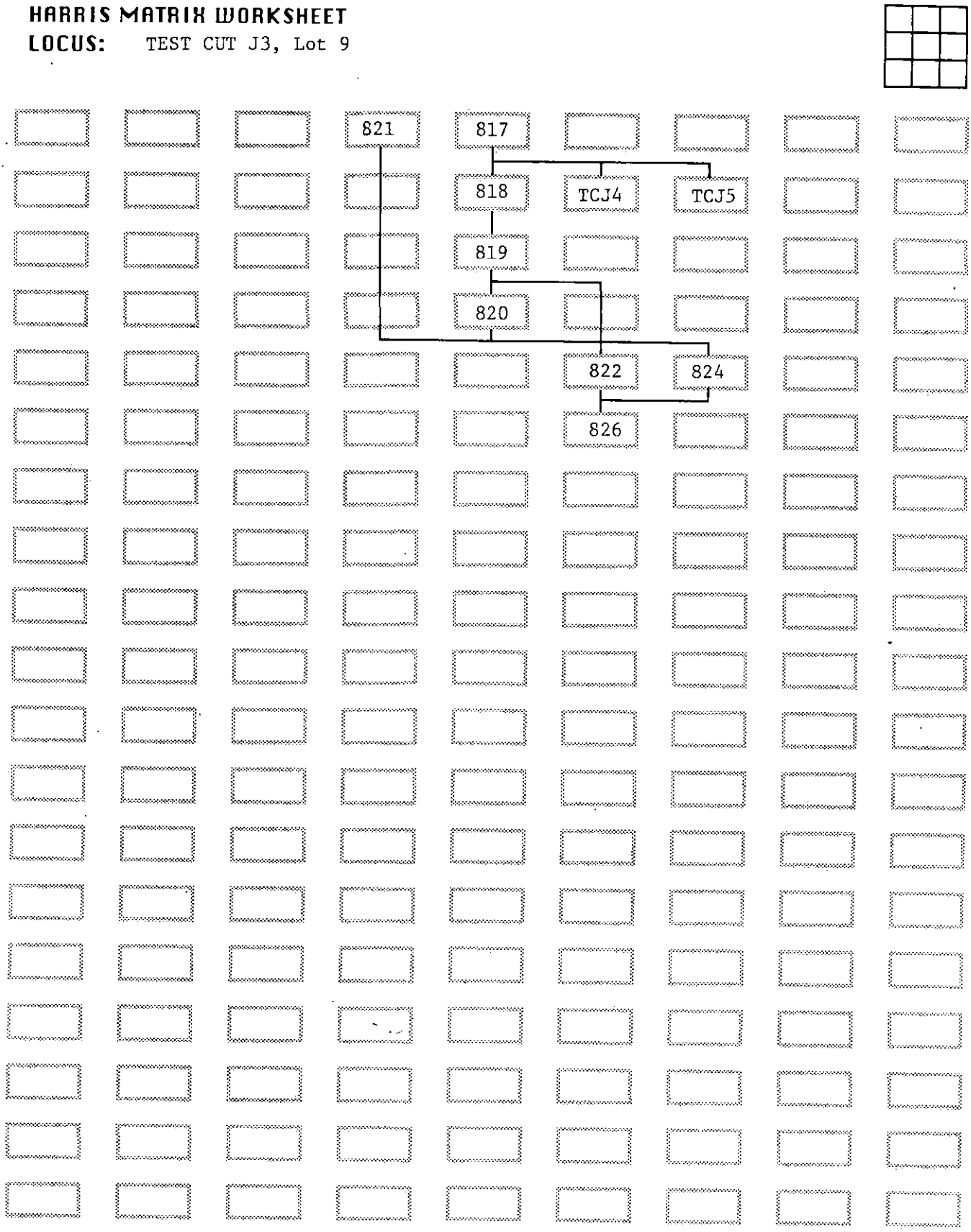




Notes: Test Cut J2 is west extension of Test Cut J1 (aka Test Cut J), west as far as cobb wharf

HARRIS MATRIX WORKSHEET

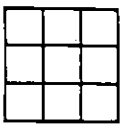
LOCUS: TEST CUT J3, Lot 9

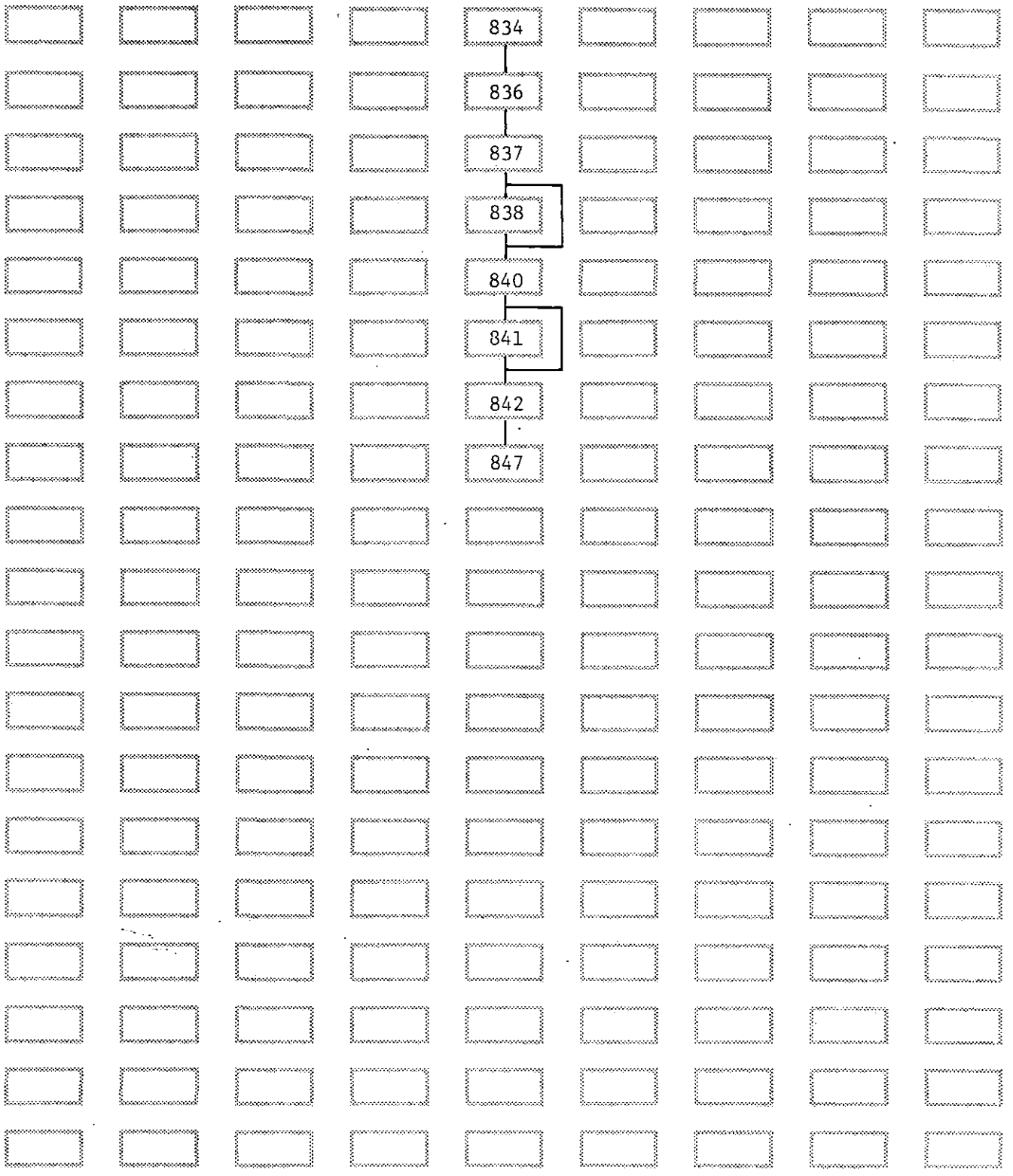


Notes: cx 817 overlies Test Cuts J3, J4 and J5
cx 821--wall collapse
cx 819--equivalent to cx 390 (Test Cut J2) and cx 241 (Test Cut J)

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT J4, Lot 9

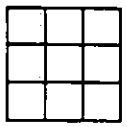


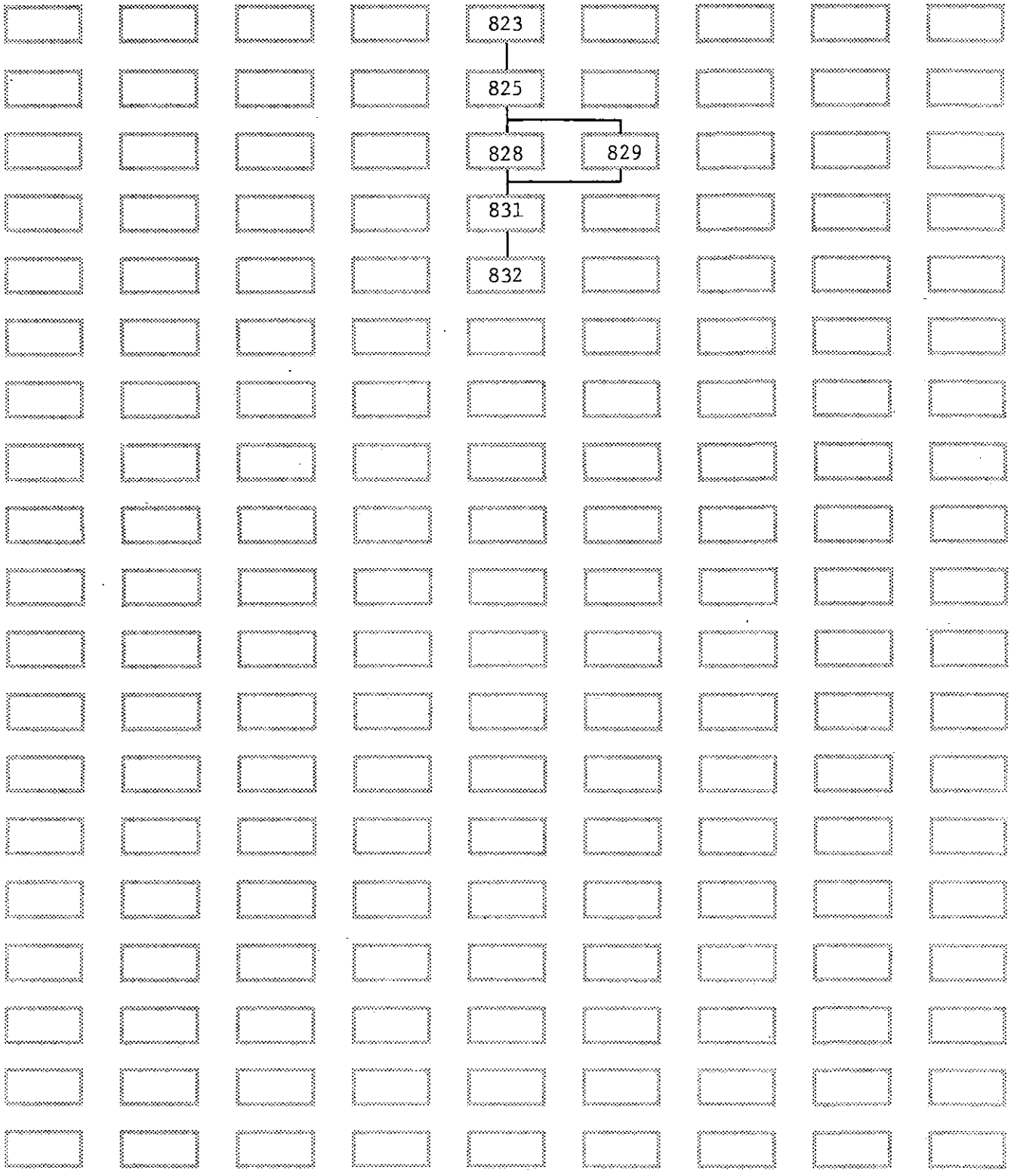


Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT J5, Lot 9

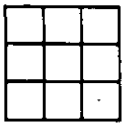


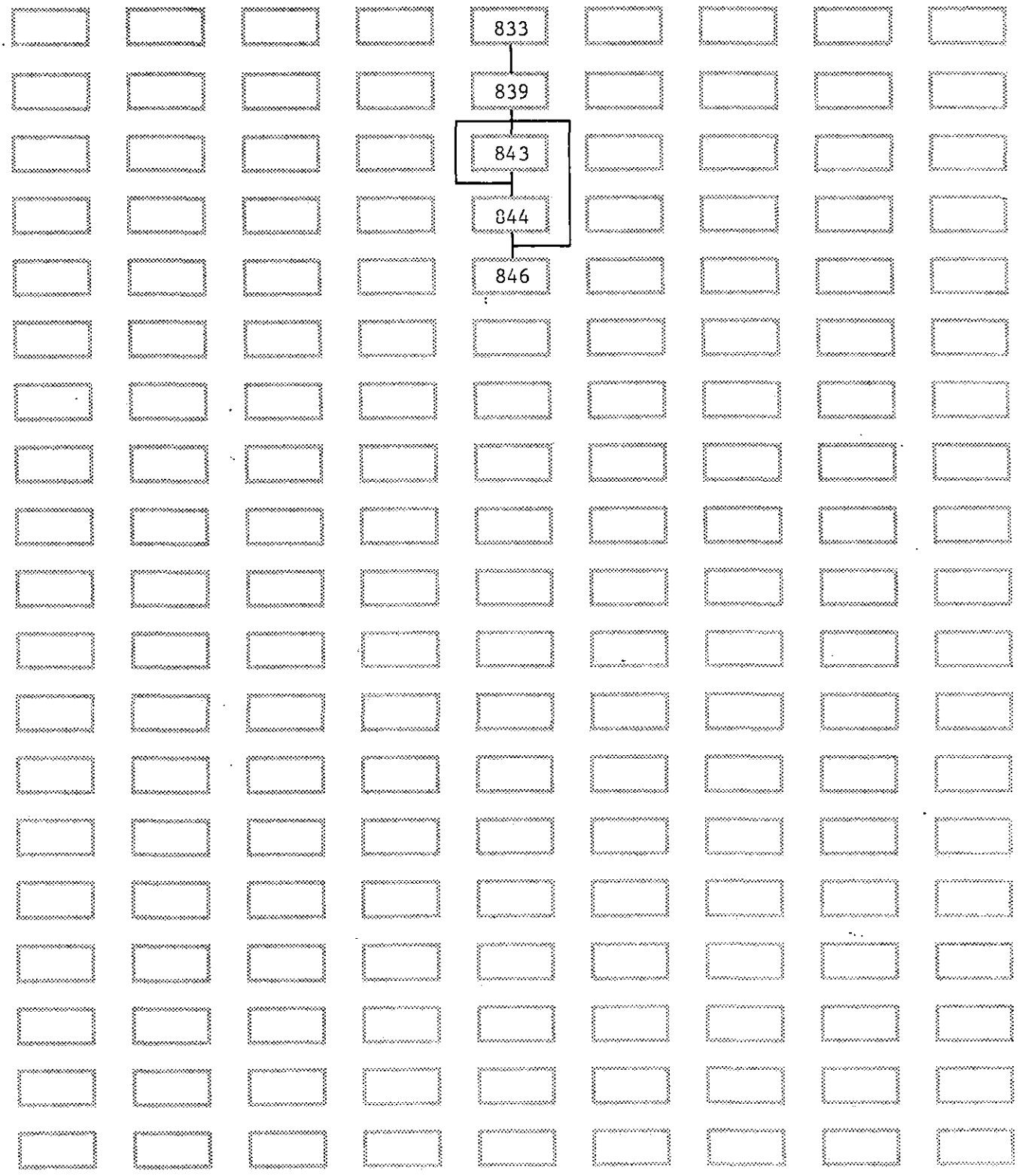


Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT J6, Lot 9

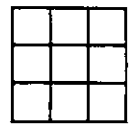


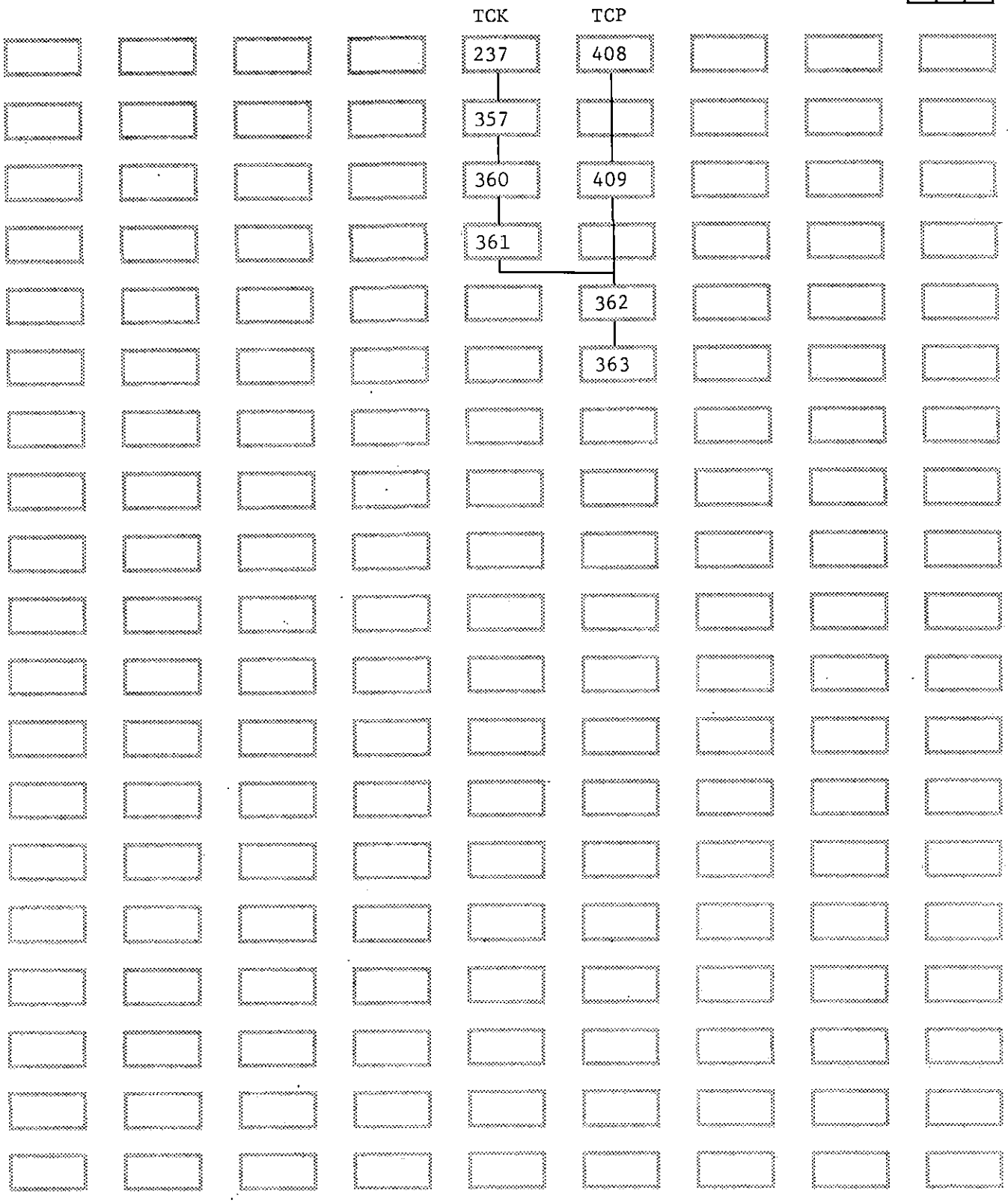


Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUTS K and P, Lot 8 Warehouse

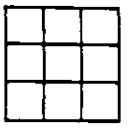


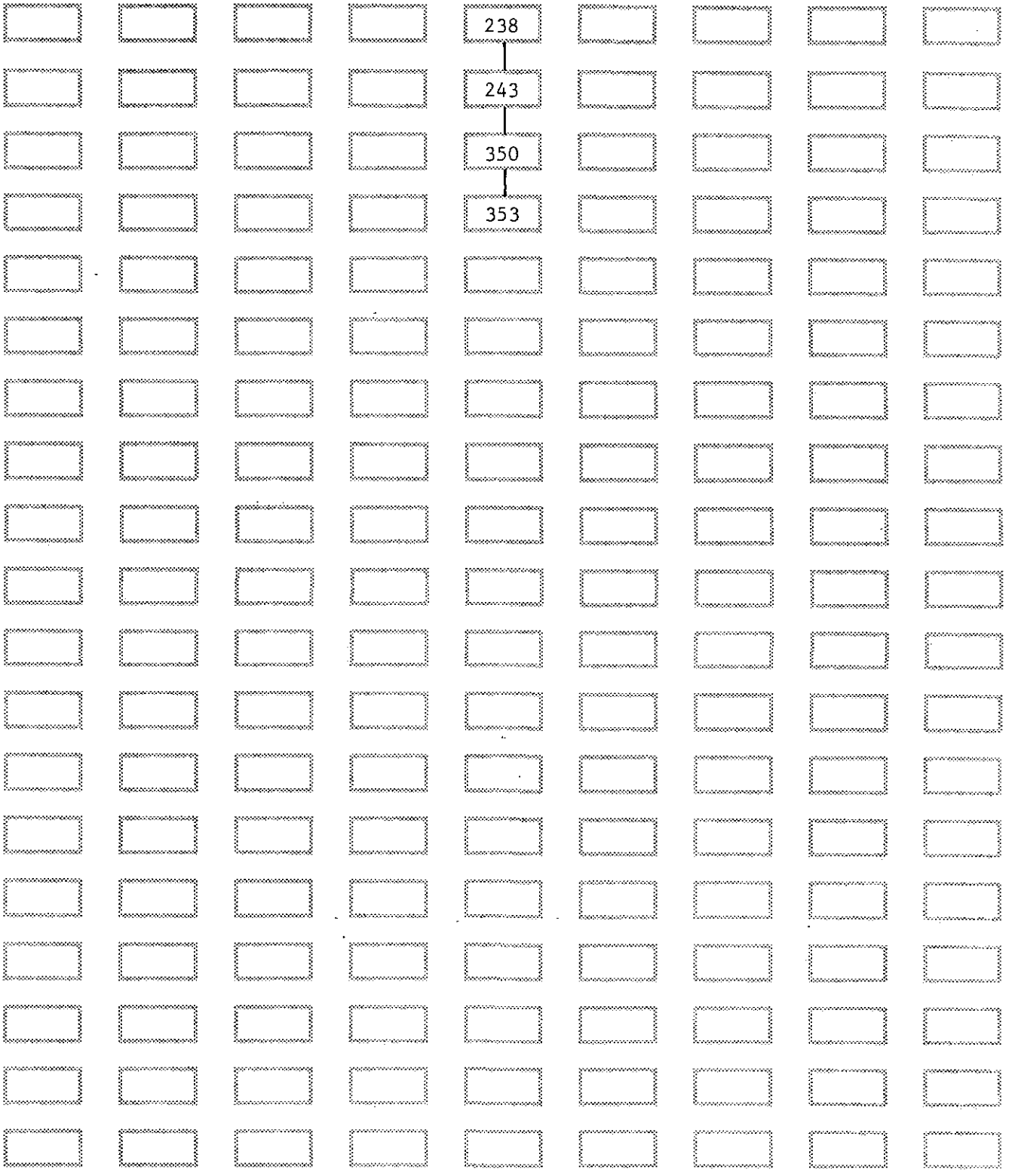


Notes: cx 362--column support beam
cx 363--plank floor

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT L, Lot 9

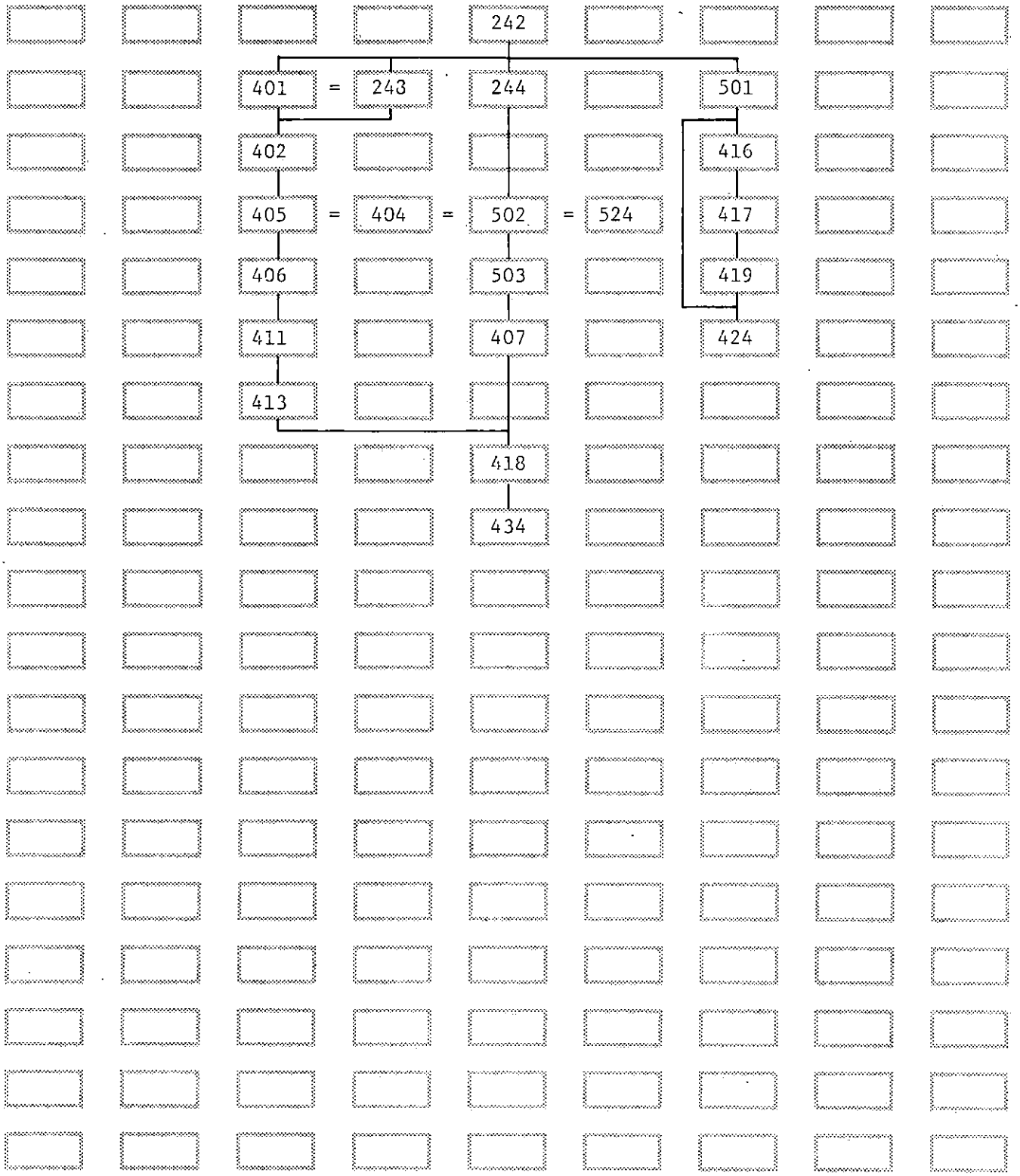




Notes:

HARRIS MATRIX WORKSHEET

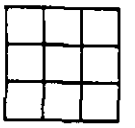
LOCUS: TEST CUT M, Lot 8

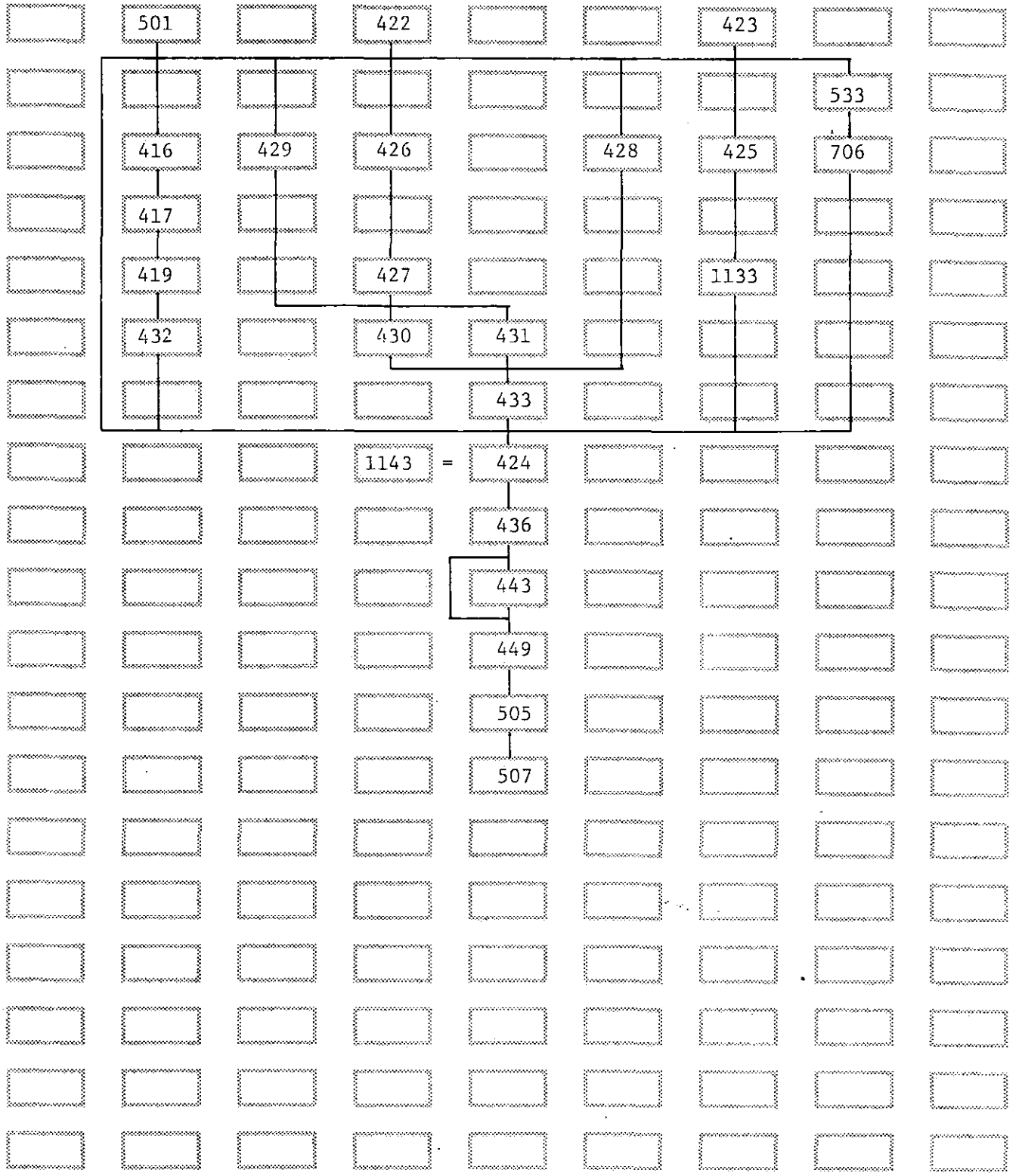


Notes: cx 242--clearing
cx's 416, 417, 419--deposits in privy
cx 424--privy shaft

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUTS M and W, Lot 8 Privy



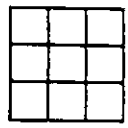


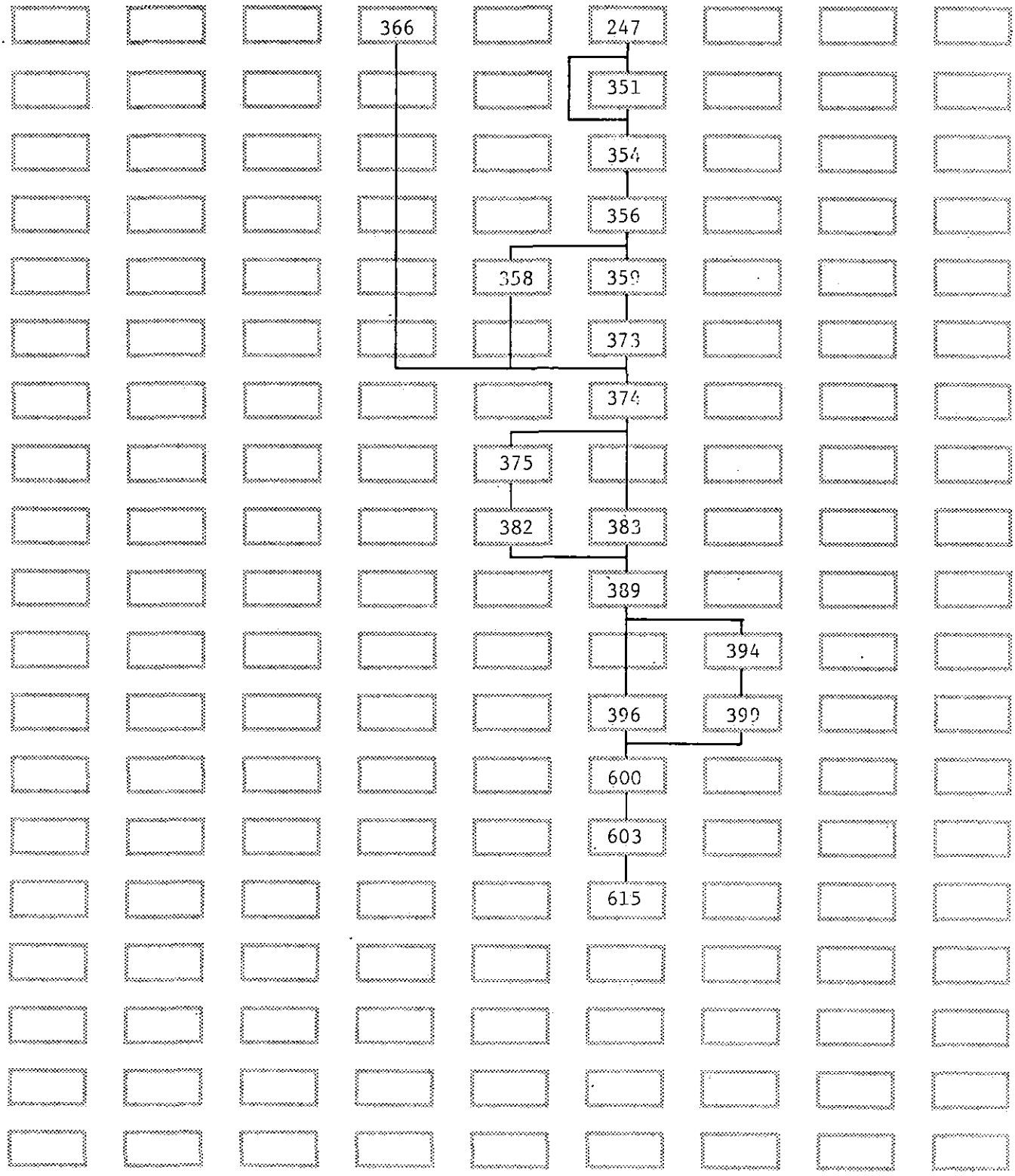
Notes:

cx 424--privy shaft
cx 429--wall collapse
cx 706--timber pile
cx's 416, 417, 419--deposits in privy
cx 1143--soil in privy walls
cx 428--soil column
cx 523--footer beam over cx 706

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT N, Lot 41

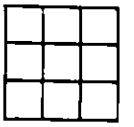


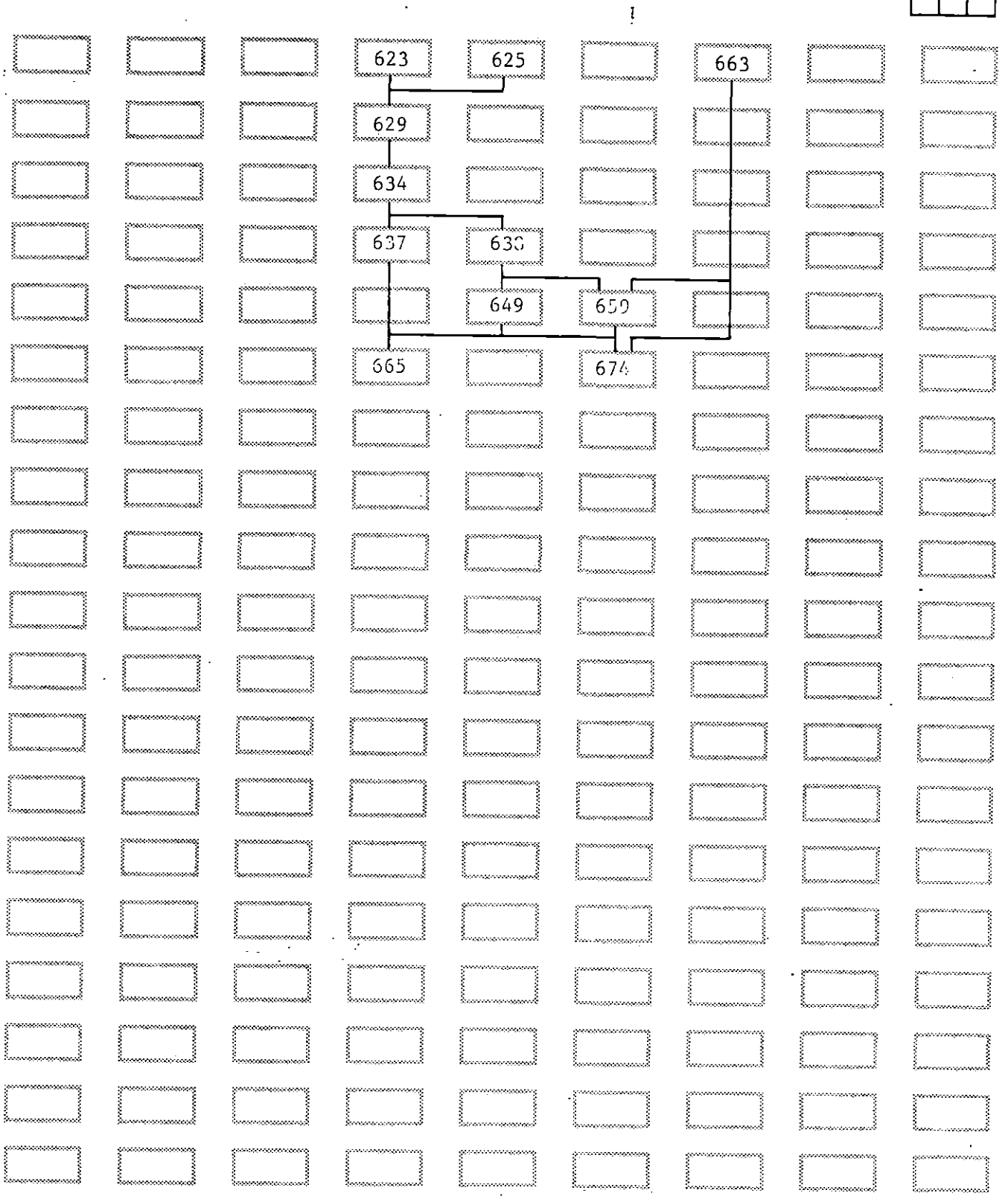


Notes: cx 366--collapse of north and west walls
cx 374--drainage trench
cx 373--cleanup from water seepage
cx 399--spread footers along east wall

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT N2, Lot 41

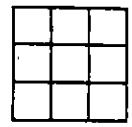




Notes: cx 663--cleanup after looting

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT N3, Lot 41

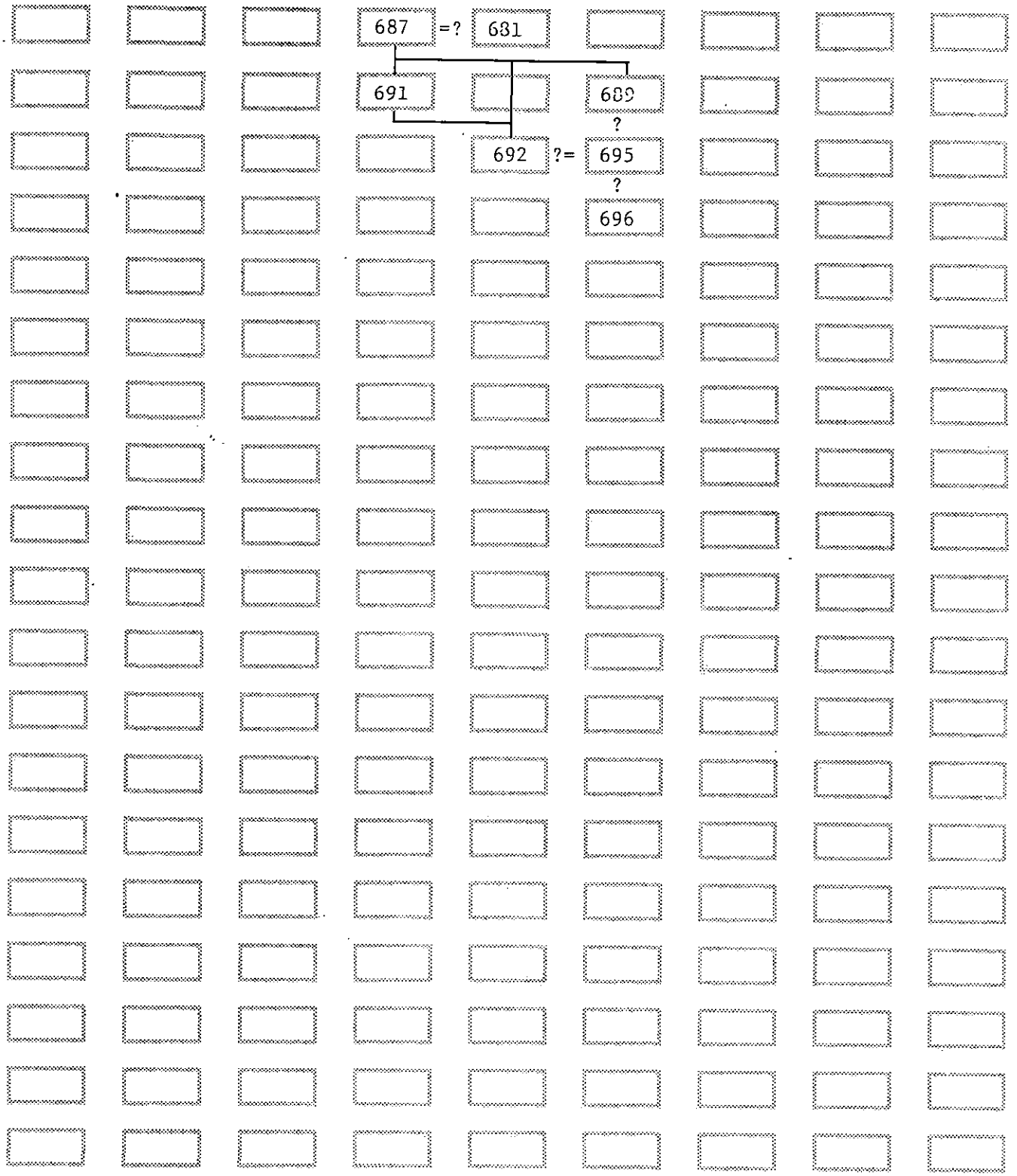


						TCN2		TCN			
				682	675	=	674	=	615		

Notes: field notes too sketchy to permit interpretation of stratigraphy
cx 682--profile collapse
cx 675--profile collapse

HARRIS MATRIX WORKSHEET

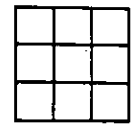
LOCUS: TEST CUT N4, Lot 41

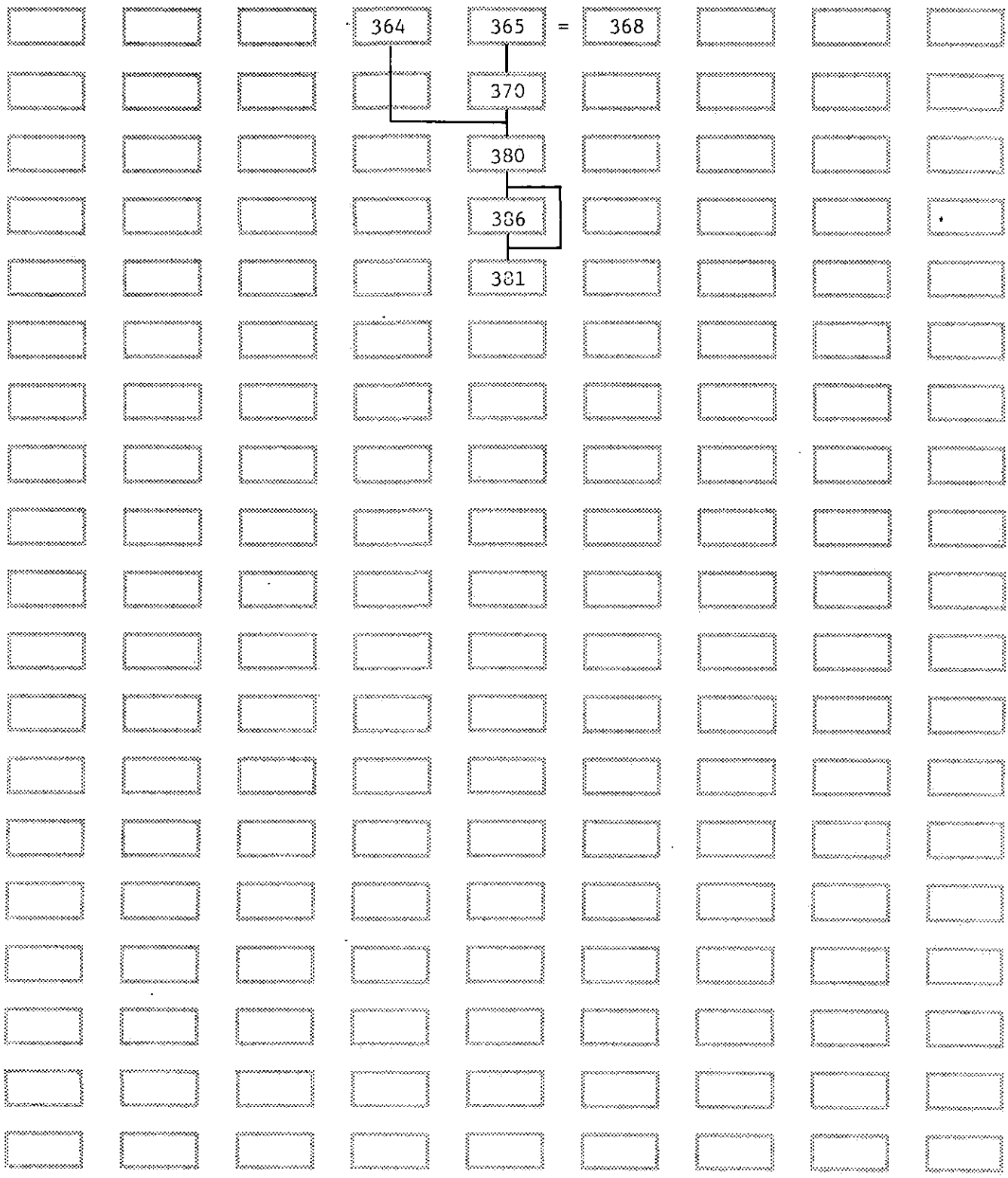


Notes: Test Cut N4 excavated to sample a ceramic deposit
cx 689--"black oil stain" covering part of unit
cx 687--cleanup after removal of wall and spread footers
field notes do not permit complete reconstruction of stratigraphy

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT 0, Lot 9

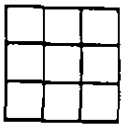


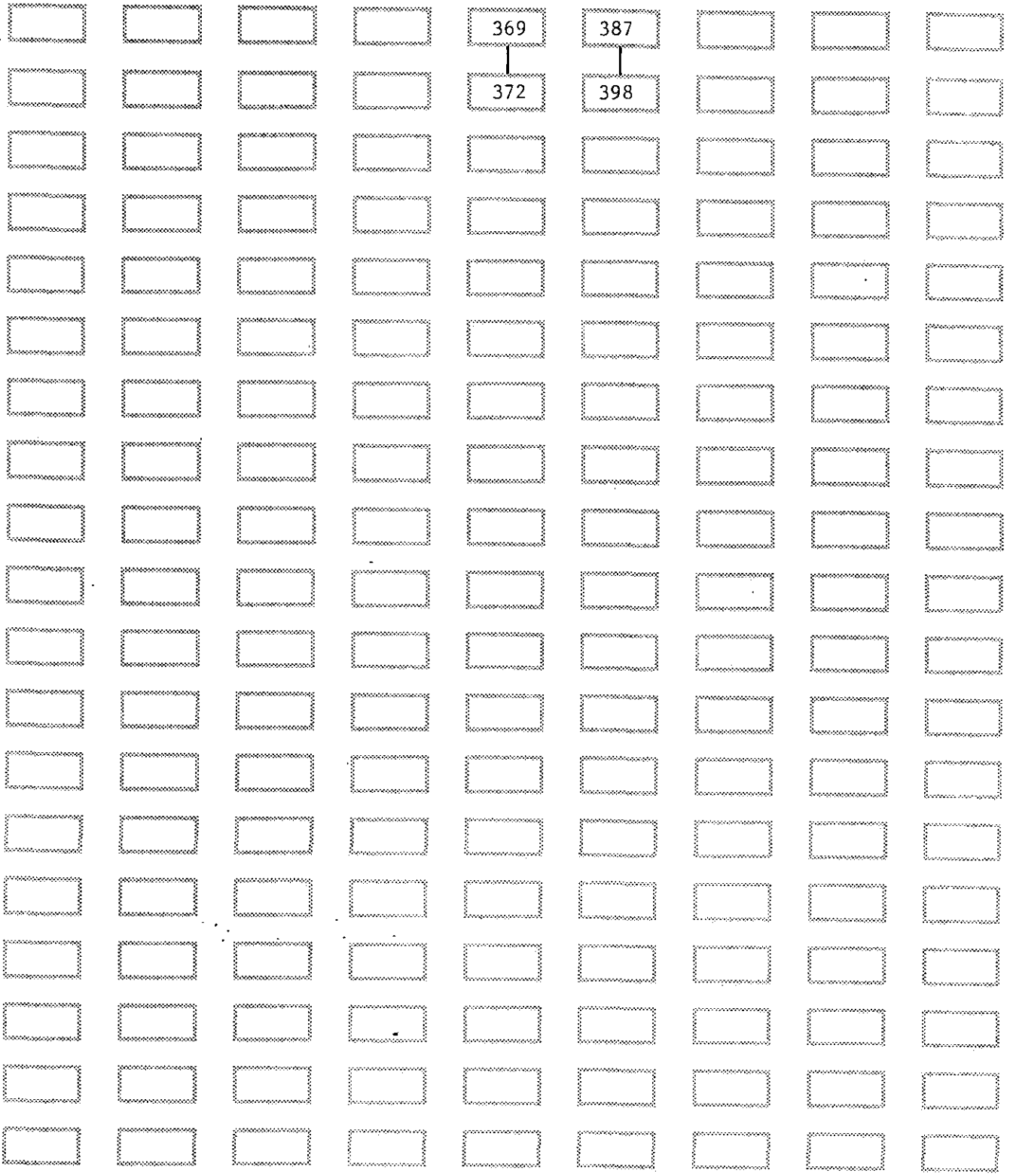


Notes: cx 364--stone column support
cx's 380, 381--footers

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT Q, Lot 9 Wharf Clearing

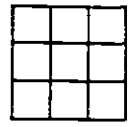


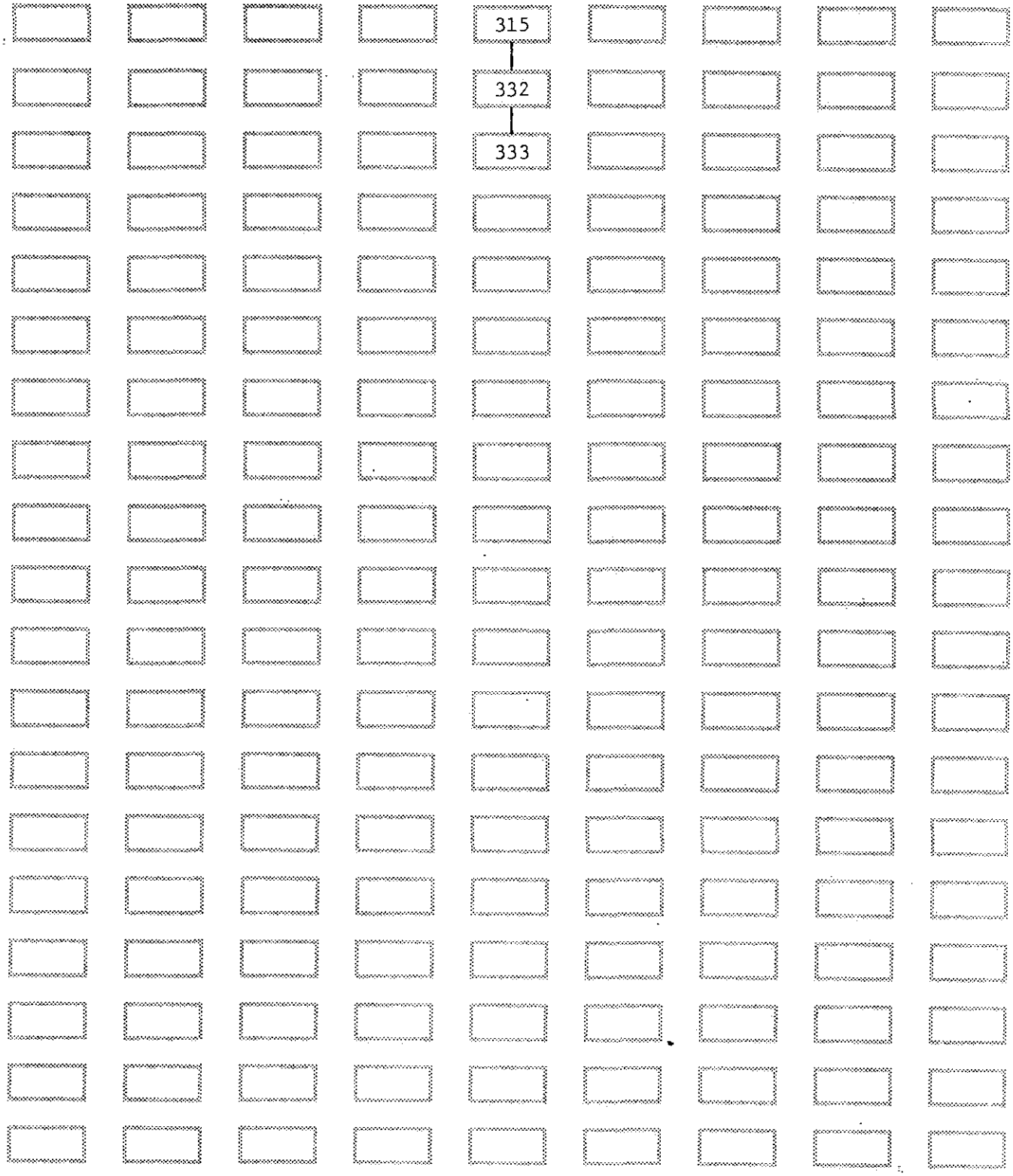


Notes: cx 372--oyster shell deposit
cx 387--oyster shell, pantiles, brick, etc.
cx 398--cobble fill in wharf

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT R, Test Trench East, Lot 43

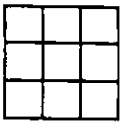


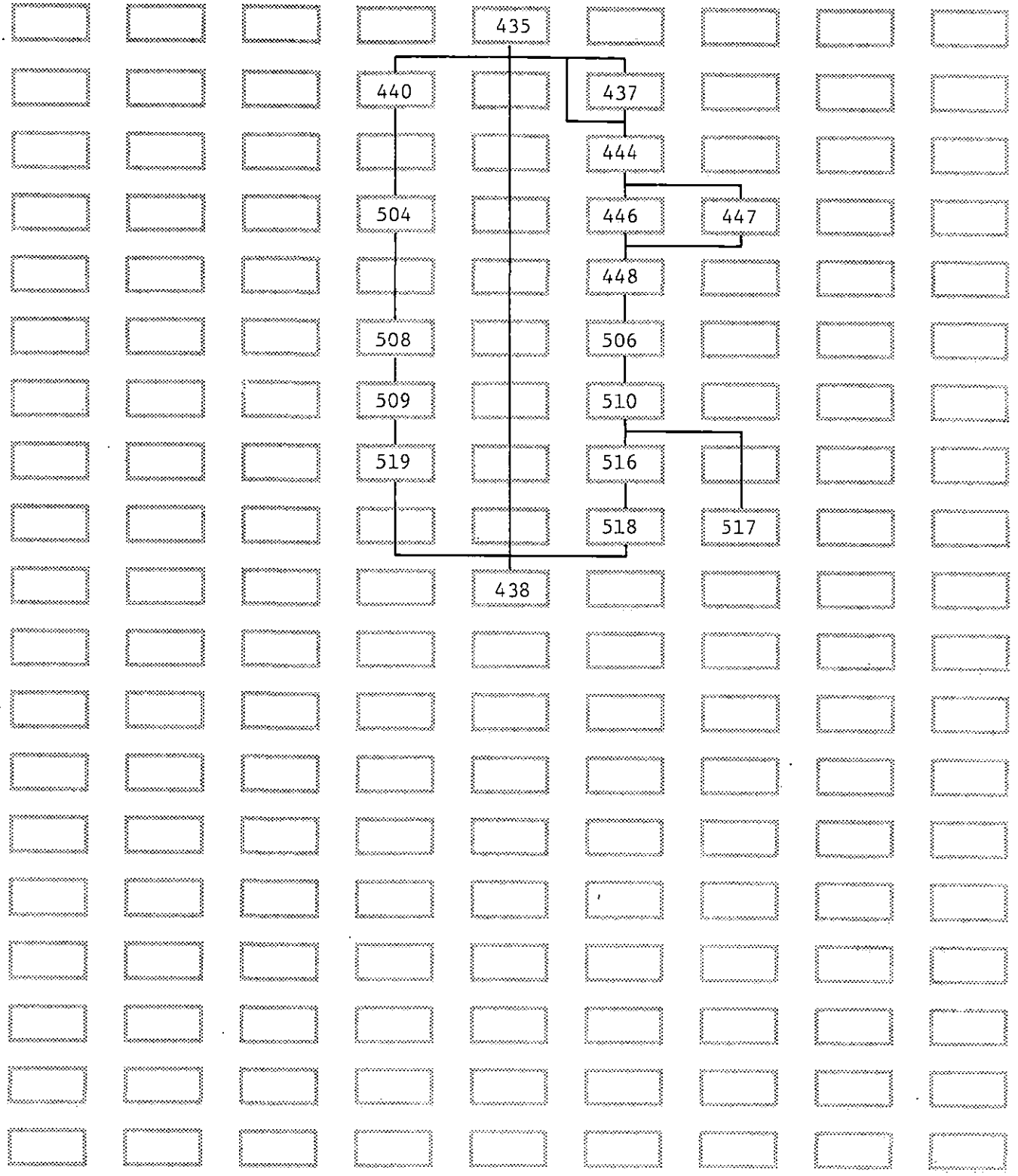


Notes: cx's 332, 333 -- ceramic deposit, adjacent to cx 345 (Test Cut G, Stratum 35, Level A)

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT S, Lot 8

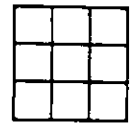


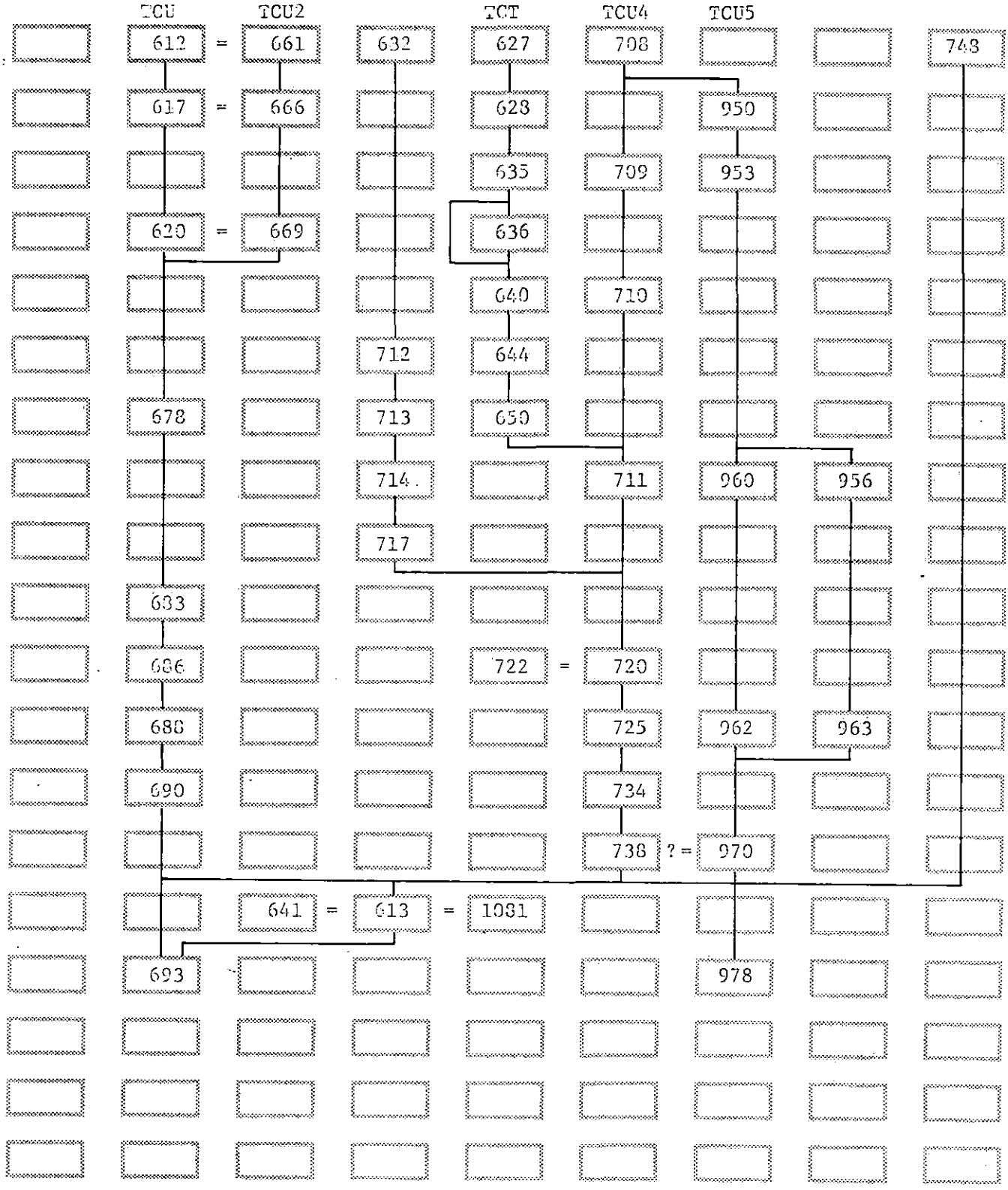


Notes: cx 438--wood bulkhead

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUTS T, U, U2, U4, U5 and U6, Lot 7 Privy

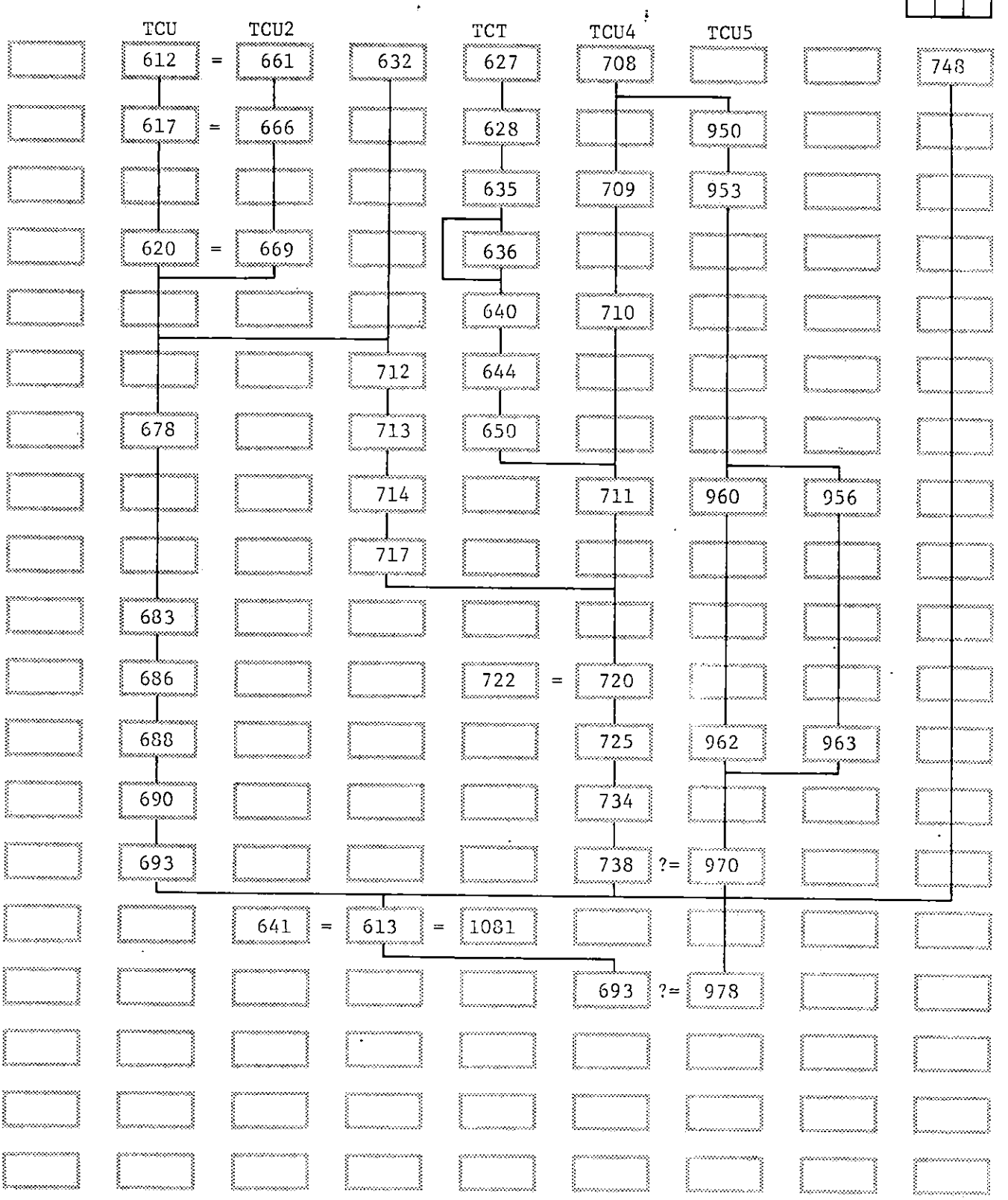




Notes: cx 613=641--stone privy shaft
cx 1081--soil in privy wall
cx 632=767--"flagstone wall" intrusive into privy
cx 956--stone wall intrusive in southwest section of privy--TCU5
cx 748--profile cleaning of TCU4

HARRIS MATRIX WORKSHEET

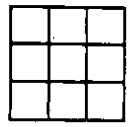
LOCUS: TEST CUTS T, U, U2, U4, U5 and U6, Lot 7 Privy

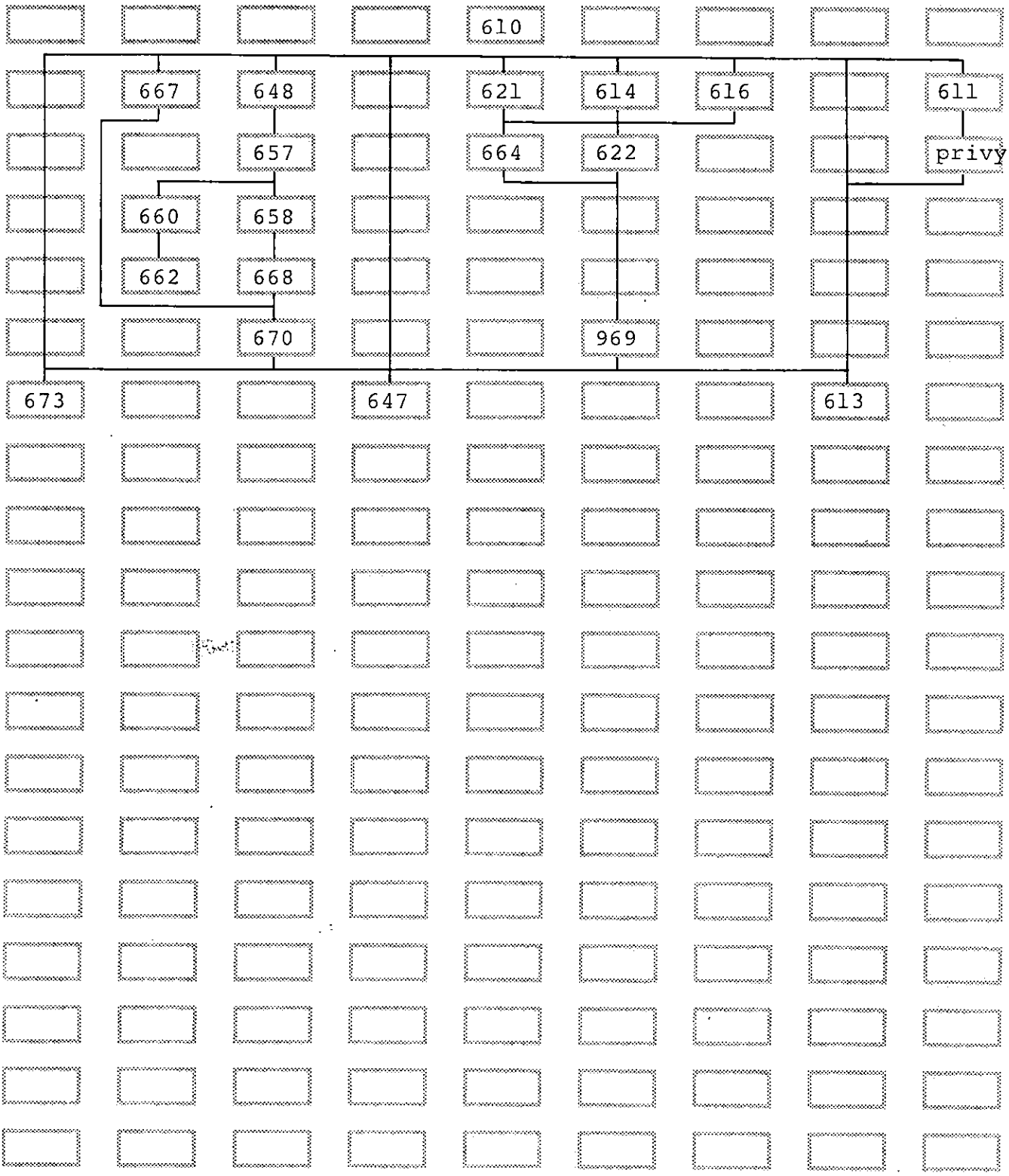


Notes:
cx 613=641--stone privy shaft
cx 1081--soil in privy wall
cx 632=767--"flagstone wall" intrusive into privy
cx 956--stone wall intrusive in southwest section of privy--TCU5
cx 748--profile cleaning of TCU4

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT T, Lot 7 Yard/Landfill

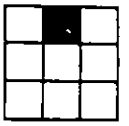


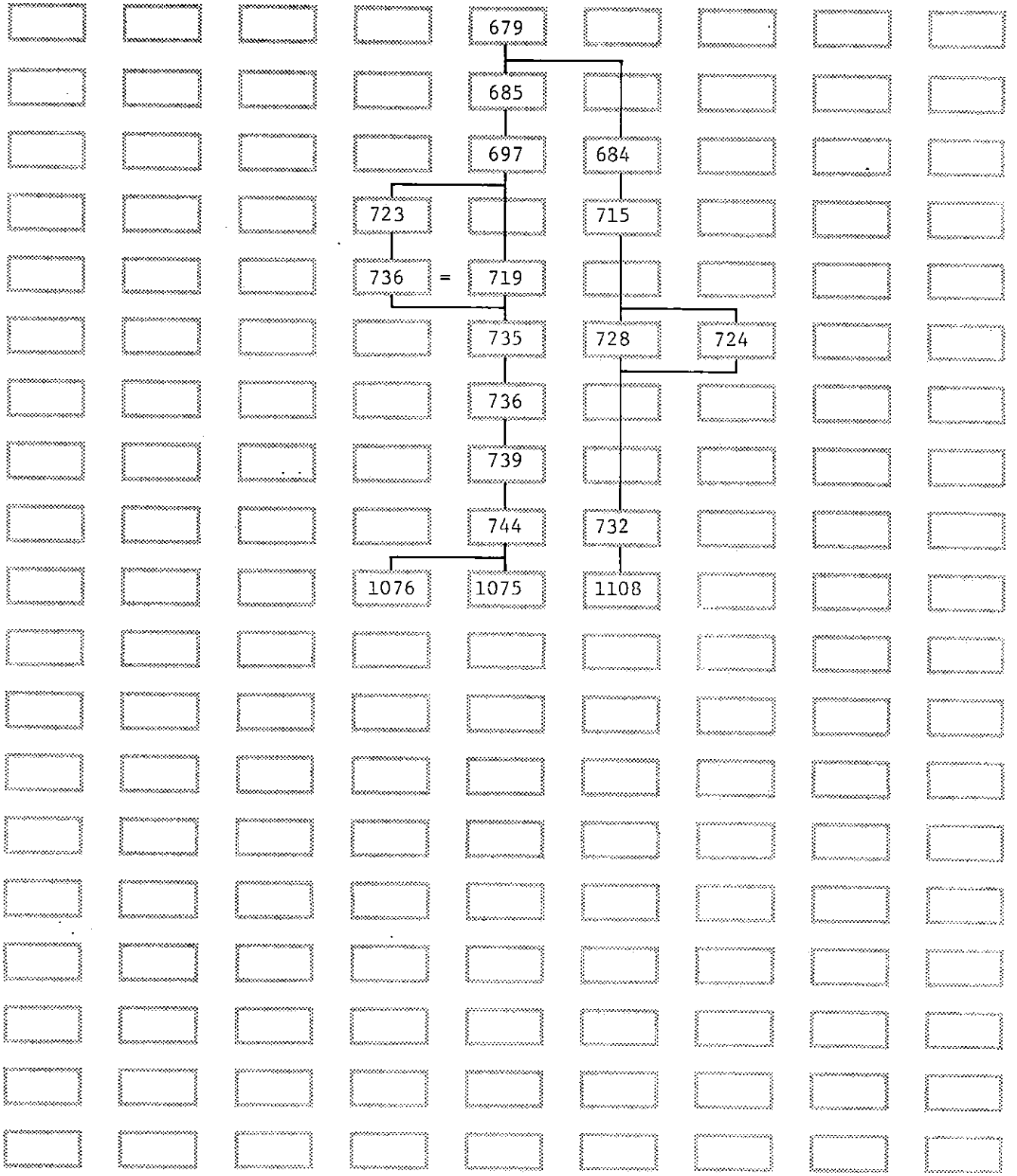


Notes: cx 613--privy wall cx 647--planks across center of unit
cx 673--planks at southern end of unit, north wall of box

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT T2, Lot 7



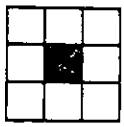


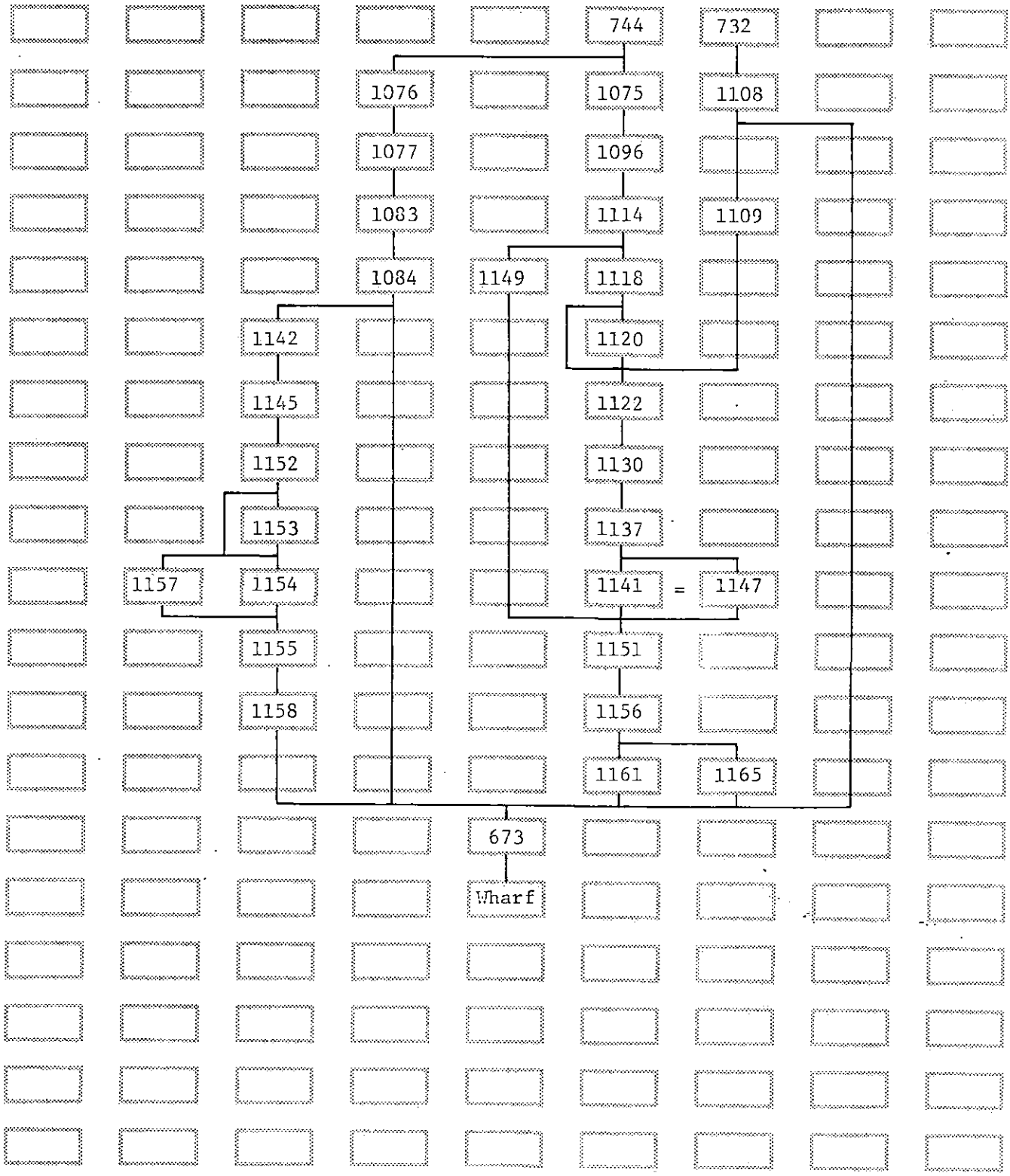
Notes: cx 679--clearing

cx 736--rock deposit

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT T2, Lot 7



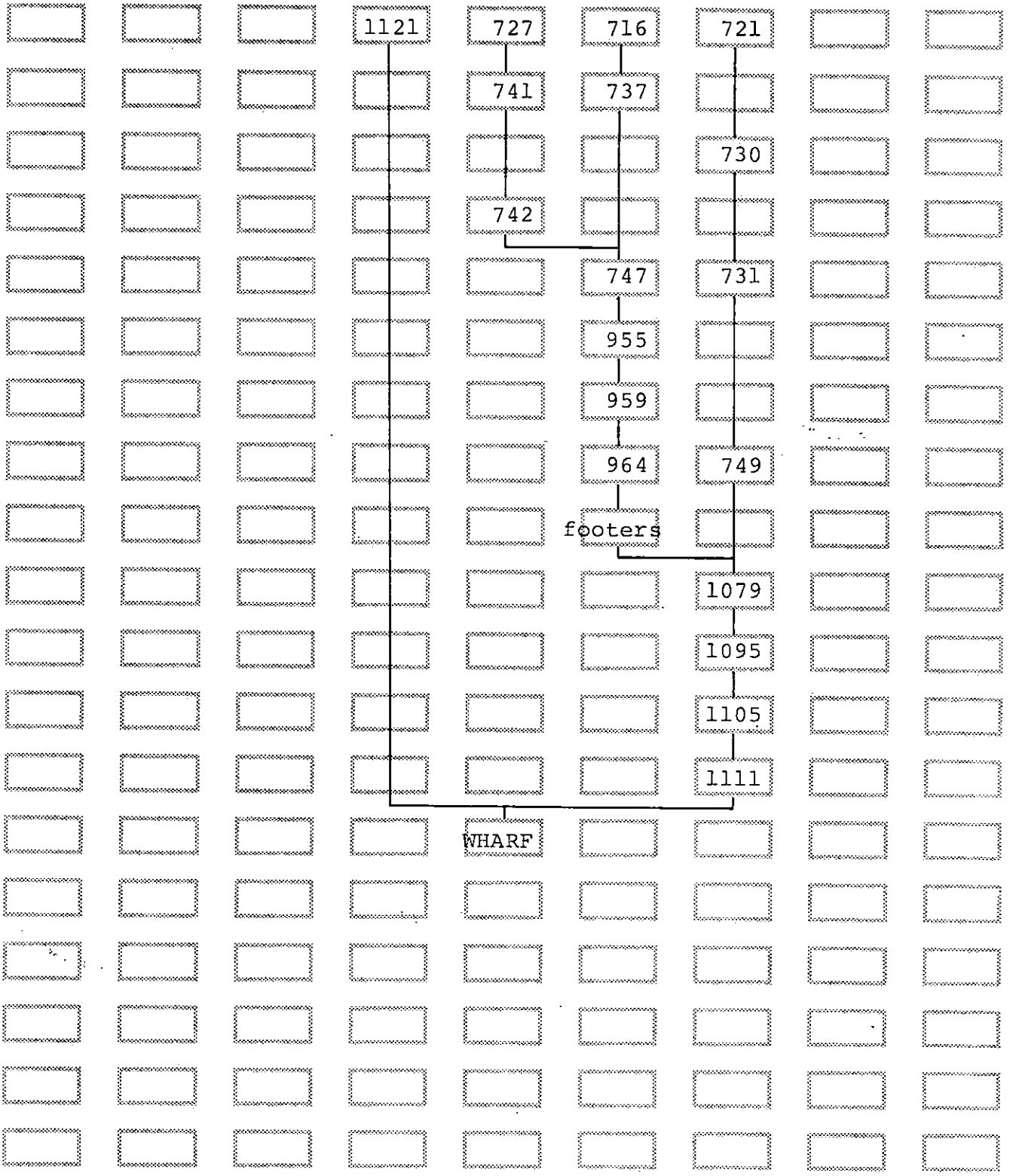


Notes: cx 673--plank wall

cx 1149--wood beam

HARRIS MATRIX WORKSHEET

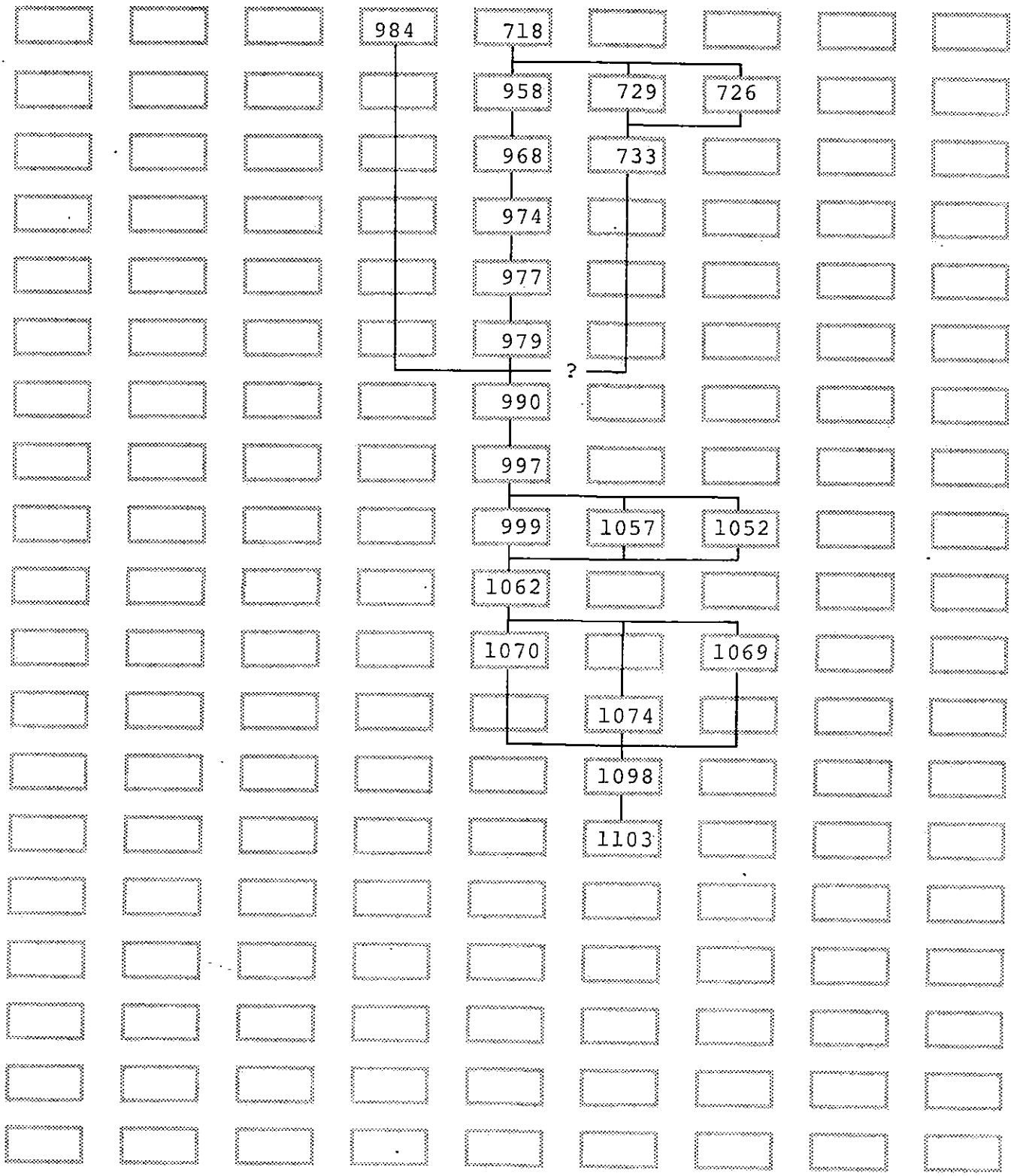
LOCUS: TEST CUT T3, Lot 7 Yard/Landfill



Notes: cx 1121--profile cleaning along north wall of unit

HARRIS MATRIX WORKSHEET

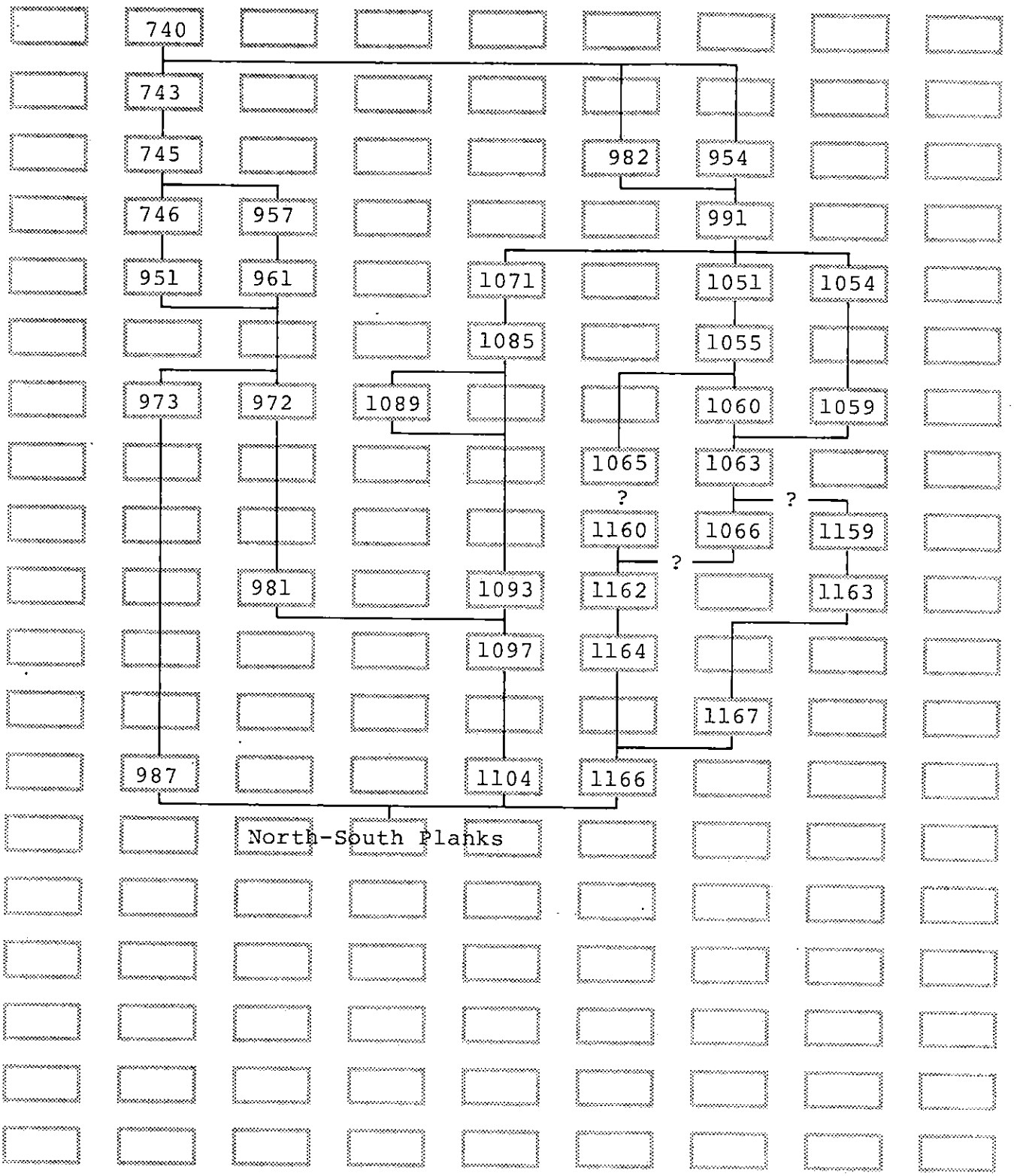
LOCUS: TEST CUT T4, Lot 7 Yard/Landfill



Notes: cx 984--wall cleanup
cx 968--flagstones
cx 958--mortar above flagstones

HARRIS MATRIX WORKSHEET

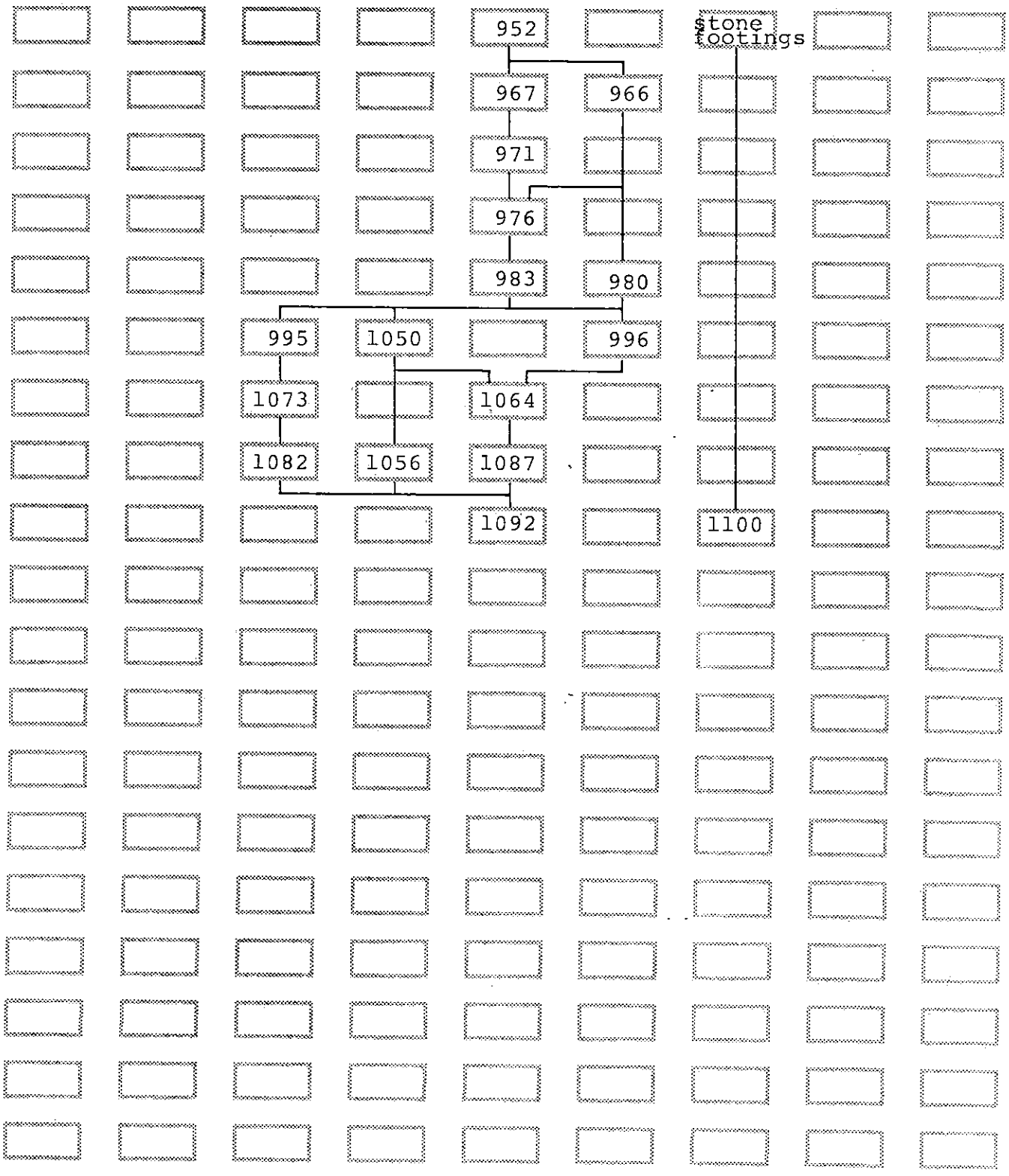
LOCUS: TEST CUT T5, Lot 7 Yard/Landfill and Box



Notes: North-South planks define east wall of box; not given cx no.

HARRIS MATRIX WORKSHEET

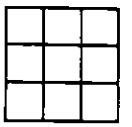
LOCUS: TEST CUT T6, Lot 7 Yard/Landfill

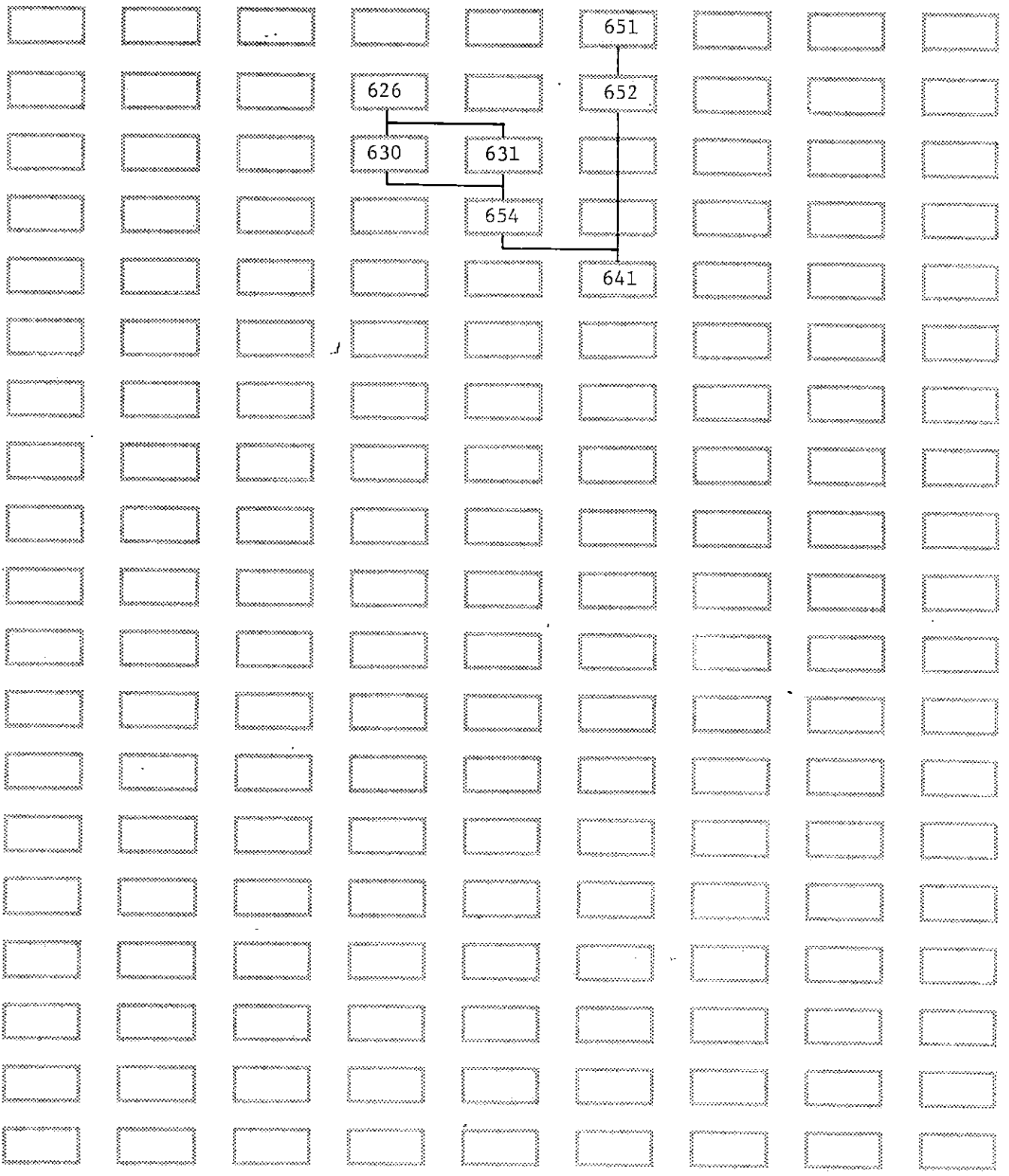


Notes:

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT V, Lot 7 Yard/Landfill

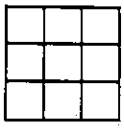


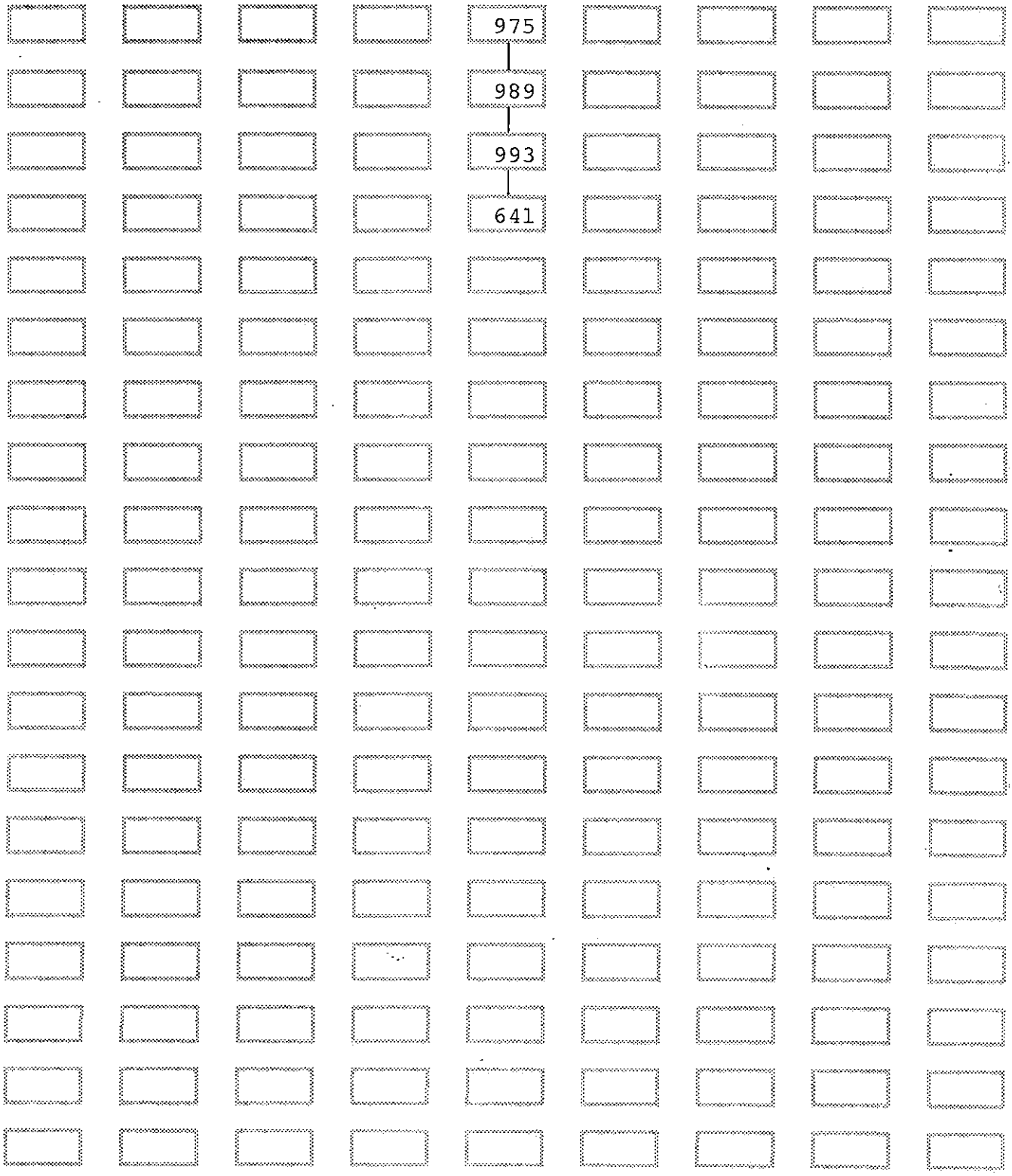


Notes: cx 641--privy wall
cx 652--footer plank
cx 651--beam

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT V2, Lot 7 Yard/Landfill

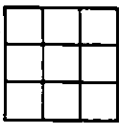


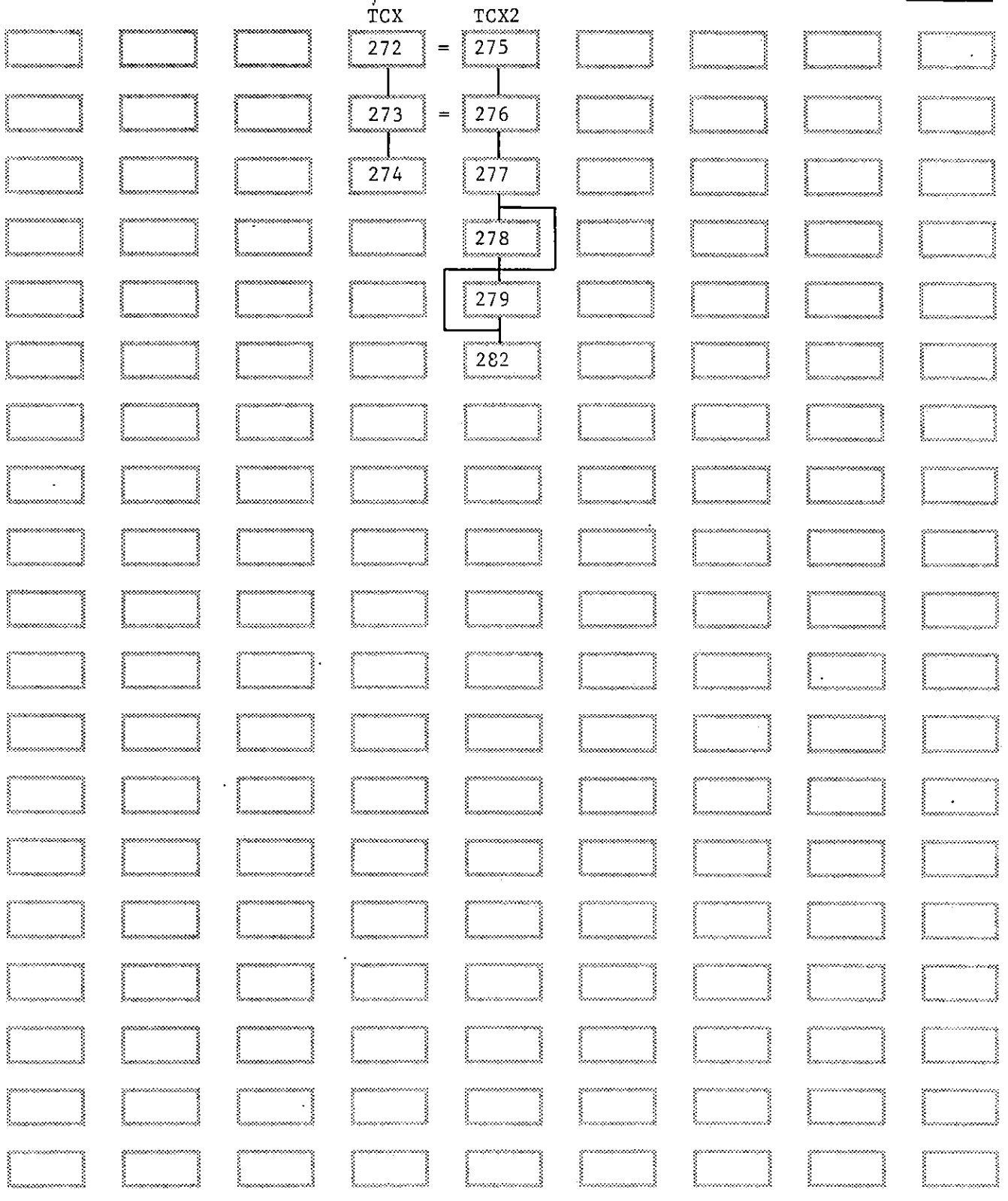


Notes: cx 641--privy wall

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUTS X and X2, Lot 41

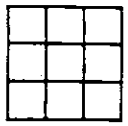


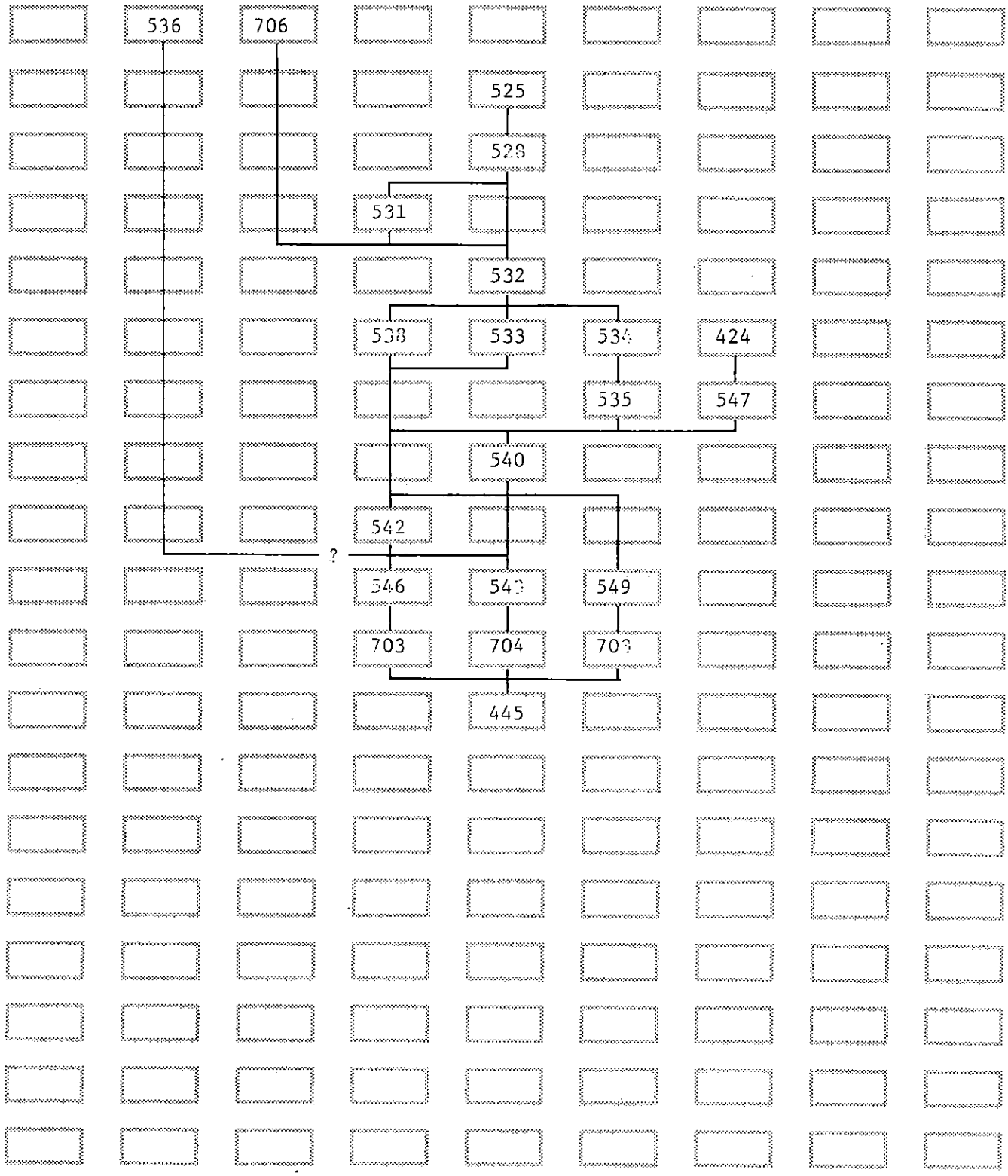


Notes: cx 276--crown glass deposit

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT Y, Lot 42

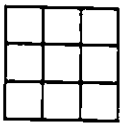


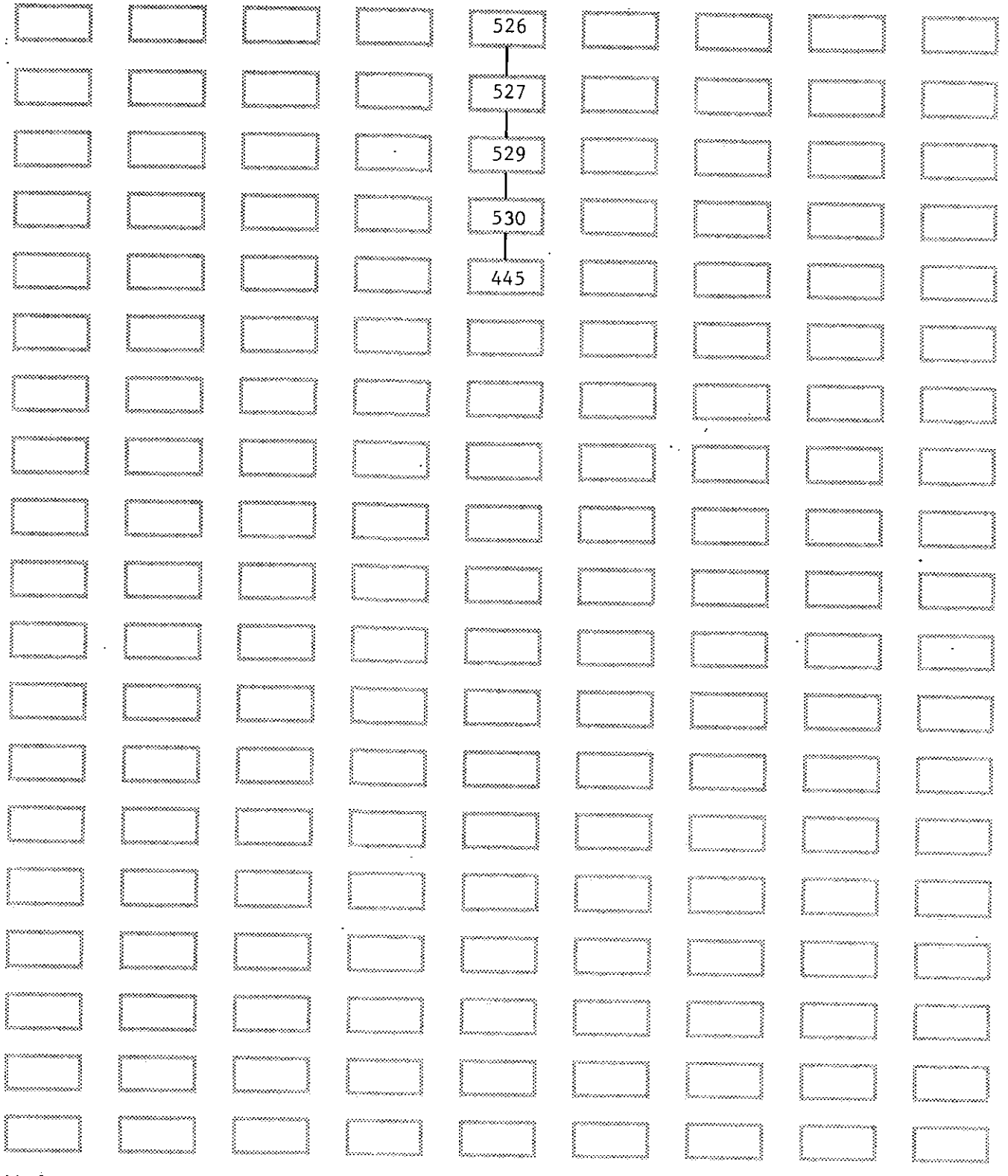


Notes: cx 424--stone privy shaft in Lot 8
cx 445--wood bulkhead
cx 536--spread footers
cx 706--wood beam

HARRIS MATRIX WORKSHEET

LOCUS: TEST CUT Z, Lot 42





Notes: cx 445--wood bulkhead at rear of Lots 8 & 42
unit placed east of bulkhead (cx 445)

APPENDIX 4

ARTIFACT CATALOG
COMPUTER CODES

ASSAY TYPE CODEBOOK

ASSAY SMALLFINDS UTILIZED TYPES

ARCHITECTURE

Building Materials

SAB00	Building Materials - Presence	

Electrical

SAE00	Electrical Related - Presence	

Fasteners

SAF00	Nails - Presence	
SAF01	Nail: Handwrought	E.D. 1820
SAF03	Nail: Square Cut	B.D. 1830
SAF19	Spike - Presence	
SAF98	Misc. Fastener (ie. brad, rivet etc..)	

Glass

SAG00	Architectural Glass - Presence	
SAG01	Window - General	
SAG03	Window - Safety with Wire	B.D. 1891
SAG08	Crown Glass	E.D. 1840

Architectural Hardware

SAH00	Architectural Hardware - Presence	

TILE AND FLOOR COVERING

SAT00	Tile & Floor Cover - Presence	
SAT05	delft-Corner Unknown	Undated
SAT06	delft-Corner Unknown w/ Double Concentric Circles	1660-1850
SAT10	delft-Oxhead/Foliate w/ Double Concentric Circles	1660-1840
SAT19	delft-Tile-Plain Corner	Undated
SAT30	delft-Other Dated	Other Dates

MISCELLANEOUS

SAW00	Wood - Presence	
SAZ00	Misc. Architecture - Presence	

20th CENTURY DEBRIS

SBS00	20th Century Material - Presence	

CLOTHING

Buckles

SCB00	Buckle - Presence	

Cloth

SCC00	Cloth - Presence	

Fasteners

SCF00	Clothing Fasteners - Presence	

Leather

SCL00	Leather - Presence	

Sewing

SCS00	Sewing Related - Presence	
SCS04	Straight Pin - Presence	

Shoes

SCZ00	Shoe Parts - Presence	

KITCHEN

SDA00	Kitchen Related Material - Presence	
SDA17	Utensil - General	
SDA40	Liquor Closure Wire	
SDA42	Cork	

ARMS

Ammuniton

SGB00	Ammunition - Presence	
SGB01	Musket Ball	1500-1850
SGB22	Cannon Ball	

Gunflints

SGW00	Gunflints - Presence	

SMALLFINDS OTHER

SOS01	Unident. Metal	
SOS02	Unident Glass	

SOS03	Melted/Unident. Glass
SOS04	Unident Leather
SOS05	Unident. Glazed Stone (Undressed)
SOS06	Unident. Wood
SOS07	Indigo Dye
SOS08	Rattan/Cane/Wicker
SOS09	Rope/String
SOS10	Rock/Stone
SOS11	Heavy Woven Fabric
SOS13	Plastic
SOS14	Cotton (i.e. non woven fibers)
SOS15	Textile
SOS16	Scat/Coprolite
SOS17	Paper
SOS18	Wax
SOS19	Tar
SOS21	Asphalt Pavement
SOS98	Conglomerate (i.e. materials fused together)
SOS99	Unident. Material

PERSONAL

Coins

SPC00	Coins - Presence
SPC01	Datable - Type Unknown
SPC02	Undatable - Type Unknown

Personal

SPP00	Personal Related Material - Presence

Writing Related

SPW00	Writing Related Material - Presence

FURNISHINGS

Fasteners

SUF00	Furniture Fasteners - Presence

Hardware

SUH00	Furniture Hardware - Presence

Lighting Equipment

SUL00	Lighting Equipment - Presence

Misc. Furnishing Pieces

SUM00	Misc. Furniture Parts - Presence

ACTIVITIES

Heating By-Products

SXA00	Heating By-Product

Barrels/Casks

SXB00	Barrels/Casks - Presence
SXB01	Hoop/Bands
SXB02	Barrel Staves
SXB03	Barrel Hardware
SXB04	Barrel Lid/Base
SXB15	Spigot

Commercial

SXC00	Commercial Related Material - Presence
SXC01	Bale Seal
SXC31	Shipping Ballast (Only large pieces of non native stone and coral)

Household

SXD00	Household Related Material - Presence

Hunting and Fishing Related

SXF00	Fishing Related - General

Hardware (other than furniture and architecture)

SXH00	Hardware - Presence

General Machine Parts

SXM00	Machine Parts - Presence

Recreation/Toys

SXR00	Recreation & Toys - Presence

Shell

SXS00	Shell - Presence

TOOLS

SXT00	Tools - Presence

Assay Utilized Smallfinds Variables

Variable 1 Maker's Mark

999	Unident. Maker's Mark

Variable 3 Materials

001	Ceramic
005	Wax
006	Wood
007	Leather
008	Shell
009	Bone
011	Cork
014	Plastic
023	Linoleum
042	Ferrous Metal
043	Copper
044	Copper Alloy
045	Lead
046	Brass
051	Silver
076	Ivory
078	Tortise Shell
085	Brass & Wood
109	Graphite
110	Slate
129	European Flint
180	Silk

Variable 4 Decoration

001	Faceted
029	Embossed Monogram (Initials)
033	Stamped
039	Stamped Monogram (Initials)
043	Carved
049	Carved Monogram (Initials)
063	Handpainted (Decoration only)
065	Handpainted Geometric
067	Handpainted Figure

Variable 5 Characteristic

001	Whole
002	Portion/Fragment
009	Liner
015	Flat
016	Domed
017	Shank
019	Hollow
020	1 Piece

022	1 Hole
025	4 Holes
035	Handle (All types)
037	Spoon/Fork Handle
038	Spoon Bowl
046	Joined/Hinged
049	Twisted
050	Stitched
051	Cut
058	Stamped
060	Tubular
061	Lettered
062	Perforated
063	Pegged
065	Pressed
070	Grooved/Ridged
074	Carved - Manufactured Not Decorative
076	Shoe without Sole (Just upper part)
077	Sole with Heel
078	Sole without Heel
079	Heel
085	Round/Sphere
087	Rectangular
088	Triangular
091	Cylandrical
092	Cube
100	Painted
103	Veneered
108	Burned
119	Lid/Cap/Top

Variable 6 Color

01	Red
06	Brown
10	Clear
11	Aqua
13	White
14	Blue

ASSAY FAUNAL UTILIZED TYPES

ZAA 00 Faunal General

ZAZ 01 Unidentified Bone

DOMESTIC BIRD

ZBD 01 Unspecified

Galliformes

ZBD 09	Chicken	Gallus gallus
ZBD 10	Rooster	Meleagris gallopavo

EXPLOITED (Domestic/Wild Bird)

Galliformes

ZBE 05 Chicken/Turkey
ZBE 20 Turkey (prior to mid-nineteenth century)
ZBE 24 Grouse

Ansiformes

ZBE 30 Duck
ZBE 40 Goose

WILD BIRD

ZBW 01 Unspecified
ZBW 02 Small Bird - Unspecified
ZBW 03 Medium - Unspecified

Columbiforms

ZBW 05 Pigeon

Charadriforms

ZBW 60 Sandpiper

UNIDENTIFIED BIRD

ZBZ 01 Unspecified
ZBZ 02 Small Bird - Unidentified
ZBZ 03 Medium Bird - Unidentified
ZBZ 04 Large Bird - Unidentified

PHYLUM ARTHROPODA

CLASS CRUSTACEA

SUBORDER MALACOSTRACA

ORDER DECAPODA

ZKD 01 CRAB

PHYLUM - CHORDATA

CLASS MAMMALIA

DOMESTIC MAMMAL

ZMD 01 Unspecified
ZMD 03 Small-Medium
ZMD 04 Medium
ZMD 05 Medium-Large
ZMD 06 Large

Carnivora

ZMD 10	Cat	Felis catus

Artiodactyla

ZMD 30	Sheep/Goat	
ZMD 35	Sheep	Ovis ares
ZMD 60	Pig	Sus scrofa
ZMD 70	Cow	Bos

Perissodactyla

ZMD 90	Horse	Equus caballus

FAUNAL CODES

PHYLUM - CHORDATA
CLASS MAMMALIA - ZM G/CL

RODENT - ZMR 11/98

ZMR 01 Unspecified
ZMR 02 Small

Rodentia
ZMR 10 Mouse Mus
ZMR 15 Mouse/Rat
ZMR 20 Rat Rattus

WILD MAMMAL

Lagomorpha

ZMW 15 Rabbit Oryctolagus cuniculus

UNIDENTIFIED MAMMAL - ZMZ 11/99

ZMZ 01 Unidentified Other
ZMZ 02 Small Mammal - Unspecified

PHYLUM - CHORDATA

CLASS OSTEICHTHYES

ANADROMOUS FISH

ZPA 01 Salmon

FRESHWATER FISH

ZPF 50 Sturgeon

SALTWATER FISH

ZPS 01 Unspecified
ZPS 20 Cod
ZPS 30 Croaker/Seatrout
ZPS 39 Porgy
ZPS 40 Sheepshead

UNIDENTIFIED FISH

ZPZ 01 Unidentified
ZPZ 02 Small - Unidentified
ZPZ 03 Medium - Unidentifed
ZPZ 05 Large - Unidentified

PHYLUM - CHORDATA

CLASS REPTILIA

Testudines

ZRT 01 Unspecified
ZRT 49 Tortoise

PHYLUM MOLLUSCA

CLASS PELECYPODA

ZXP 00 Presence
ZXP 01 Oyster/Clam

CLASS CEPHALOPODA

UNIDENTIFIED SHELL

ZXZ 01 Unspecified

Assay Utilized Faunal Variables

Variable 1 Cut

01 Steakbone
04 Steakbone - 3/8" Thick
17 Steakbone - Sirloin
19 Steakbone - Chuck

Variable 3 Butchered

01 Sawed
03 Cut Mark(s) On Body
04 Spiral Fracture
06 Sawed Both Ends
07 Sawed Diagonally
08 Chopped
09 Cut
10 Bisected Vertically
11 Sawed Two Sides
12 Bisected
13 Bisected And Sawed
14 Quartered And Sawed
15 Sawed, Cut Mark(s) On Body
16 Sawed Distal End, Cut Mark(s) On Body
17 Sawed Proximal End
21 Chop And Cut Mark(s) On Body
22 Chopped Diagonally
23 Chopped Vertically
24 Chopped Diagonally, Parallel Cut Marks On Body
25 Sawed Proximal End, Chop And Cut Mark(s) On Body
26 Sawed Diagonally, Parallel Cut Mark(s) On Body
30 Parallel Cut Marks On Body
50 Horizontal Cut(s) Across Ascending Ramus

Variable 4 Age

01 Young
03 Immature
05 Adult
12 Milk Teeth
15 Unfused
16 Fused
17 Partially Fused
18 Epiphysial Suture Visible
19 Proximal/Distal Unfused
23 Proximal Unfused/Distal Fused
26 Unfused Diaphysis(es)
27 Unfused Distal Diaphysis
28 Unfused Proximal Diaphysis
30 Unfused Acromium Process

Variable 5 Element

Cranial
001 Cranial
003 Horn Core
006 Maxilla
007 Mandible
009 Left Mandible
010 Incisor
012 Premolar
013 Molar
015 Tusk
016 Tooth
020 Zygomatic Arch
025 Ossified Trachea

Vertebra
030 Vertebra
031 Atlas
032 Axis
033 Cervical Vertebra
034 Lumbar Vertebra
035 Caudal Vertebra
036 Thoracic Vertebra
038 Rib
039 Sacrum

Pectoral Girdle
049 Sternum
050 Scapula
051 Clavicle
052 Coricoid
053 Coricoidal Process

Fore Limb
059 Radius/Ulna
060 Humerus
061 Radius
062 Ulna
064 Metacarpal
065 Carpometacarpus

Metapodial
066 Metapodial
075 Navicular
076 Sesamoids
077 Phalange
078 Hoof
080 Astragalus
081 Calcaneus
085 Metacarpal/tarsal
086 Carpal/Tarsal

Pelvic Girdle
089 Pelvis

091 Ilium
093 Ischium
095 Acetabulum
096 Ilium and Ischium
097 Ilium, Ischium, Pubis
098 Ischium, Pubis

Hind Limb
100 Femur
101 Tibia
102 Fibula
103 Patella
104 Metatarsal
105 Tarsal
106 Tibiotarsus
107 Tibia/Fibula
109 Tarsometatarsus
110 Tarsometatarsus with tallus

Other

120 Longbone
122 Egg Shell Fragments

Fish
129 Otolith
130 Scale
138 Orbitoshpenoid
140 Dentary
141 Premaxilla
142 Articular
143 Pharyngeal Mill
150 Operculum
155 Post-temporal
161 Scute

Turtle
200 Carapace

Arthropod
300 Claw
998 Possibly Identifiable
999 Unidentified

Variable 6 Portion

01 Whole
02 Fragment
03 Section (sawed into shape)
04 Partial (over 50% present)
05 Shaft
06 Proximal Fragment
07 Distal Fragment
08 Proximal Section

09 Distal Section
10 Proximal Epiphysis
11 Distal Epiphysis
12 Epiphysis
13 Proximal And Distal Epiphysis
15 Proximal Epiphysis And Diaphysis
16 Distal Epiphysis
17 Diaphysis With Unfused Epiphysis
19 Spongy Tissue
20 Whole With Proximal Epiphysis
21 Distal Diaphysis And Epiphysis
22 Whole With Dystal Epiphysis
40 Blade Section
41 Shaft Section
60 Segment

Variable 7 Burn

01 Presence
03 Charred/Black
04 Calcined
05 Blue
06 Charred And Calcined
10 Partially Burned
50 Polished, Flaking Cortex (Baking/Roasting Related)

Variable 8 Gnawing

01 Presence
03 Rodent
04 Canine
05 Rodent And Canine
10 Carnivore
20 Cat

Variable 9 Weathering

01 Presence
03 Eroded Cortex
06 Water Worn
07 Bleached
08 Leached
10 Flaking Cortex
12 Porous
15 Mineralized

ASSAY GLASS UTILIZED TYPES
ALCOHOLS-BOTTLE

GBA 01 WINE BOTTLE
GBA 03 WINE/LIQUOR BOTTLE
GBA 06 WINE/LIQUOR BOTTLE WITH SEAL
GBA 12 CHAMPAGNE
GBA 19 CASE BOTTLE

FOODS

GBF 08 OLIVE OIL WITH SEAL
GBF 09 MUSTARD

MALTS

GBM 05 BEER/ALE/STOUT/PORTER

PHARMACEUTICAL/APOTHECARY-GENERAL

GBP 02 APOTHECARY BOTTLE/JAR

PHARMACEUTICAL/APOTHECARY-MEDICINES

GBP 03 VIAL
GBP 06 PATENT/PROPRIETARY MEDICINE/DRUG

PHARMACEUTICAL/APOTHECARY-OTHER BOTTLE/JAR

GBP 65 SNUFF

STORAGE/UTILITARIAN

GBS 03 BULK BOTTLE
GBS 04 CARBOY/DEMIJOHN/BULK BOTTLE
GBS 05 FLACON

UNIDENTIFIED

GBU 01 UNIDENTIFIED BOTTLE GLASS/GENERAL

MISCELLANEOUS-BOTTLE

GBX 05 JAR/GENERAL

MISCELLANEOUS-BOTTLE ASSOCIATED

GBX 75 STOPPER/GENERAL

OTHER BEVERAGES

GBZ 02 MILK

GLASS-LIGHTING

LAMP-GENERAL

GLL 23 LAMP CHIMNEY

GENERAL-OTHER

GOG 01 FUNNEL

UNIDENTIFIED-OTHER

GOU 01 TOTAL UNIDENTIFIED GLASS/GENERAL

GLASS-TABLE
TABLEWARE GENERAL

GTG 05 BOWL
GTG 08 SALT CELLAR
GTG 11 DECANTER

MUGS/TANKARDS/CUPS (GTM)

GTM 02 MUG/ENGRAVED-STIEGEL TYPE
GTM 30 CUP WITH HANDLE

STEMWARES/DRINKING-FRAGMENTS

GTS 01 STEMWARE FRAGMENT/GENERAL
GTS 02 STEMWARE FRAGMENT/FOOT
GTS 03 STEMWARE FRAGMENT/FOOT-STEM
GTS 04 STEMWARE FRAGMENT/STEM
GTS 05 STEMWARE FRAGMENT/BOWL BODY
GTS 07 STEMWARE FRAGMENT/BOWL RIM

STEMWARES/DRINKING-PANELLED/FLUTED/FACETED STEMS

GTS 12 HEXAGONALLY CUT DIAMOND FACETED STEM
GTS 13 HEXAGONALLY CUT FACETED STEM W/BRIDGE FLUTING

STEMWARES/DRINKING-PLAIN/STRAIGHT/SOLID STEMS

GTS 56 PLAIN DRAWN STEM
GTS 60 SHORT STEM W/CENTRAL FLATTENED KNOP
GTS 61 SHORT STEM W/V-SHAPED COLLAR

STEMWARES/DRINKING-BALUSTER/BALUSTROID STEMS

GTS 78 SOLID INVERTED BALUSTER STEM W/ ANNULAR KNOP ABOVE

TUMBLERS-FRAGMENTS

GTT 02 TUMBLER FRAGMENT/BASE
GTT 03 TUMBLER FRAGMENT/BODY
GTT 04 TUMBLER FRAGMENT/RIM

TUMBLERS-UNDECORATED/DECORATED-GENERAL

GTT 11 TUMBLER/UNDECORATED GENERAL
GTT 12 TUMBLER/DECORATED GENERAL
GTT 14 SHOT GLASS/DECORATED GENERAL

TUMBLERS-DECORATED/SPECIFIC

GTT 41	TUMBLER/PANELLED
GTT 42	TUMBLER/PANELLED-STIEGEL TYPE
GTT 44	TUMBLER/BASAL FLUTED
GTT 49	TUMBLER/ENGRAVED-STIEGEL TYPE
GTT 62	TUMBLER/ENAMELLED-STIEGEL TYPE

UNIDENTIFIED

GTU 01	UNIDENTIFIED TABLE GLASS/GENERAL
GTU 02	UNIDENTIFIED TABLE GLASS/FOOTED
GTU 04	UNIDENTIFIED TUMBLER/STEMWARE RIM
GTU 05	UNIDENTIFIED TUMBLER/STEMWARE BODY
GTU 06	UNIDENTIFIED TABLE GLASS/ENGRAVED-STIEGEL TYPE

MISCELLANEOUS-TABLEWARE ASSOCIATED

GTX 02	FINIAL
GTX 04	HANDLE
GTX 05	LID OR COVER
GTX 75	STOPPER/GENERAL

Assay Utilized Glass Variables

Variable 3 Wear

9.	MELTED/BURNED

Variable 4 Motif

1.	PANEL
2.	FLUTE
3.	RIB (GENERAL)
4.	RIB (VERTICAL)
17.	SUNBURST
22.	DIAMOND
23.	RELIEF DIAMOND
27.	STIPPLE
30.	FLORAL/GENERAL
38.	HONEYCOMB
120.	THREADED
190.	WHEEL ENGRAVED
192.	CUT
194.	WHEEL/DIAMOND POINT ENGRAVED
220.	GILDED
350.	EIGHT PANELS
6000.	ALTERNATING FIGURES, ELLIPSE-LIKE AND DIAMOND-SHAPED, FORMED BY INTERSECTING ARCS OF CIRCLES; WITH AND WITHOUT DIAMOND-CUT TRELLIS WORK FILLING THE ELLIPSES AND WITH DOTS AND TREFOIL ORNAMENTS ENGRAVED IN THE ANGLES FORMED BY THE INTERSECTING

ARCS; USUALLY A SINGLE WAVY LINE ENGRAVED AS A BORDER ABOVE. HUNTER TYPE I (SEE GRAPHICS FOR VARIANTS).

6005. VINE BORDER. HUNTER TYPE VI (SEE GRAPHIC).

6007. TWO HANDLED BASKET CONTAINING PLANT OR FLOWERS; BASKET WORK IN DIAMOND POINT. HUNTER TYPE VIII (SEE GRAPHICS).

6014. NO DESCRIPTION (SEE GRAPHIC).

6015. NO DESCRIPTION (SEE GRAPHIC).

6016. NO DESCRIPTION (SEE GRAPHIC).

6017. NO DESCRIPTION (SEE GRAPHIC).

6018. NO DESCRIPTION (SEE GRAPHIC).

6019. NO DESCRIPTION (SEE GRAPHIC).

6020. NO DESCRIPTION (SEE GRAPHIC).

6021. NO DESCRIPTION (SEE GRAPHIC).

Variable 5 Manufacturing Technique

1. MOLD-BLOWN (MOLD TYPE INDETERMINATE)
2. FREE-BLOWN
7. TWO-PIECE HINGED BOTTOM MOLD
9. DIP MOLD
11. PATTERN MOLD (GENERAL)
14. PIECE MOLD - TWO PIECE PATTERN MOLD (EXPANDED)
15. PIECE MOLD - THREE PIECE WITH DIP MOLD BODY
16. PIECE MOLD - THREE PIECE WITH DIP MOLD BODY AND LETTERED RING MOLD
17. PRESSED
21. THREE PART MANUFACTURE
25. FREE-BLOWN AND CUT
29. MOLD-BLOWN (FOR PATTERN) AND ENGRAVED
30. FREE-BLOWN, CUT AND ENGRAVED
31. FREE-BLOWN AND ENGRAVED
32. FREE-BLOWN AND ENAMELLED

Variable 6 Color

1. CLEAR (OR WHITE)
2. MILKGLASS (OR OPAQUE WHITE)
5. LIGHT OLIVE/DARK OLIVE GREEN
7. BROWN/AMBER/HONEY
8. OLIVE/AMBER
9. AQUAMARINE (ALL SHADES)
10. AMETHYST/PURPLE
11. AMETHYST TINT (OR SOLARIZED)

12. COBALT
21. LIGHT GRASS GREEN

Variable 7 Base

1. BLOWPIPE
2. SOLID IRON BAR
3. SAND
4. SAND WITH QUATREFOIL PUSH-UP
7. SNAP CASE
11. GROUND
12. MOLDED

Variable 8 Finish

100. FLARED (OR EVERTED)
101. FLARED, FOLDED IN
102. FLARED, FOLDED OUT
104. FLARED, GROUND BORE
110. FLANGED
111. FLANGED, FOLDED IN
112. FLANGED, FOLDED OUT
114. FLANGED, GROUND BORE
120. STRAIGHT (OR PLAIN)
122. STRAIGHT, FOLDED OUT
126. STRAIGHT, GROUND EXTERIOR
128. STRAIGHT, FIRE POLISHED
129. STRAIGHT, CRACKED OFF
133. SCALLOPED (OR VARIATION), FIRE POLISHED
140. SCREW, CONTINUOUS OR INTERRUPTED
143. CAP SEAT
145. PRESCRIPTION
150. SHORT, FLAT COLLAR
154. LONG, FLAT COLLAR
199. UNIDENTIFIED/ONE-PART

221. FLARED LIP ABOVE DOWN-TOOLED STRING RIM
(1745-1765; DIAMOND IN GEISMAR 1983 - #4)

222. SLIGHTLY BEVELED LIP ABOVE STRING RIM BLENDED INTO NECK. NECK CONSTRICTION BELOW STRING RIM
(1770-1800; DIAMOND IN GEISMAR 1983 - #5)

223. SLIGHT TO HEAVILY BEVELED LIP ABOVE FLATTENED, SQUARED OFF STRING RIM. SLIGHT NECK CONSTRICTION BELOW STRING RIM
(1780-1820; DIAMOND 1983, PERS. COMM.- #6)

224. WETTED OFF (OR SHEARED) AND FIRE POLISHED LIP ABOVE FLATTENED, SLOPPILY APPLIED STRING RIM

225. WETTED OFF (OR SHEARED) LIP ABOVE FLATTENED, SLOPPILY APPLIED STRING RIM (WIDE MOUTH)

226. WETTED OFF (OR SHEARED) AND FIRE POLISHED LIP ABOVE SQUARED OFF STRING RIM

227. FLARED LIP ABOVE FLATTENED, SLOPPILY APPLIED STRING RIM

228. SLIGHTLY FLARED, WETTED OFF LIP ABOVE FLATTENED, SLOPPILY APPLIED STRING RIM

229. WETTED OFF (OR SHEARED) LIP ABOVE V-SECTIONED STRING RIM

230. SLIGHTLY FLARED LIP ABOVE FLANGE-LIKE STRING RIM (1670-1700; DIAMOND, PERS.COMM. IN LBA 1986 - #81)

232. WETTED OFF (OR SHEARED) LIP ABOVE LARGE, FLARING STRING RIM

233. SLIGHTLY BEVELED LIP ABOVE FLATTENED, SQUARED OFF STRING RIM

234. MODERATELY BEVELED LIP ABOVE FLATTENED, SQUARED OFF STRING RIM

250. SMALL, ROUNDED COLLAR ABOVE LARGER, DOWN-TOOLED STRING RIM

252. UNIFORM, SLOPING COLLAR ABOVE V-TOOLED STRING RIM

253. UNIFORM, SLOPING COLLAR ABOVE UNIFORM, SLOPING STRING RIM

254. SHORT, SLOPING COLLAR ABOVE V-SECTIONED STRING RIM

255. SHORT COLLAR ABOVE LARGER V-SECTIONED STRING RIM

256. ROUNDED COLLAR ABOVE ROUNDED STRING RIM

257. SMALL, ROUNDED COLLAR ABOVE FLATTENED, SLOPPILY APPLIED STRING RIM

258. UNIFORM, SMALL ROUNDED COLLAR ABOVE V-TOOLED STRING RIM

259. SHORT, SLIGHTLY SLOPING COLLAR ABOVE NARROW, SLOPPILY APPLIED STRING RIM

260. ROUNDED, SLOPING COLLAR ABOVE FLATTENED STRING RIM

261. SHORT, SLOPING COLLAR OVERLYING FLATTENED, SQUARED OFF STRING RIM

262. NON-UNIFORM, SLOPING COLLAR ABOVE FLATTENED

STRING RIM

263. NON-UNIFORM, SLIGHTLY ROUNDED COLLAR ABOVE FLATTENED, SQUARED OFF STRING RIM

264. UNIFORM, SLOPING COLLAR ABOVE DOWN-TOOLED STRING RIM (RICKETTS TYPE)

299. UNIDENTIFIED/TWO-PART

Variable 11 Embossment

1000. LEOVILLE (W/GRAPE EMBOSSMENT)

P 1001. ...DIL/...DEAUX (W/WINDMILL EMBOSSMENT)

1002. PATENT (ON SHOULDER)- H.RICKETTS & CO/GLASS WORKS BRISTOL (ON BASE)

1003. ESSENCE OF - PEPERMINT - BY THE - KINGS PATENT

1004. PENROSE WATERFORD (ON BASE)

1005. LONDON (OR) LONDON MUSTARD

1006. TRUE - CEPHALICK - SNUFF - BY THE - KINGS - PATENT

P 1007. ...HURCH'S - ...DROPS - ...ATENT - ...DON (SIDES)

1008. SUPERFINE OLIVE OIL/JOHN DURAND/BORDEAUX/ CLARIFIED (W/OLIVE TREE EMBOSSMENT)

P 1009. ...TEAU/...AUX (W/GRAPE EMBOSSMENT)

P 1010. BEYS...C FILS AINE/HUILE/D'OLIVE/SURFINE/ CLARIFIE/BORDEAUX

ASSAY PIPES UTILIZED TYPES

Bowls:

PTB00	Pipe Bowl Present	
PTE22	Oswald 9b, Hume 19	1680-1750
PTE51	Oswald 11b	1780-1850
PTE60	Oswald 12a	1820-1870
PTE61	Oswald 12b	1820-1870
PTE62	Oswald 12c	1820-1870
PTE66	Hume 25 (Shape)	1790-1820
PTE95	Unident Shape Decorated	Undated
PTE98	Unident Shape	Undated

Stems:

PTS00	Pipe Stem Present
PTS13	Meas. w/ Low Oval Heel
PTS20	Meas. w/Double Bore Holes

Assay Utilized Pipe Variables

Variable 1 Maker's Mark

0900	Green Glazed Mouthpiece
1100	Miscellaneous Mark in Side Cartouche
1301	Relatively Simple Molded Decoration
1317	Raised Curved Flutes on Bowl Surrounded by Raised Thin Lines
1320	Fluted Bowl; Linear Vine Motif Along Both Seam Lines
1321	1320 W/Decorated Band Around Rim
1339	Linear Vine Motif Along Seam Line
1341	Linear Vine Motif Along Seam Line and on Bowl
1345	Linear Feather Motif Along Seam Line with Linear Asterisks on Bowl
1385	British Coat of Arms
1400	Miscellaneous Letters on Either Side of Heel

Variable 7 Use

1	Light
5	Burned

Variable 9 Bore

1	unmeasurable or not present (on bowls)
4	4/64
5	5/64
6	6/64

ASSAY FLORAL UTILIZED TYPES

Class - Gymnosperms

FAE 05 Olive
FAP 00 PINE

CLASS - Angiosperms
SUBCLASS - Dicots

FDA 10 Coffee

FDE 10 Peanut

FDG 00 GOURD
FDG 01 Squash
FDG 05 Gourd
FDG 10 Pumpkin
FDG 30 Melon
FDG 40 Watermelon

FDI 10 Guava

FDK 01 Thistle

FDN 10 Tobacco

FDP 00 LEGUME
FDP 30 Indigo
FDP 40 Black Locust

FDR 10 Hawthorn
FDR 20 Peach
FDR 22 Apricot
FDR 25 Plum
FDR 30 Cherry
FDR 35 Raspberry
FDR 37 Strawberry
FDR 45 Almond

FDZ 05 Unidentified Dicot
FDZ 10 Unidentified Dicot-nut
FDZ 15 Unidentified Tropical Nut

SUB-CLASS - Monocots

FMA 02 Coconut

Cereal Grass

FMG 13 Corn

Other Grass

FMG 25 Sugar Cane
FMG 26 Bamboo

SUBCLASS - Dicots

FTG 01 Grape

FTM 10 Filbert/Hazel

FTN 01 Walnut
FTN 02 Butternut
FTN 03 Black Walnut
FTN 10 Pecan
FTN 15 Hickory

FTO 01 Oak
FTO 02 Beech
FTO 20 Chestnut

FTR 10 Black Pepper

FTS 01 Willow
FTS 10 Osier

PHYLUM - ALGAE

FXA 00 SEAWEED

Assay Floral Utilized Variables

Variable 5 Element

01 Nutshell
02 Seed
03 Twig
04 Leaf
05 Pit
06 Seed Covering/Skin
07 Stalk
08 Needle
09 Acorn
14 Pea
15 Bean
16 Legume
17 Cobb
18 Pinecone
20 Fruit
30 Thorn
90 Other

Variable 6 Completeness

01 Whole
02 Fragment
03 Half
04 Partial (Over 50%)
10 Other

Variable 7 Burning

01 Presence
02 Absence
03 Charred
10 Carbonized

ASSAY CERAMICS UTILIZED TYPES

EARTHENWARES

Buff/White Bodied

CEH01	Unglazed	Undated
CEH10	Yellow Glaze	1625-1725
CEH20	Green Glaze Ext.,Yellow Glaze Int.	1625-1725
CEH30	Green Glaze	Undated
CEH98	Other	Undated

Red Bodied

CER01	Unglazed	Undated
CER02	Clear Glaze	Undated
CER03	Yellow Brown to Brown Glaze	Undated
CER04	Dark Brown to Black Glaze	Undated
CER05	Green Glaze	Undated
CER07	Clear Glaze w/ Mang. Mottling	Undated
CER08	Clear Glaze w/ Mang. Dec.	Undated
CER09	Yellow to Brown Glz. w/ Mang. Mottling	Undated
CER10	Yellow to Brown Glz. w/ Mang. Dec	Undated
CER15	North Devon	1650-1775(83)
CER30	Iberian Storage Jars	Undated
CER50	Streaked Body Yel./Br Glaze	Undated
CER60	Black Glaze (coarse body)	Undated
CER95	Redware - Sanitary	Undated
CER96	Redware Other Non-Food Related	Undated
CER97	Burned - Glaze Unident.	Undated
CER98	Other	Undated

Red Bodied Slipware

CES02	Trailed (Other than CES04)	1670-1850
CES04	Trailed - 17th c. Type	1625-1725
CES10	Combed	1670-1850
CES15	Trailed and Combed	1670-1850
CES30	Green Glaze over White Slip	1625-1725
CES61	CES60 w/o Sgraffito	Other Dates
CES98	Other	Undated

Buff/Yellow Bodied Slipware

CEU10	Buff/Yellow Bodied Lead Glazed	1670-1795
CEU20	Narrow Combed Lines	1670-1700
CEU21	Combed Lines	1670-1795
CEU22	Dot	1670-1795
CEU23	Trailed	1670-1795
CEU25	Dot and Combed	1670-1795
CEU30	Reverse Colors	1670-1795
CEU95	Buff/Yel. Bodied Slpwr - Sanitary	1670-1795

Brown Stonewares

CFB51	Fulham Type Mugs	1690-1775(83)
CFB55	Miscellaneous "British Brown"	1690-1775(83)
CFB65	Nottingham	1700-1810
CFB66	Nottingham Type	1700-1810
CFB71	19th Century Bottles - Amber/Honey	1835-1910
CFB75	Miscellaneous Bottle	1800-1930

Gray Stonewares

CFL50	Rhenish	1650-1725
CFL51	Westerwald	1700-1775(83)
CFL52	Rhenish/Westerwald	1650-1775(83)

Other Non-Salt Glazed Stonewares

CFN07	Red Body - Engine Turned Unglazed	1763-1820
CFN08	Red Body - Engine Turned Lead Glazed	1763-1820
CFN09	Red Body - Lead Glazed	1763-1820
CFN10	Red Body - Other	Undated
CFN20	Black Body - Black Basalts	1750-1845
CFN31	Jasper - Solid	1775-Present
CFN40	Castleford Type Stonewares	c1790-1820
CFN60	Turner Type Body	1785-1825
CFN86	Fine Red Body w/White Slip Interior	Other Dates
CFN95	Other Non-Slt Glz - Sanitary	Other Dates
CFN98	Other Non-Salt Glazed Stonewares	Other Dates

White Salt Glazed

CFT02	Plain	1720-1805
CFT10	Mold Dec. Other than Plates	1740-1765
CFT16	Plates - Molded/Slip Cast Decoration	1740-1775(83)
CFT20	Slip-dipped	1715-1775(83)
CFT30	Scratch Blue	1744-1775(83)
CFT31	Debased Scratch Blue	1765-1795
CFT40	Handpainted	1740-1780
CFT96	White Salt Glazed Other Non-Food Rltd	1720-1805

Other

COG01	Unidentifiable Paste, Glaze, etc...	Undated

Other Earthenwares

COZ01	Burned Unidentifiable	Undated
COZ02	Discolored Unidentifiable	Undated
COZ05	Other Unidentifiable	Undated
COZ10	Other Identifiable	Undated

Other Stoneware

COZ31	Burned Unidentifiable	Undated
COZ32	Discolored Unidentifiable	Undated

Other Porcelains

COZ61	Burned Unidentifiable	Undated

PORCELAIN

Soft Paste Porcelain

CPF02	Plain	Other Dates
CPF20	Overglaze Handpainted	Other Dates
CPF21	Overglaze Transfer Printed	Other Dates
CPF50	British Underglaze Blue Transfer Printed	1760-1850

Hard Paste Porcelain - Non Oriental

CPJ02	Plain	Other Dates
CPJ98	Other Hard Paste	Other Dates

Oriental Export Porcelain

CPP02	Plain	Undated
CPP10	Underglaze Blue - Miscel. Undated	Undated
CPP11	Underglaze Blue - Canton, Nanking	1790-1840
CPP12	Underglaze Blue - Brown Line Atop Rim	1700-1840
CPP15	Underglaze Blue - Other Dated	Other Dates
CPP30	Overglaze Decorated - Miscel. Undated	Undated
CPP32	Overglaze Decorated - Famille Rose	1720-1840
CPP35	Overglaze Decorated - European Style "Neo-Classical"	1750-1840
CPP38	Overglaze Decorated - Monogramed	1750-1840
CPP39	Overglaze Decorated - Pseudoarmorial	1750-1840
CPP40	Overglaze Decorated - Other Dated	Other Dates
CPP51	Brown External Glaze w/ Blue Underglaze	1740-1780
CPP61	Other Underglaze & Overglaze Dec.(excluding gilt highlights)	Other Dates
CPP98	Other	Other Dates

Creamware

CRC02	Plain	1762-1820
CRC10	Shell Edged	1762-1820
CRC15	Feather Edged	1762-1820
CRC20	Other Embossed Rim	1762-1820
CRC25	Embossed Body	1762-1820
CRC30	Overglaze Handpainted-Monochrome	1765-1810
CRC32	Overglaze Handpainted-Poylchrome	1765-1810
CRC35	Underglaze Handpainted - Blue	1765-1810
CRC36	Underglaze Handpainted - Poly.	1765-1815
CRC37	Underglaze Handpainted - Other	1765-1815
CRC49	Overglaze Transfer Printed	1765-1815
CRC50	Underglaze Transfer Printed -Blue	1780-1820
CRC55	Underglaze Transfer Printed -Other Colors	1810-1820
CRC60	Dipped - General	1780-1860
CRC80	Green Glaze	1759-1775(83)
CRC91	Clouded Glaze	1740-1770
CRC92	Whieldon Type Glaze	1740-1770
CRC93	Vegetable/Fruit Shapes	1750-1800
CRC95	Creamware - Sanitary	1762-1820
CRC96	Creamware Other Non-Food Related	1762-1820

Delftwares

CRD01	Body Fragments Without Glaze	1625-1800
CRD10	White Glaze	1640-1800
CRD11	White Glaze w/ Blue Dec.- General	1640-1800
CRD13	White Glaze w/ Blue Dec.- 18th c.	1700-1800
CRD17	White Glazed w/ Polychrome Dec.	1675-1800
CRD20	Blue Glaze	1680-1800
CRD21	Blue Glaze w/ Blue Dec.	1680-1800
CRD40	Debased Rouen Faience	1775-1800
CRD95	Delftware - Sanitary	1640-1800
CRD96	Delftware Other Non-Food Related	1640-1800
CRD97	Burned, Decoration Unident	1640-1800
CRD98	Other Delftware	Undated

Ironstone

CRI02	Plain	1840-Present

Other Refined Earthenwares

CRK06	Early Cream Colored - Other	1740-1780
CRK10	"Midlands Mottled"	1660-1750
CRK20	Refined Agate Ware	1740-1783
CRK50	Red Bodied Engine Turned - Unglazed	1763-1820
CRK51	Red Bodied Engine Turned - Lead Glazed	1763-1820
CRK52	Thin Red Body - Lead Glaze	Undated
CRK53	Thin Red Body - Unglazed	Undated
CRK54	Thin Red Body - Black Glaze	Undated
CRK60	Jackfield	1740-1780
CRK65	Jackfield Type	1740-1850

CRK86	Fine Red Body w/ White Slip Interior	Other Dates
CRK98	Other Refined Earthenwares	Other Dates

Pearlware

CRP02	Plain	1780-1840
CRP10	Shell Edge - Blue	1780-1840
CRP11	Shell Edge - Green	1780-1840
CRP12	Shell Edge - Other Color	1780-1830
CRP15	Feather Edge	1780-1820
CRP20	Other Embossed Rim	1780-1840
CRP25	Embossed Body Sherds	1780-1840
CRP30	Overglaze Handpainted Monochrome	1780-1810
CRP32	Overglaze Handpainted Polychrome	1780-1810
CRP35	Underglaze Blue Handpainted	1780-1820
CRP36	Underglaze Poly. Handpainted	1795-1825
CRP37	Underglaze Brown Handpainted	1795-1820
CRP38	Underglaze handpainted - Other	1780-1820
CRP40	Underglaze Poly. Stenciled	1820-1840
CRP41	Underglaze Blue, Overglaze Poly.	1780-1810
CRP49	Overglaze Transfer Printed	1780-1815
CRP50	Transfer Printed - Blue(other than below)	1800-1840
CRP51	Transfer Printed -"Old Blue"	1815-1835
CRP52	Transfer Printed - Black or Brown	1810-1840
CRP54	Transfer Printed - Clobbered/Filled in	1800-1840
CRP55	Transfer Printed - Other Colors	1825-1840
CRP56	Transfer Printed - Line Only	1780-1815
CRP60	Dipped - General	1790-1860
CRP61	Dipped - Mocha	1790-1890
CRP69	Marbelized Chips	1790-1840
CRP70	Sponged	1820-1840
CRP75	Luster Decorated	1790-1840
CRP95	Pearlware - Sanitary	1780-1840
CRP98	Other	1780-1840

Whiteware

CRW02	Plain	1820-Present
CRW10	Shell Edged - Blue	1820-1900
CRW20	Other Embossed Rims	1820-Present
CRW35	Underglaze Handpainted	1820-Present
CRW50	Transfer Printed-Blue (Other than Below)	1820-1915
CRW52	Transfer Printed - Black or Brown	1820-1915
CRW55	Transfer Printed - Other Colors	1825-1915
CRW70	Sponged	1820-1940

Yellowware

CRY02	Plain	1827-1940
CRY76	Rockingham Type Glaze	1812-1920
CRY98	Other	1827-1940

Brown Stonewares

CSB02	Plain Brown Salt Glazed	Undated
CSB11	Brown Body w/ Albany Slip	1800-1940
CSB80	Mottled Ferruginous Slip - General	Undated
CSB98	Brown Body - Other	Undated

Gray Stonewares

CSL02	Plain - Gray Salt Glazed	Undated
CSL03	Gray Salt Glazed w/ Handpainted Dec.	Undated
CSL05	Gray Salt Glazed w/ Miscellaneous Dec.	Undated
CSL06	Gray w/ Stamped Makers Mark	Other Dates
CSL11	Gray Body w/ Albany Slip	1800-1940
CSL14	Gray Body w/ Albany Slip Miscel. Dec.	1800-1940
CSL21	Gray Body w/ Other Brown Slip	Undated
CSL22	Gray Body w/ Other Brown Slip Hndpt. Dec.	Undated
CSL24	Gray Body w/ Other Brown Slip Miscel.Dec.	Undated
CSL30	Gray Body w/ Bristol Slip	1835-Present
CSL70	Plain Buff Body - Salt Glazed	Undated
CSL71	Buff Body - Handpainted Blue Dec.	Undated
CSL72	Buff Body - Albany Slip	1800-1940
CSL73	Buff Body - Other Brown Slip	Undated
CSL74	Buff Body w/ Stamped Makers Mark	Other Dates
CSL96	Gray Salt Glazed Other Non Food	Undated
CSL98	Gray Body - Other	Undated

Assay Utilized Ceramic Variables

Variable 1 Maker's Mark

20	Impressed asterix
25	Miscellaneous impressed mark
30	Painted decorator's mark
502	Misc. Clarkson Crolius 1800-1845/9
505	Crolius/Remmey Style
510	T.Commeraw 1797-1820
630	John & Edward Baddely ?? 1784-1806??
650	David Dunderdale & Co. 1790-1820?
660	Herculaneum 1793-1841
670	Josiah Wedgwood
900	Complete but unidentifiable
988	Tentative identification
999	Unident. incomplete

Variable 3 Wear

1	some wear on face/interior
2	heavy wear on face/interior
3	some wear along the rim
4	heavy wear along the rim
5	some wear on foot ring
6	heavy wear on foot ring
7	some stir marks
8	many stir marks
10	some wear around rim and some wear on foot ring
11	some wear on face and some wear on foot ring
12	heavy wear on exterior
13	some wear on exterior
19	see written comments
20	heavy wear on footring and interior
21	heavy wear on foot ring & rim
30	heavy wear on foot ring, some wear on interior
40	light wear general
41	some wear general
42	heavy wear general
50	heavy wear on all surfaces
51	some wear on all surfaces
52	heavy wear all surfaces except footring
60	heavy wear on face charred exterior
61	some wear on face charred exterior
62	light wear on face charred exterior
75	no wear apparent
90	heavily spalled
99	unidentifiable

Variable 4 Decoration/Motif

019 See Written Comments
041 Browns
045 Black
048 Orange
050 Blue
052 Red
100 General Floral
101 Lg Scale Floral
102 Sm Scale Floral
103 Sm Scle Floral w/Brown Line Atop Rim
104 Sm Scle Floral w/Band
105 Design Unkn, Br line Atop Rim
107 Sm Scle Floral w/Blue Line Atop Rim
115 Floral with Multiple Bands
120 General Geometric
121 Geometric-Small Scale
125 Star/Asterisk
127 Peacock with Sponging
132 Abstract Neo Classical/ Floral
133 Elaborate Floral
138 Broad Yellow Band w/ Sm Scale Floral
139 Broad Yellow Band w/ Geometric
143 Landscape - Pastoral
160 Figure
161 Animal
162 Bird
181 Patriotic Themes
182 Commeneratives
183 Ship etc.
200 Chinoiserie - General
201 Chinoiserie - Landscape
202 Chinoiserie - Floral
203 Chinoiserie - Landscape/Floral
204 Chinoiserie - Waterscape
205 Chinoiserie - House & Tree
206 Chinoiserie - w/ Br Line Atop Rim
209 Chinoiserie - Intricate Border
210 Chinoiserie - Bird on Rock
219 Chinoiserie - Waterscape/Willow type
220 Chinoiserie - 2 Birds (if datable-Crosby Forbes #28, 1770-1795
221 Chinoiserie - Fuel Bearer & Sweeper (if datable-Crosby Forbes, 1770-1805)
227 Wavy Band
233 Gilded Design and Gilded Band
246 Gilded Wavy Band
247 Gilded Banded
257 Gilded Floral Scroll, Spearhead Border
258 Floral Center w/Dot & Banded Rim
264 Gilded Floral, w/wavey Dot & Double Banded Border
266 Wavy Dot
269 Gilded Floral

274 Narrow Blue Border with Gilded Stars
282 Paneled Floral
291 Diaper
301 Willow Like
500 CVB
501 ARMORIAL HELMUT TREE ETC.
502 SEPIA LANDSCAPE
503 BIRD WITH SPRIG
504 DOT-FLOWER BORDER & FRUIT/VEG. MOTIF
505 CHINESE ROMEO & JULIET
506 JE ETC. 1790-1810
510 BLUE FLORAL #1
511 BLUE & BROWN ASTERISK WITH OVAL/EYE BORDER
512 SM SCALE FLORAL WITH SWAGS & YELLOW BORDER #1
513 "ASTER" FLOWER WITH 2 BROWN LINES
514 ORANGE PLAID
515 BROWN PLAID
516 FLOWER WITH YELLOW BORDER #2
517 BROWN PALM LEAVES & TASSLES
518 CLOBBERED MOTIF #1
550 Checkered (Taxi)
551 Bands & Stripes
552 Band
570 Incised
600 Incised Floral - Blue
615 Incised/Banded (annular)
624 Blue at Base of Handles
627 Brown Slipped, Exterior Only
628 Brown Slipped, Int & Ext
630 Misc. Floral
680 Purple/Taupe/Brown int. slip (c-r style)
681 Orange/Brown int. slip
750 Glazed Interior Only
751 Glazed Interior, Drips on Exterior
752 Glazed Both Surfaces
770 Painted Blotches Ruffled Around
801 Multiple Parallel Lines
805 Pie Crust Edge
810 Unident. Trailed Slip Design
811 Single Slip Line
812 Double Slip Lines
813 Triple Slip Lines
900 Royal
914 Ribbed - Straight
915 "Barrel" Ribs
916 Swirled Flutes
939 Basket Weave
941 Sprigged Floral
950 Bath Rim
951 Paris/Plain Rim
953 Concave Rim
980 Shell Edge-Rococo 1780-1820
981 Shell Edge-Scalloped Rim, Curved Lines (w/o bud) 1795-1845

982 Shell Edge-Scalloped Rim, Straight Lines 1795-1840
983 Shell Edge-Scalloped Rim w/ Bud 1800-1850
999 Insufficient Evidence to Determine Pattern

Variable 5 Form

001 Misc. Flatware Body
002 Misc. Flatware Rim
003 Misc. Flatware Base
009 Misc. HlWre Bdy/Hndl
010 Misc. HlWre Bdy
011 Misc. HlWre Rim
012 Misc. HlWre Base
014 Body-Gen.
015 Rim-Gen.
016 Base-Gen
019 See Written Comments
021 Platter-Oval 14-20"
022 Platter-Oval 9-14"
024 Pl-Oval Undent. Dim
035 Pl-Other Geomet Form
041 Plate/Charger >10"
042 Plate 10"
043 Plate 9"
044 Plate 8"
045 Plate 7"
046 Plate 6"
050 Plate-Unident Dim.
056 Soup Plate 9"
057 Soup Plate 10"
075 Misc. Tableware (service or consumption)
099 Teacup-Gen.
100 Teacup w/o Handle
101 Teacup w/ Handle
102 Lg Teacup
103 Coffee Cup
104 Sm Saucer/Bowl(6" or less)
105 Lg Saucer/Bowl(>6")
106 Saucer/Bwl Diam Unkn
108 Sm Mug/Drinking Can
109 Tea Pot
110 Coffee Pot
113 Tea/Coffee/Chocolate Pot
119 Misc. Teawares
121 Mug
122 Jug
123 Pitcher
126 Bottle
127 Porringer
200 Dish 10-12"
201 Dish > 12"
202 Oval Dish 6-10"
203 Oval Dish 10-12"
204 Oval Dish >12"

205 Dish Diam. Unkn.
206 Oval Dish Diam.Unkn.
210 Other Serving Vessel
215 Bowl - Depth & Diam. Unkn.
220 Deep Bowl 4-6"
221 Deep Bowl 6-10"
222 Deep Bowl 10-16"
224 Deep Bowl-Diam. Unkn
226 Shallow Bowl/dish 4-6"
227 Shallow Bowl/dish 6-10"
228 Shallow Bowl/dish-Dia Unk
230 Tureen >10"
231 Tureen <10"
250 Egg Cup
251 Gravy/Sauce Boat
252 Creamer
253 Sugar Bowl/Sucrier
255 Caster
256 Drainer
261 Ladle Bowl
275 Pan-Puding/Pasty etc
300 Jar-General
305 Jar-Wde Mth/Crv Side
306 Jar-Sm Mth/Crve Side
352 Pipkin-Gen
356 Misc Cok Pot/Stg Ves CEW
357 Misc Strg/Serv Ves CEW
403 Round >10-12"
404 Round >12"
405 Round-Diam Unkn
410 Oval <6"
415 Oval-Diam Unkn
425 Rectangle-Diam Unkn
430 Shape & Diam Unkn
500 Chamber Pot
501 Small Chamber Pot
502 Large Chamber Pot
505 Stool Pot
516 Wash Basin
520 Flower Pot
521 Flower Pot Saucer
522 Flower Pot with Raised Ridge Below Rim
552 Inkbottle-Master
561 Toy Cooking Vessel
570 Figurine
600 Unatch Hndl-Sm Vesl
601 Unatch Hndl-Md Vesl
602 Unatch Hndl-Lg Vesl
611 Unatch Finial-Med
620 Lid-Gen
621 Lid-Dish/Tureen
622 Lid-Tea Pot
624 Lid-Tea/Cof/Choc Pot
630 Lid-Other

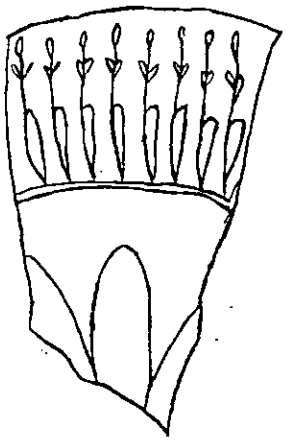
640 Spout-Gen
641 Spout-Straight
643 Tile
700 Sm HlWre-Body
701 Sm HlWre-Rim
702 Sm HlWre-Base
705 Med HlWre-Body
706 Med HlWre-Rim
707 Med HlWre-Base
710 Lg HlWre-Body
711 Lg Hlwre-Rim
712 Lg Hlwre-Base
720 Body-Sm
721 Body-Med
722 Body-Lg
725 Rim-Sm
726 Rim-Med
730 Base-Sm
731 Base-Med
736 Body w/Handle-Med
900 Cyl Ointment Pot-Lg(>6"ht.)
905 Cyl Ointment Pot-Sm
910 Cyl Ointment Pot-Sze Unkn
920 Cup Shp Ointment Pot

Variable 6 Percentage Completed

1 0-25%
2 26-50%
3 51-75%
4 75-100%
5 100% (mended)
6 intact

MOTIF DESIGNS IN GRAPHIC FORM

6014



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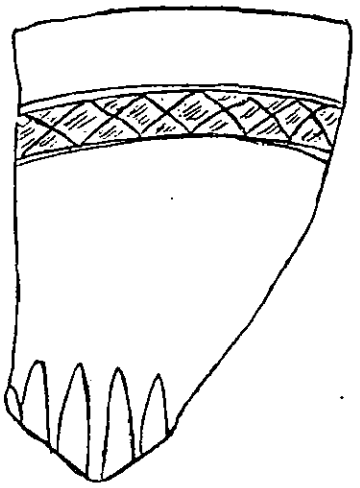

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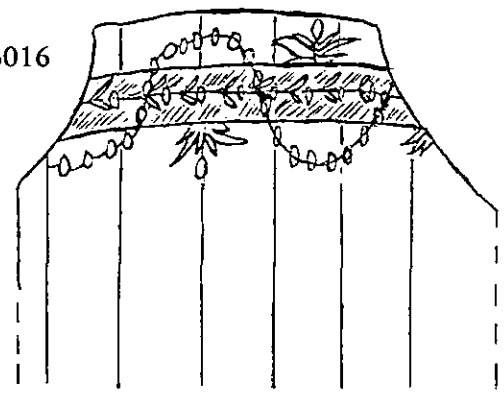

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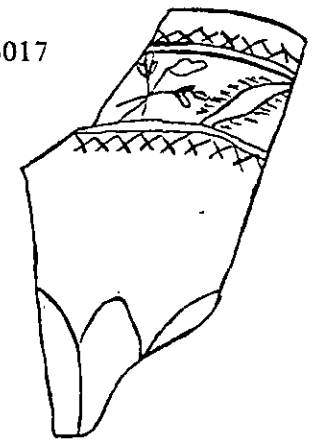
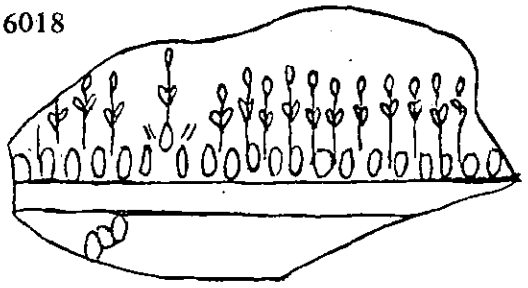


NOT DRAWN TO SCALE

APPENDIX 4: Figure 1a

MOTIF DESIGNS IN GRAPHIC FORM
(Continued)

6018



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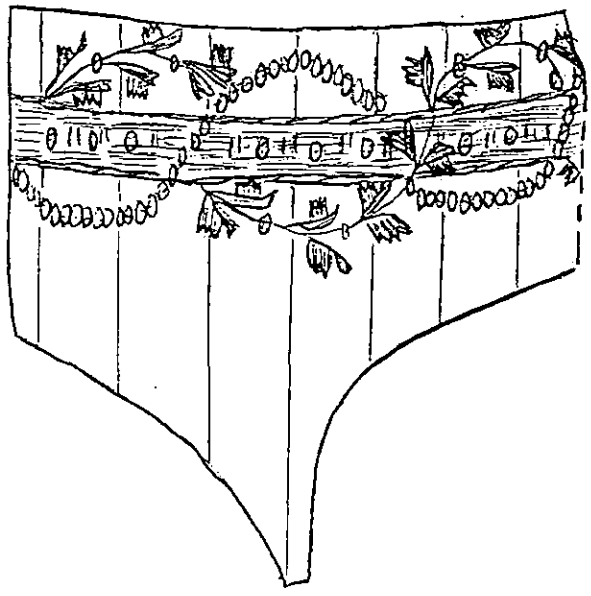

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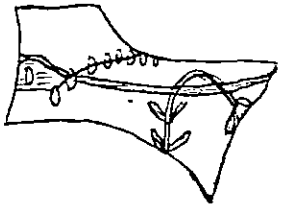

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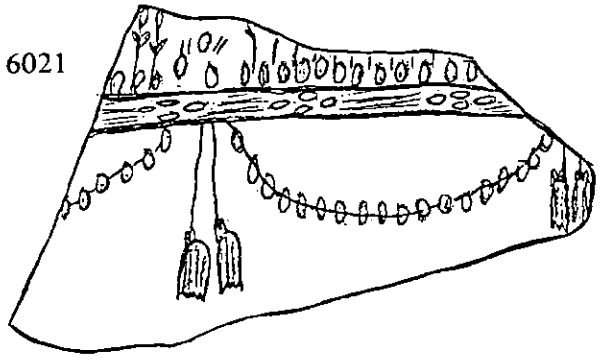


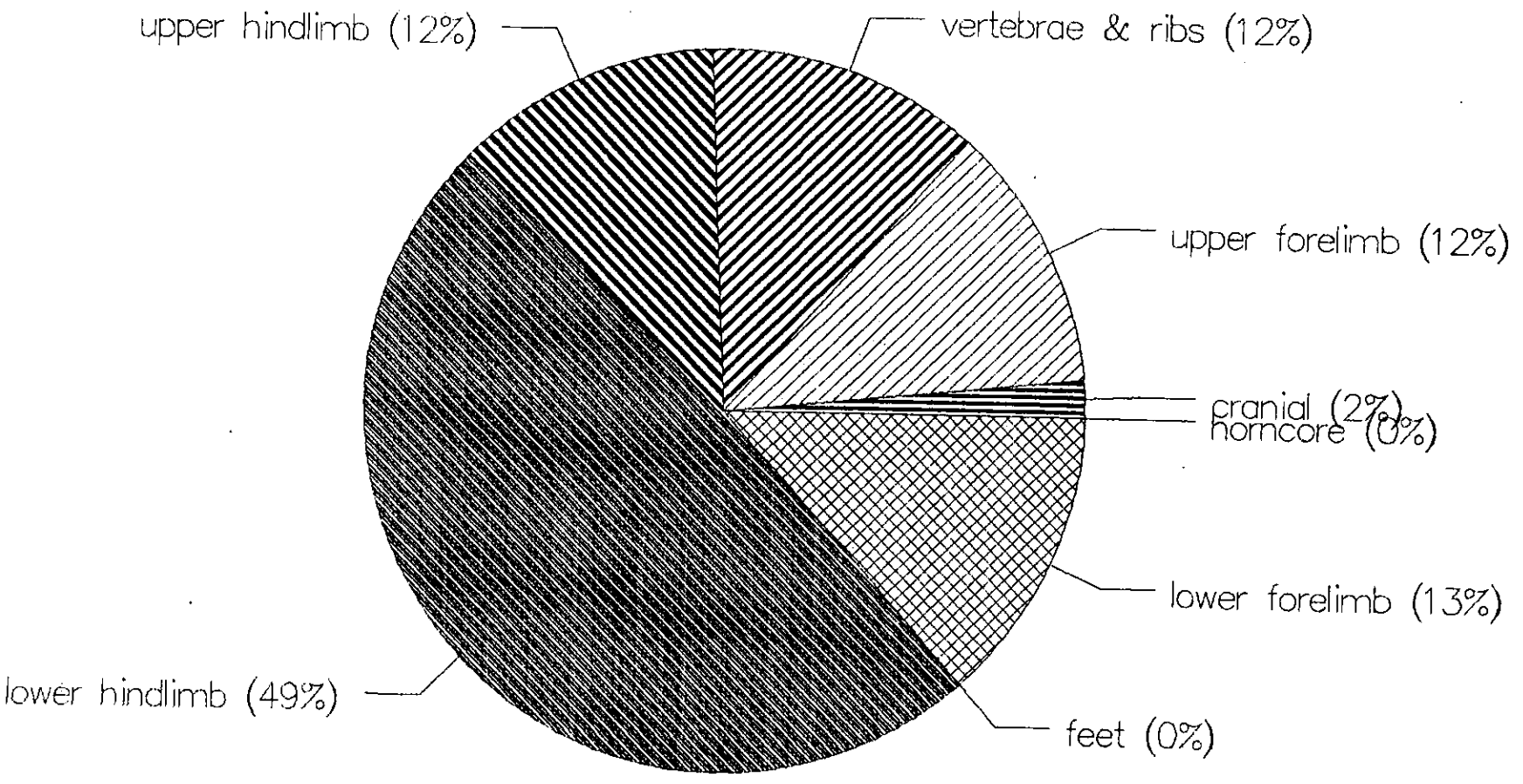
NOT DRAWN TO SCALE

APPENDIX 4: Figure 1b

APPENDIX 5

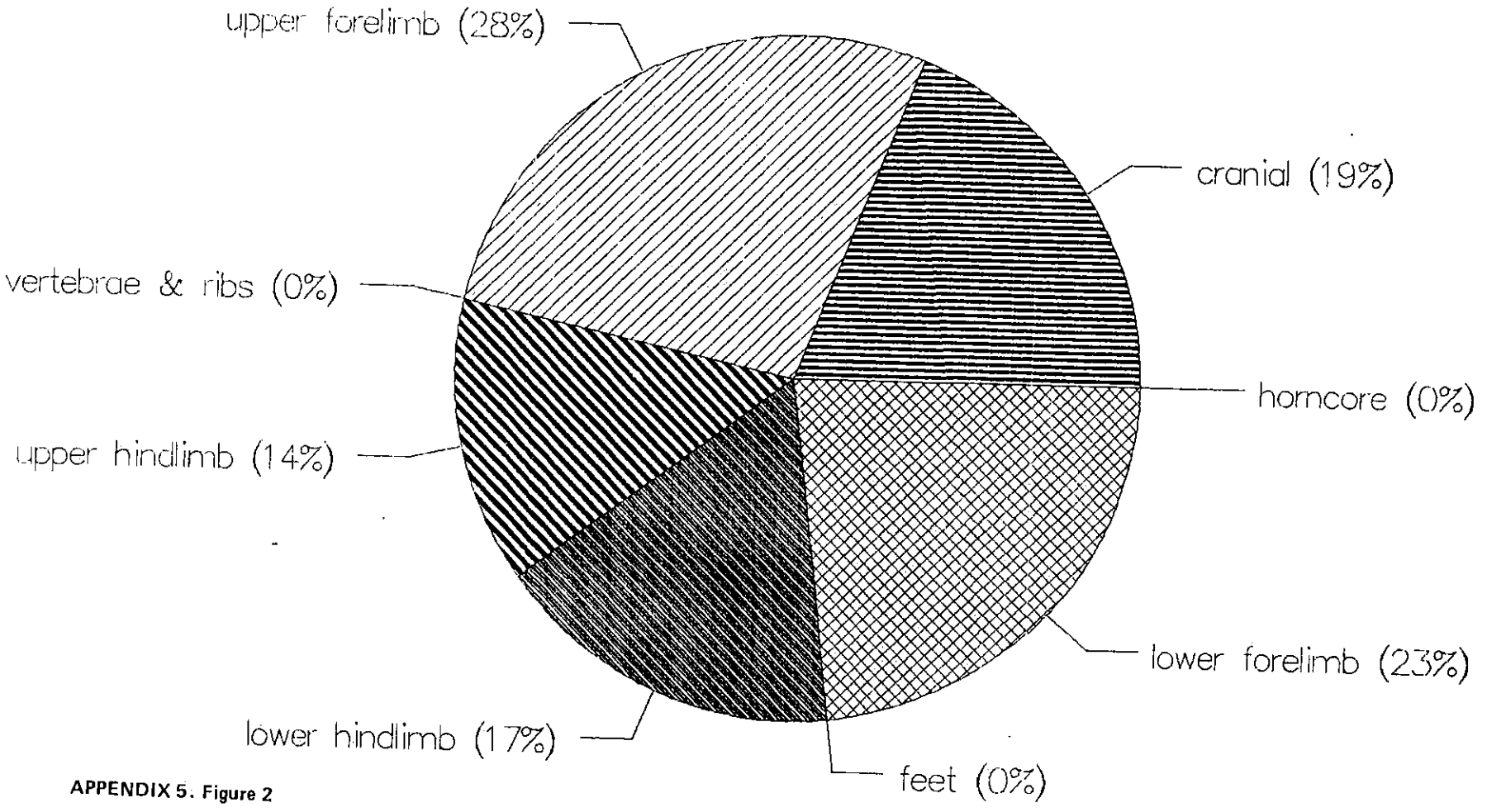
FAUNAL ELEMENT DISTRIBUTIONS IN FEATURE 18

Cow
Skeletal Element Distribution



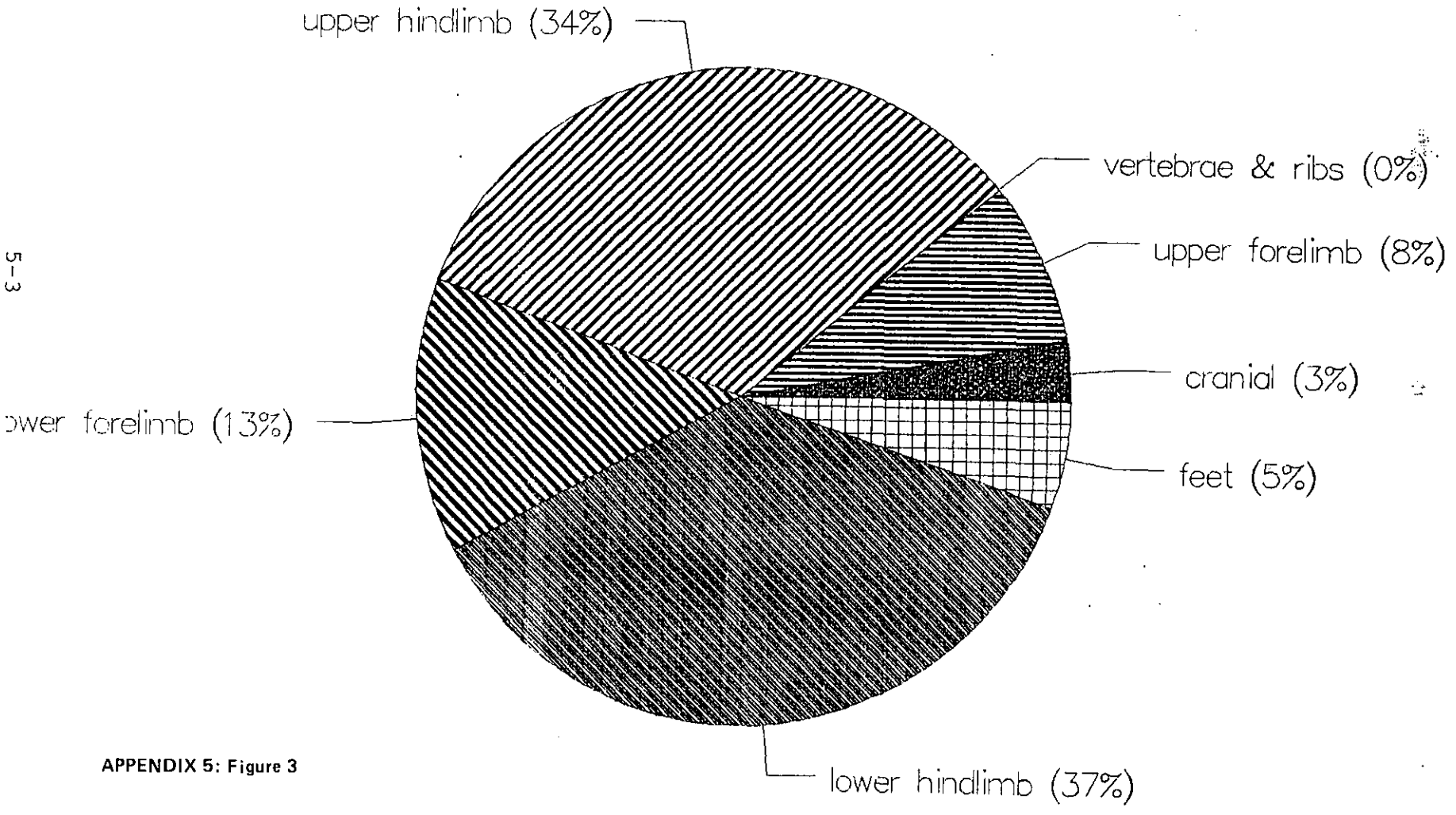
APPENDIX 5: Figure 1

Calf
Skeletal Element Distribution



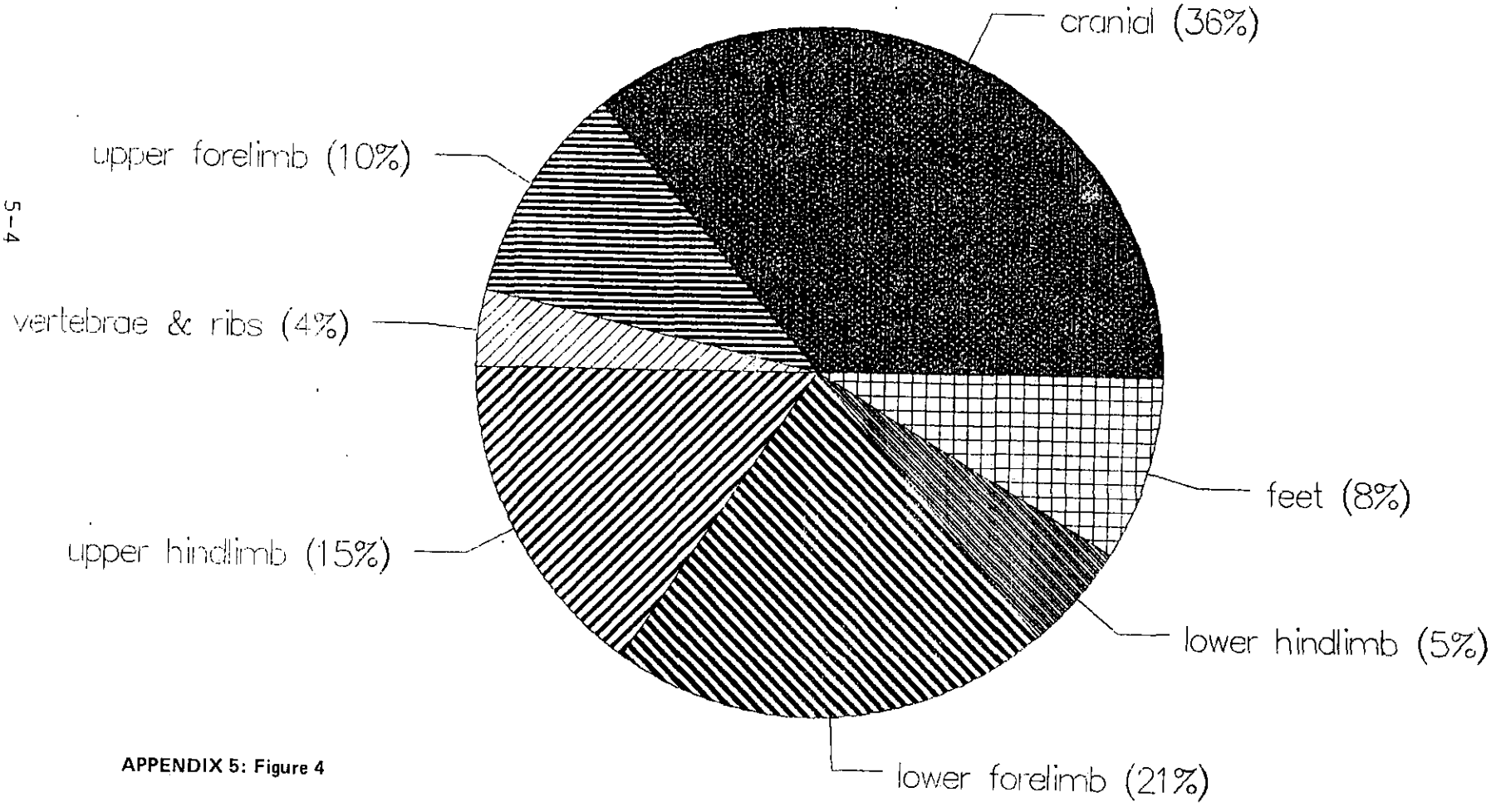
APPENDIX 5. Figure 2

Pig
Skeletal Element Distribution



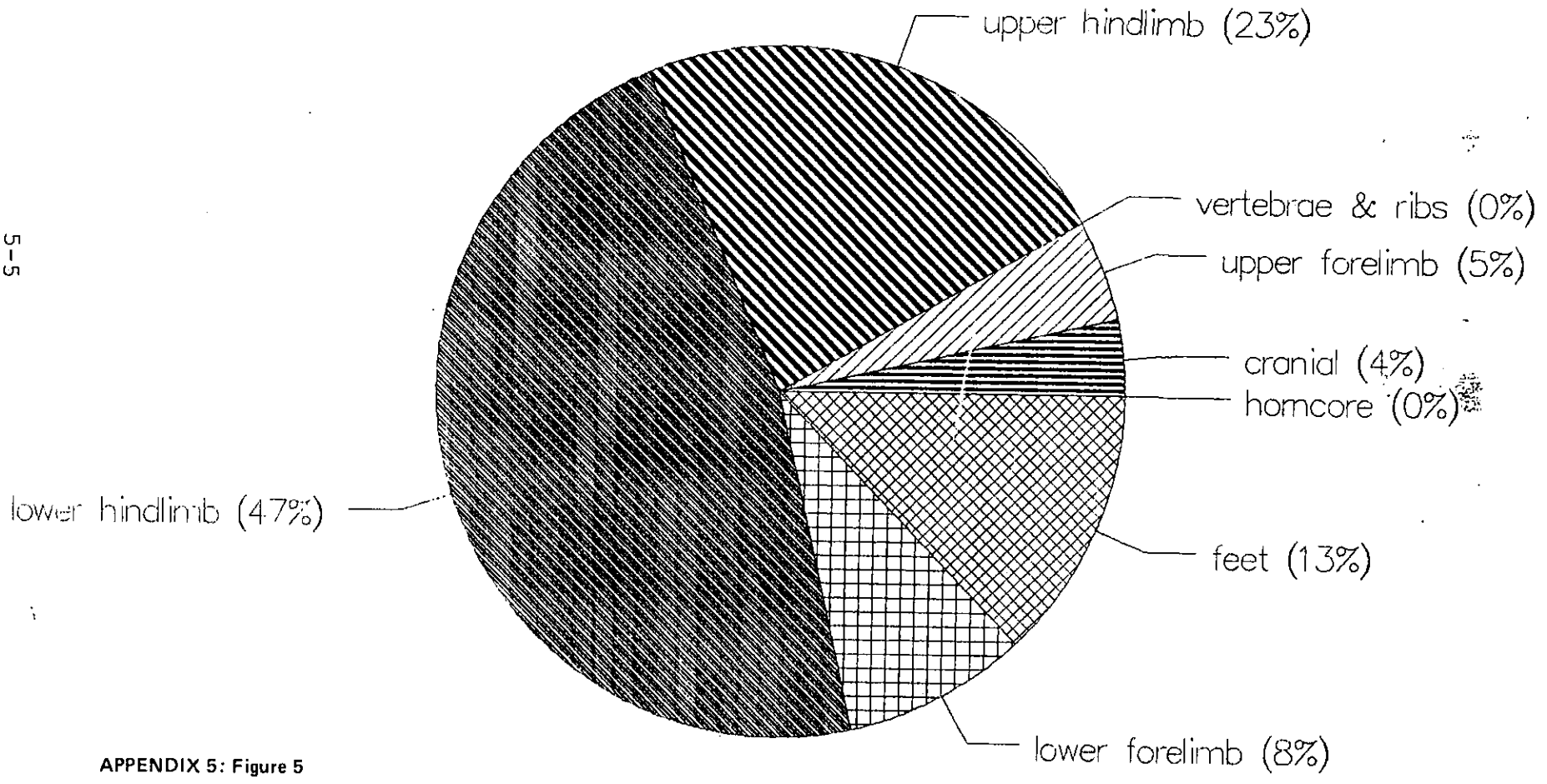
APPENDIX 5: Figure 3

Neonatal Pig
Skeletal Element Distribution



APPENDIX 5: Figure 4

Sheep
Skeletal Element Distribution



APPENDIX 5: Figure 5

APPENDIX 6

ASSAY SITE CANNONS

INTRODUCTION:

During construction of the slurry wall around the perimeter of the Assay Site, the contractor recovered two complete and three broken cannons. These were immediately shipped to the Research and Conservation Laboratory at the Division of Historical Research, Tallahassee, Florida, for conservation. The cannons were measured and described on standard forms used in the Laboratory. Following electrolysis, the cannons were primed with a zinc-rich primer and coated with a black two-part polyurethane paint. After completion of the treatment, the cannons were shipped to the LBA Laboratory in East Orange, New Jersey, for storage prior to having them transferred to the South Street Seaport Museum along with the remainder of the collection. The preliminary data gathered by the Research and Conservation Laboratory have been supplemented by inspection of the cannons as they were stored in the cases at LBA.

DESCRIPTION OF THE SAMPLE:

Standard terminology is used in the following description of the cannons from the Assay Site (Figure 1). Two complete cannons were recovered (Plates 1 and 2). Three cannons were broken forward of the trunnions on the chase (Plates 3 and 4). The muzzle sections which articulate with two of the cannons were also recovered. The surfaces of all the cannons were heavily eroded and no identifying marks were visible. Peterson (n.d.:45) notes that "the makers of most iron cannon remained anonymous," indicating that manufacturers' markings rarely are placed on iron cannons. The weight, usually found in the vicinity of the breech ring, has been obliterated on all five specimens.

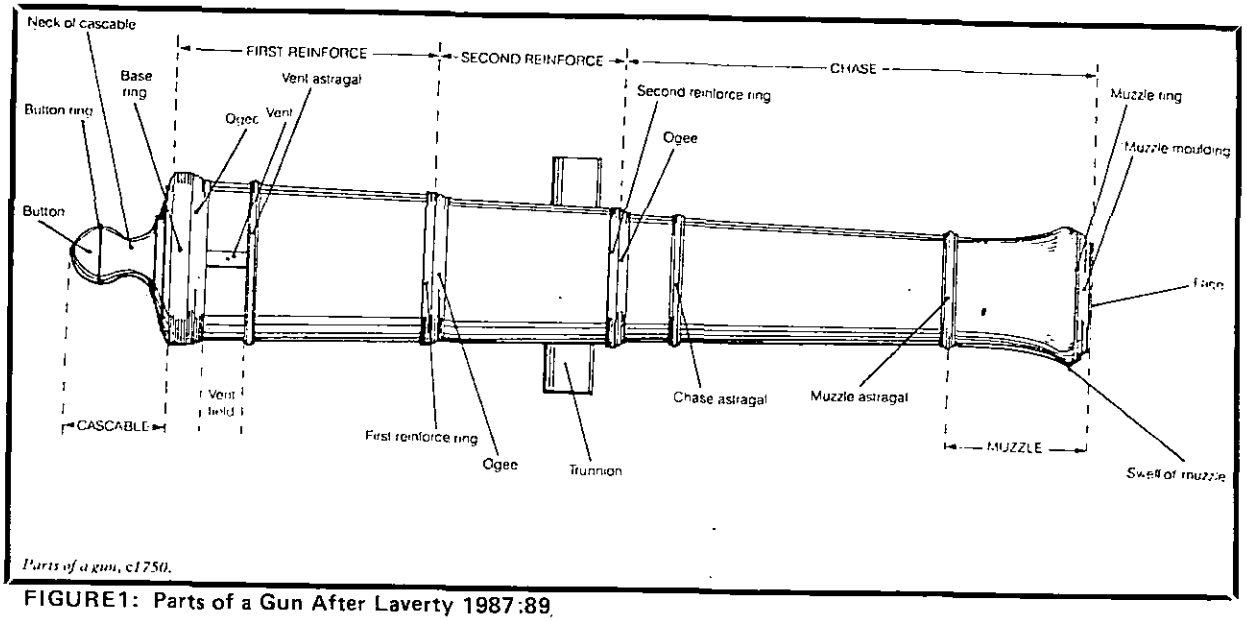


FIGURE1: Parts of a Gun After Laverty 1987:89

PLATE 1. Complete Cannon (A)

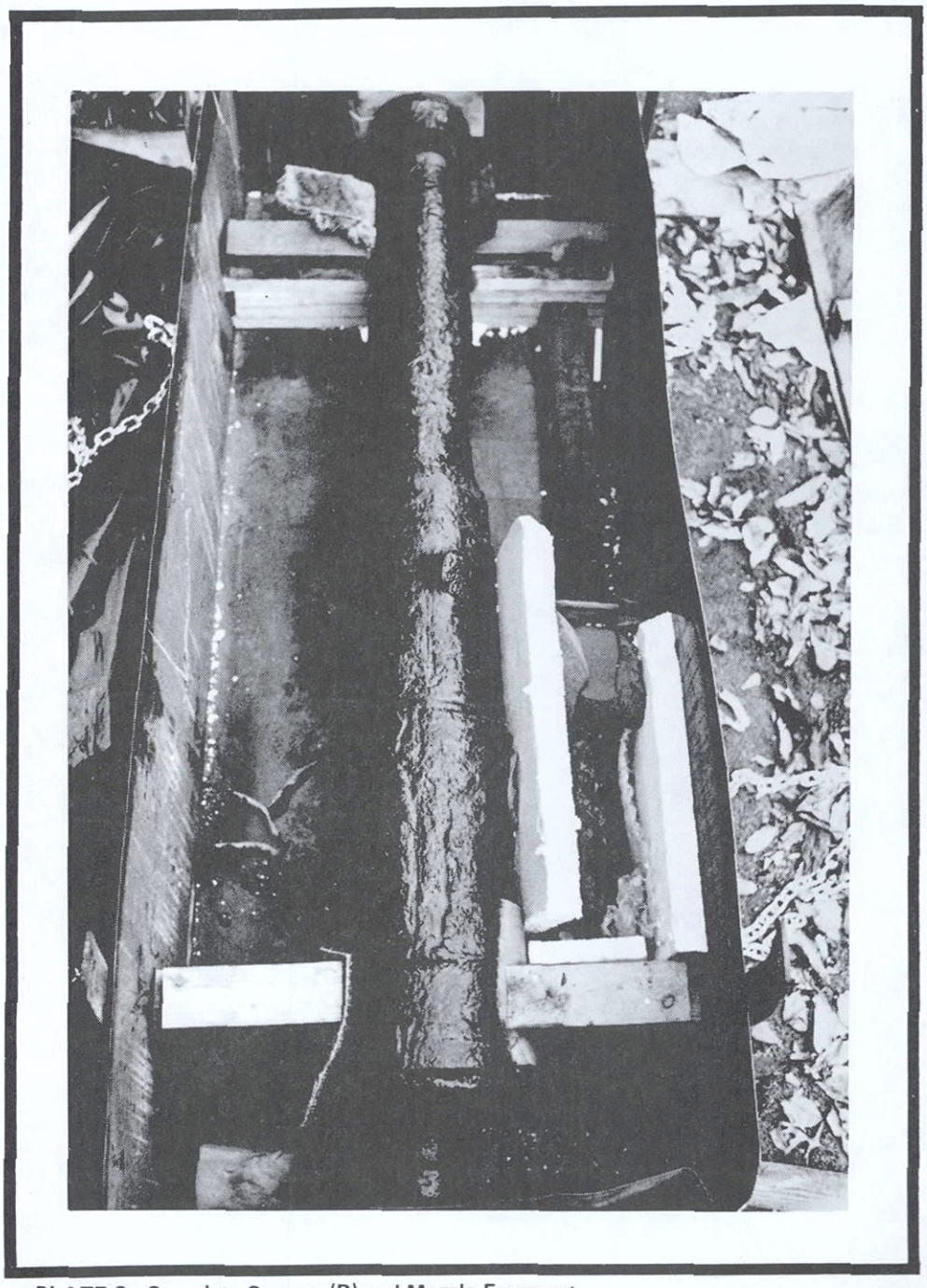


PLATE 2. Complete Cannon (B) and Muzzle Fragment

PLATE 3. Two Cannon (C and E) Broken Through the Chase

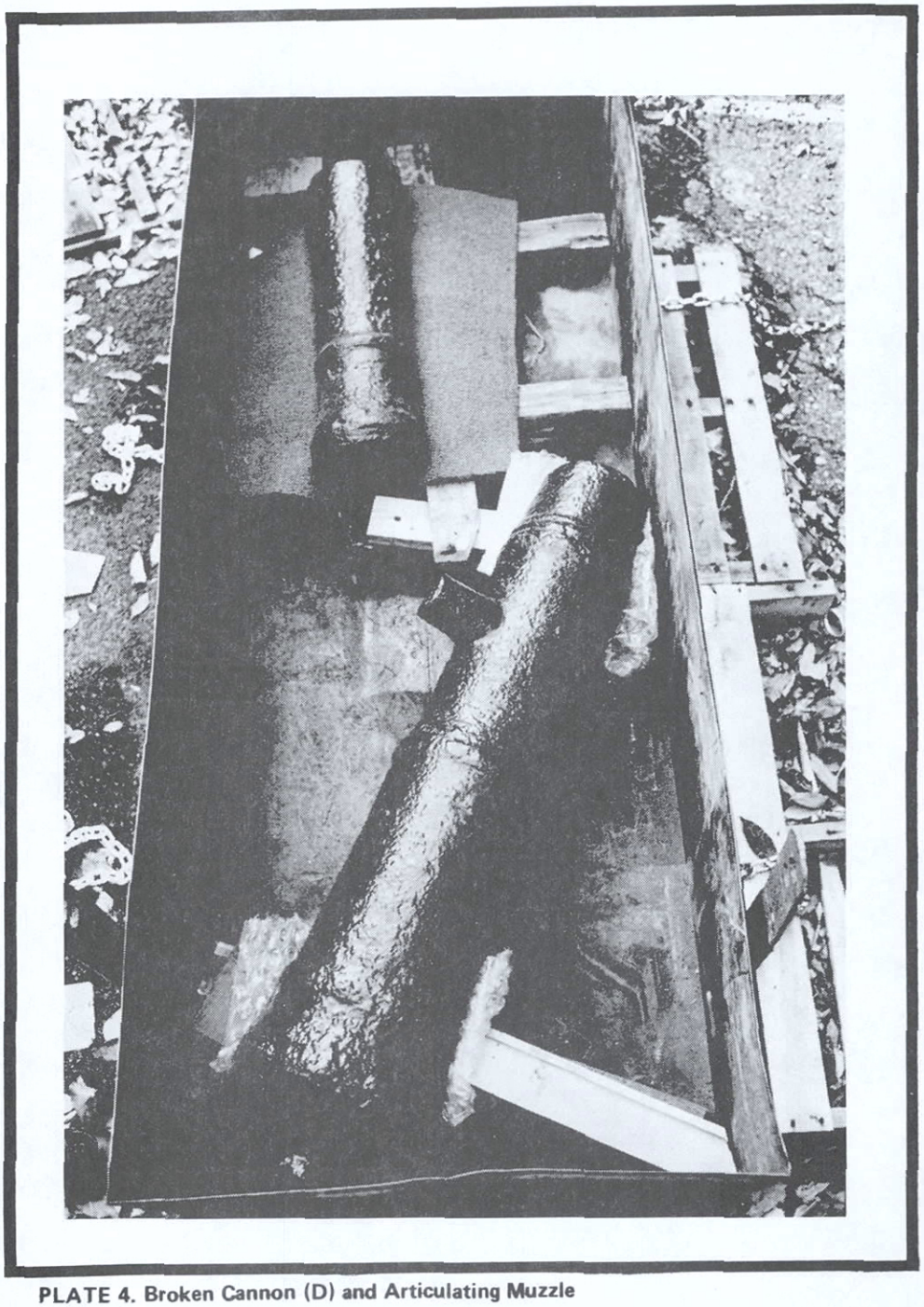


PLATE 4. Broken Cannon (D) and Articulating Muzzle

ANALYSIS:

The deteriorated condition of the surfaces of the cannons and the loss of metal eliminated any surface marking and blurred details of the reinforces. All measurements are therefore approximate and in some cases measurements were unobtainable. The primary goals of the present study were to determine approximate bore size, type of cannons, and approximate age.

Bore diameter was initially measured at the Research and Conservation Laboratory (see Table 1 and Data Sheets following references) and was recorded as ranging from 3.5 inches to 3.75 inches. Close inspection of the cannons at the LBA facilities indicated that the bores measured very close to 3.5 inches. Typical shot size for a 6-pounder cannon ranges from 3.495 (Tucker 1989:264) to 3.58 inches (Ordnance Manual 1970:34). The spread between 4-pounder cannons (approximately 3-inch bores) and 9-pounders (approximately 4-inch bores) places the five cannons found at the Assay Site as 6-pounders. The exact bore diameter is impossible to determine owing to the corrosion of the bores.

TABLE 1

Baseline Data for Five Cannons from the Assay Site

	A	B	C	D	E
Bore Diameter	3.5	3.5	3.75	3.75	3.5
Length Overall (Muzzle to end of cascabel knob)	84.75	85.5	88.5*	81.0*	-
Trunnion Diameter	3.5**	3.5	3.5	3.75	3.5
Trunnion Length	3.0	3.5	3.5	3.75	4.25
Trunnion Placement	centered	below bore	below bore	below bore	below bore

* Estimated
** Where sample is complete enough for measurement.

John Mueller, a professor of artillery and fortifications at Woolwich, England, wrote a Treatise of Artillery, first published in 1757. The book has proved very useful for scholars as Mueller devotes substantial space to discussing ordnance widely in use at the time. Many of his ideas about reduction in size and weight of cannons and relocation of the trunnions to the midline of the bore were subsequently adopted by many countries. Reviewing Mueller's

tables for his proposed new cannons (post-1757) versus the standard ordnance widely in use suggests that the Assay 6-pounders fit well into the garrison length for iron guns of 6' 1" as well as into the ship gun category of 7' 0" (Mueller 1977:52-56). Peterson (n.d.:42) lists seven common lengths for 6-pounder British ordnance, ranging from 6' 0" to 9' 0". These standards were established by the Board of Ordnance in 1764. The two complete cannons from the Assay Site measure 84.75 and 85.5 inches. Subtracting two calibers (ca. 7 inches) for the cascabel leaves approximately 79.5 inches for the longer piece, or 6' 6", and 77.75 inches, or 6' 5", for the shorter complete specimen. Peterson lists a 6' 6" cannon in the 1764 ordnance table.

The placement of the trunnions with their tops at the bottom of the bore for four of the five Assay cannons indicates a pre-1800 date. Mueller (1977:41-43) argued that cannons would recoil substantially less if the trunnions were centered upon the bore. This change in location was only gradually adopted by British cannon makers. Mueller's influence appears to have been more readily accepted by American gunmakers. "American adoption of a simpler form for guns and the practice of placing trunnions on the centerline indicate that Mueller did indeed influence American gun design" (Tucker 1989:88). The one cannon that has the trunnions on the midline of the bore also differs substantially in the breech/cascabel area and in the slimness of the muzzle with a greatly reduced swell. The characteristics of this cannon suggest that it may be Dutch (Bump, personal communication 1989). The trunnions on all of the pieces appear to be straight-sided, not tapered. The tapered trunnion gradually disappeared by about 1760 (Peterson n.d.:41). Laverty (1987:97) places the disappearance of tapered trunnions at about 1716.

In the area of the cascabel the Assay cannons show the greatest variation. In examining all five cannons, the variations are substantial enough between each of the guns in shape of the breech, number of turned rings, and shape of the button to suggest that no two of the cannons were from the same foundry. The buttons range from one specimen with a flattened end, to spherical, to pointed. The pointed button is associated with a flattened breech and reduced muzzle swell. None of the buttons show any evidence of being belted, a practice that became general on British ordnance in the 1740s (Peterson n.d.:41). According to Laverty (1987:97), "the eighteenth century button was always spherical, but that of the seventeenth century often had a less regular shape. Some came to a point via a series of declinations, and others had flattened ends."

Breakage of three of the cannons on the chase was examined for any evidence to indicate that this had been done to render them unserviceable. The Ordnance Manual of 1862 lists a number of ways to render a cannon unserviceable, ranging from spiking, to wedging a ball at the base of the bore, or bursting a cannon by filling a

piece with sand over a charge. Other techniques included knocking a trunnion off with sledgehammers and "fire[ing] a piece against another muzzle to muzzle, or the muzzle of one to the chase of another" (Ordnance Manual 1970:82). Several of the cannons exhibited backhoe tooth marks on their surfaces. There was no evidence on either the muzzle pieces or on the chases of the broken cannons of an impact such as would have been made by a ball to deliberately destroy them. The condition of the breaks in the cannons was not noted at the time of recovery and subsequent discussions with Mr. Bump, at the Conservation Laboratory at the Division of Historical Research, Tallahassee, Florida, did not clarify the status of the breaks. It is possible that the cannons were broken during deposition or as a result of their recovery.

CONCLUSIONS:

The five cannons found at the Assay Site consist of 6-pounders, with four of the five most likely British. The one cannon probably was from a different country. The part of the block where they were found was filled between 1790 and 1804. If the cannons were discarded on the riverbottom they would necessarily pre-date 1790, and if discarded in the fill they would pre-date 1804. The characteristics of the cannons examined place them in the eighteenth century, with one of them possibly dating from the late seventeenth century. The overall size of the cannons suggests that they were either garrison or most likely naval pieces that had served out their useful life span. The variability between pieces is not unexpected for this period. "By the time of the American Revolution, ordnance in the hands of the Colonials represented a motley collection of every sort and caliber -- mostly English guns, but also some from France, Spain and even Scandinavia. This state of affairs continued well beyond the Revolution" (Tucker 1989:74).

BIBLIOGRAPHY

Bump, Herbert
1989 (Director of the Research and Conservation Laboratory, Tallahassee, Florida.) Personal communication.

Laverty, Brian
1987 The Arming and Fitting of English Ships of War 1600-1815. Naval Institute Press, Annapolis, Maryland.

Mueller, John
1977 A Treatise of Artillery 1780. Reprinted by the Museum Restoration Service, Bloomfield, Ontario, Canada.

Ordnance Manual for the Use of the Officers of the United States Army, (The)
1970 (Facsimile of Third Edition 1861.) Second Facsimile Printing by Ordnance Park Corporation.

Peterson, Harold
(n.d.) Round Shot and Rammers. South Bend Replicas, Inc., South Bend, Indiana.

Tucker, Spencer
1989 Arming the Fleet, U.S. Ordnance in the Muzzle-Loading Era. Naval Institute Press, Annapolis, Maryland.

CANNON DATA SHEETS

NEW YORK CITY CANNON - INTACT II

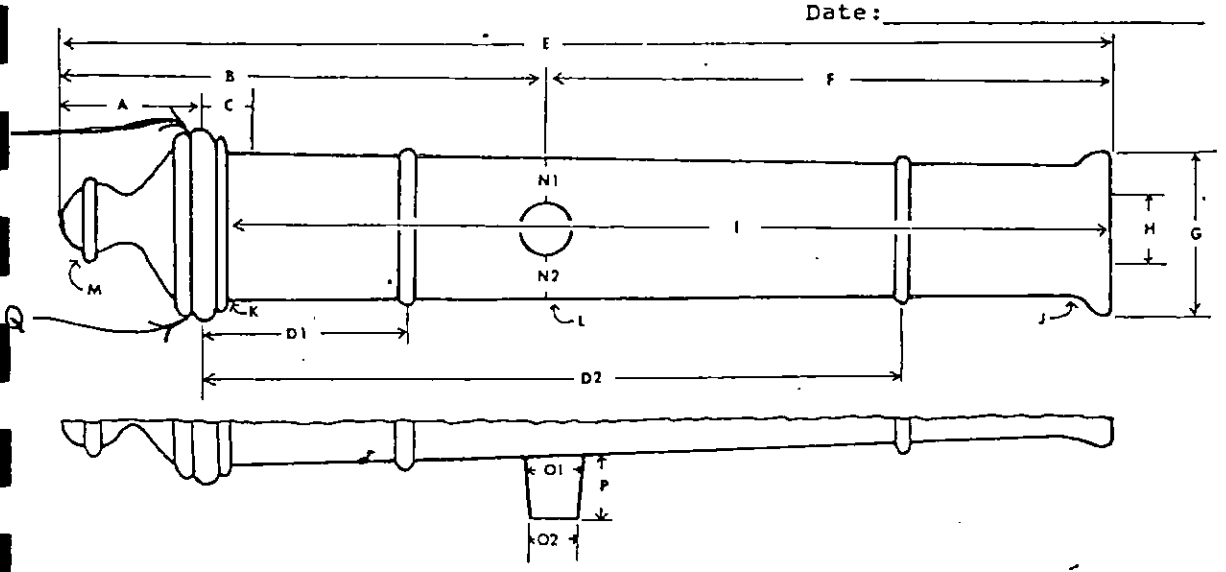
Underwater Archaeological Research Section

Site #: _____

CANNON DATA SHEET

Site name: _____

Date: _____



~~Site location and reference:~~ NOTE: CANNON BADLY CORRODED W VERY LITTLE OF THE PARENT METAL LEFT.

Location of cannon on site: ONE OF SEVERAL UNEARTHED DURING EXCAVATION FOR A BUILDING

Date cannon was located: _____

Divers: _____

Recorder: _____

METRIC ATTRIBUTES

NOTE: Measurements requiring two readings for left and right sides should be taken viewing the cannon on the touchhole side (dorsal) from the cascabel down the tube.

A. Cascabel to breech reinforce: 8 3/4"

B. Cascabel to trunion: 40"

C. Reinforce to touchhole: TOO OBLITERATED

D. Breech reinforce to each other reinforce band

	Distance	Thickness
1.	6 1/4"	11 1/2" APPROX.
2.	21"	10 1/4" APPROX.
3.	34 1/2"	Too obliterated
4.	39"	9 3/4"
5.	69 1/2"	7 1/2"
6.		

write any additional reinforce measurements on back

E. Overall length: 84 3/4"

F. Trunion to muzzle length: 44 3/4"

G. Muzzle diameter: 8 1/4"

H. Bore diameter: 3 1/2"

I. Bore depth: 72"

J. Diameter behind muzzle flare: 6 3/4"

K. Diameter in front of breech reinforce: 11 3/4"

L. Diameter of tube at trunions: 9 1/2" APPROX

M. Diameter of cascabel: 4 1/2"

N. Vertical position of trunion on tube

1. trunion to dorsal: halfway
2. trunion to ventral: halfway

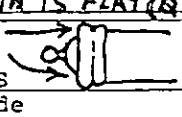
O. Diameter of trunion

1. at tube: left 3 1/2" right 3 1/2"
2. at ends: left BROKEN OFF right 3"

P. Length of trunions: left Broken off right 3"

Other: BREECH REINFORCE DIAM. = 12 3/4" / AREA WHERE BRCH RNFRCE & CASCABEL JOIN IS FLAT(Q)

POSSIBLY DUTCH



NON-METRIC ATTRIBUTES

answer on reverse side

1. Depth to and description of bottom.
2. Type of sediment(s).
3. Lifting handles: description & necessary accompanying measurements.
4. Any other pertinent attributes: distinguishing marks, insignias, dates, color, condition, type of metal, etc.

New York City Cannon - Intact

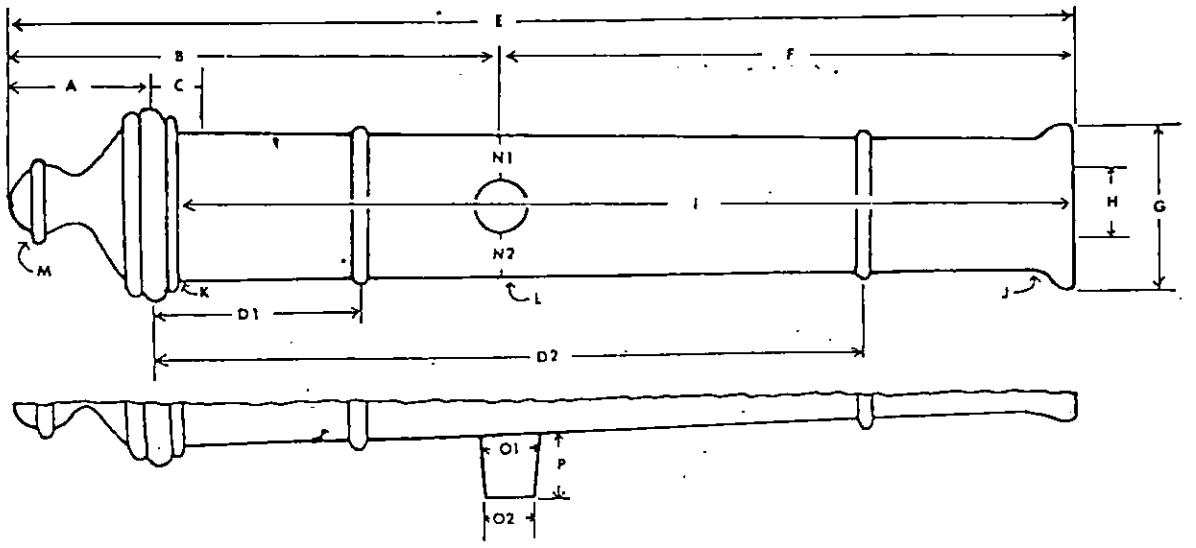
Underwater Archaeological Research Section

Site #: _____

Site name: New York City

Date: _____

CANNON DATA SHEET



~~Site location and reference~~ Note: CANNON BADLY CORRODED W VERY LITTLE OF THE PARENT METAL LEFT

Location of cannon on site: ONE OF SEVERAL UNEARTHED DURING EXCAVATION FOR A BUILDING

METRIC ATTRIBUTES

NOTE: Measurements requiring two readings for left and right sides should be taken viewing the cannon on the touchhole side (dorsal) from the cascabel down the tube.

A. Cascabel to breech reinforce 9"

B. Cascabel to trunion 39½"

C. Reinforce to touchhole _____

D. Breech reinforce to each other reinforce band

	Distance	Thickness
1.	5⅛"	1"
2.	19"	1½"
3.	22⅛"	2¼" APPROX
4.	35½"	1¾" APPROX
5.	37¾"	1" APPROX
6.	66½"	1¾"

write any additional reinforce measurements on back

E. Overall length 85½"

F. Trunion to muzzle length 46"

G. Muzzle diameter 6½" APPROX

H. Bore diameter 3½"

I. Bore depth _____

J. Diameter behind muzzle flare 6½"

Date cannon was located: _____

Divers: _____

_____

_____

Recorder: _____

_____

K. Diameter in front of breech reinforce 11½"

L. Diameter of tube at trunions 10" APPROX

M. Diameter of cascabel 12" APPROX

N. Vertical position of trunion on tube

1. trunion to dorsal _____

2. trunion to ventral flush w/ ventral SIDE

O. Diameter of trunion

1. at tube left 3½" right 3⅝"

2. at ends left 2⅞" right 3⅝"

P. Length of trunions left 3½" right 4"

Other: _____

_____

NON-METRIC ATTRIBUTES

answer on reverse side

1. Depth to and description of bottom.
2. Type of sediment(s).
3. Lifting handles: description & necessary accompanying measurements.
4. Any other pertinent attributes: distinguishing marks, insignias, dates, color, condition, type of metal, etc.

NEW YORK CITY CANNON - BROKEN III

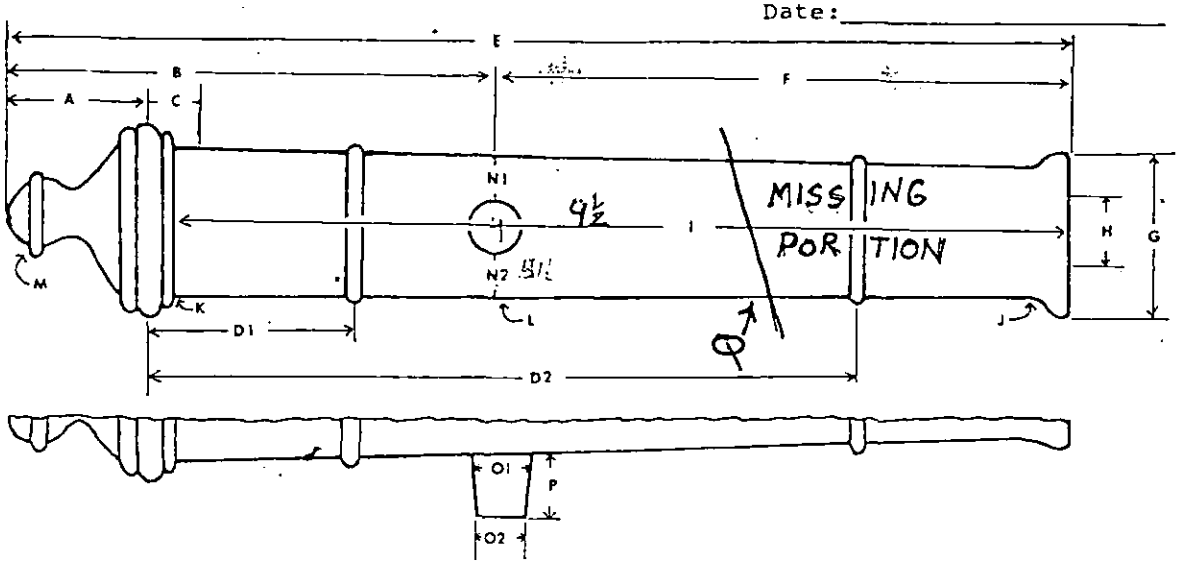
Underwater Archaeological Research Section

Site #:_____

CANNON DATA SHEET

Site name:_____

Date:_____



~~Site location and reference~~: NOTE: CANNON BADLY CORRODED & VERY LITTLE OF THE PARENT METAL LEFT.

Location of cannon on site: ONE OF SEVERAL UNEARTHED DURING EXCAVATION FOR A BUILDING.

Date cannon was located:_____

Divers:_____

Recorder:_____

METRIC ATTRIBUTES

NOTE: Measurements requiring two readings for left and right sides should be taken viewing the cannon on the touchhole side (dorsal) from the cascabel down the tube.

A. Cascabel to breech reinforce: 6½"

B. Cascabel to trunion: 36½"

C. Reinforce to touchhole: 10¼"

D. Breech reinforce to each other reinforce band

	Distance	Thickness
1.	5"	11¾"
2.	20½"	9¾"
3.	37¼"	9½"
4.	*	*
5.	*	*
6.	*	*

write any additional reinforce measurements on back

E. Overall length: 5½"

F. Trunion to muzzle length: 15" *

G. Muzzle diameter: 8¼" **

H. Bore diameter: 3¾" *

I. Bore depth: 41¼" *

J. Diameter behind muzzle flare: *

K. Diameter in front of breech reinforce: *

L. Diameter of tube at trunions: 9½"

M. Diameter of cascabel: 12¼"

N. Vertical position of trunion on tube

1. trunion to dorsal: 5½"

2. trunion to ventral: almost flush

O. Diameter of trunion

1. at tube: left 3¾" right 4" TOO DETERIORATED

2. at ends: left 1" right 3¼ 3¼"

P. Length of trunions: left deteriorated right 3¾"

Other:_____

NON-METRIC ATTRIBUTES

answer on reverse side

1. Depth to and description of bottom.
2. Type of sediment(s).
3. Lifting handles: description & necessary accompanying measurements.
4. Any other pertinent attributes: distinguishing marks, insignias, dates, color, condition, type of metal, etc.

** AT Q

NEW YORK CITY CANNON - BROKEN #

Underwater Archaeological Research Section

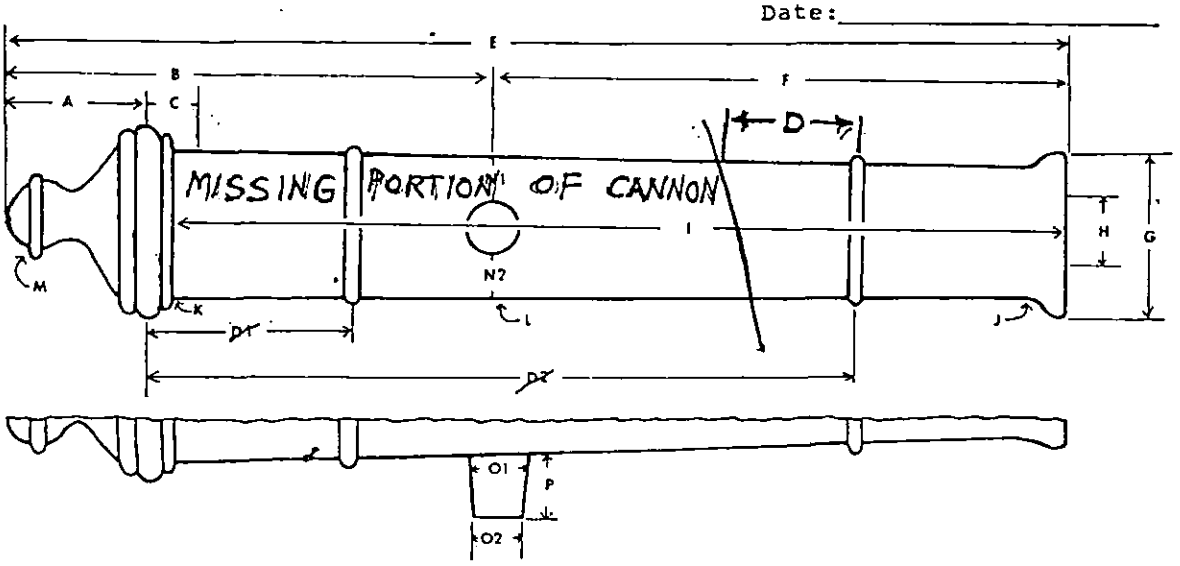
4003

CANNON DATA SHEET

Site #: _____

Site name: _____

Date: _____



Site location and reference: Note CANNON BADLY CORRODED & VERY LITTLE OF THE PARENT METAL LEFT.

Location of cannon on site: ONE OF SEVERAL UNEARTHED DURING EXCAVATION FOR A BUILDING.

Date cannon was located: _____

Divers: _____

_____

_____

Recorder: _____

_____

METRIC ATTRIBUTES

NOTE: Measurements requiring two readings for left and right sides should be taken viewing the cannon on the touchhole side (dorsal) from the cascabel down the tube.

A. Cascabel to breech reinforce *

B. Cascabel to trunion *

C. Reinforce to touchhole *

D. Breech reinforce to each other reinforce band

	Distance	Thickness
1.	*	*
2.	*	*
3.	*	*
4.	*	*
5.	*	*
6.	21"	6 3/4"

write any additional reinforce measurements on back

E. Overall length 29 1/2"

F. Trunion to muzzle length *

G. Muzzle diameter 8"

H. Bore diameter 3 3/4"

I. Bore depth *

J. Diameter behind muzzle flare 7"

K. Diameter in front of breech reinforce *

L. Diameter of tube at trunions *

M. Diameter of cascabel *

N. Vertical position of trunion on tube

1. trunion to dorsal *

2. trunion to ventral *

O. Diameter of trunion

1. at tube left * right *

2. at ends left * right *

P. Length of trunions left * right *

Other: DIAMETER OF BARREL AT BREAK 7 3/4"

NON-METRIC ATTRIBUTES

answer on reverse side

1. Depth to and description of bottom.
2. Type of sediment(s).
3. Lifting handles: description & necessary accompanying measurements.
4. Any other pertinent attributes: distinguishing marks, insignias, dates, color, condition, type of metal, etc.

NEW YORK CITY CANNON - BROKEN

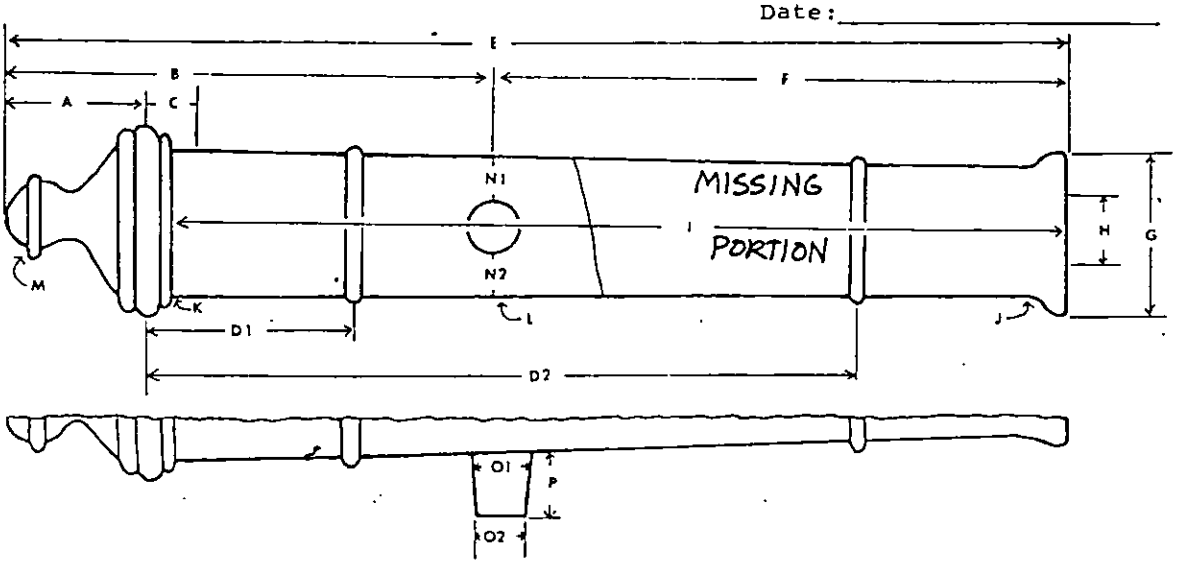
Underwater Archaeological Research Section

Site #: _____

CANNON DATA SHEET

Site name: _____

Date: _____



~~Site location and reference:~~ NOTE: CANNON BADLY CORRODED W VERY LITTLE OF THE PARENT METAL LEFT.

Location of cannon on site: ONE OF SEVERAL UNEARTHED

Date cannon was located: _____

Divers: _____

_____

_____

Recorder: _____

_____

METRIC ATTRIBUTES

NOTE: Measurements requiring two readings for left and right sides should be taken viewing the cannon on the touchhole side (dorsal) from the cascabel down the tube.

A. Cascabel to breech reinforce 8 1/2"

B. Cascabel to trunion 61 1/4"

C. Reinforce to touchhole 35"

D. Breech reinforce to each other reinforce band

	Distance	Thickness
1.	5"	12" ca
2.	21 1/8"	11"
3.	39"	8"
4.	*	*
5.	*	*
6.	*	*

write any additional reinforce measurements on back

E. Overall length 69"

F. Trunion to muzzle length 7 3/4" *

G. Muzzle diameter 8" *

H. Bore diameter 3 3/4" *

I. Bore depth 35" *

J. Diameter behind muzzle flare *

K. Diameter in front of breech reinforce _____

L. Diameter of tube at trunions _____

M. Diameter of cascabel _____

N. Vertical position of trunion on tube

1. trunion to dorsal _____

2. trunion to ventral _____

O. Diameter of trunion

1. at tube left _____ right _____

2. at ends left _____ right _____

P. Length of trunions left _____ right _____

Other: _____

_____

64 4/4

NON-METRIC ATTRIBUTES 61 1/4

answer on reverse side — 7 3/4

1. Depth to and description of bottom.
2. Type of sediment(s).
3. Lifting handles: description & necessary accompanying measurements.
4. Any other pertinent attributes: distinguishing marks, insignias, dates, color, condition, type of metal, etc.

NEW YORK CITY CANNON - BROKEN IV

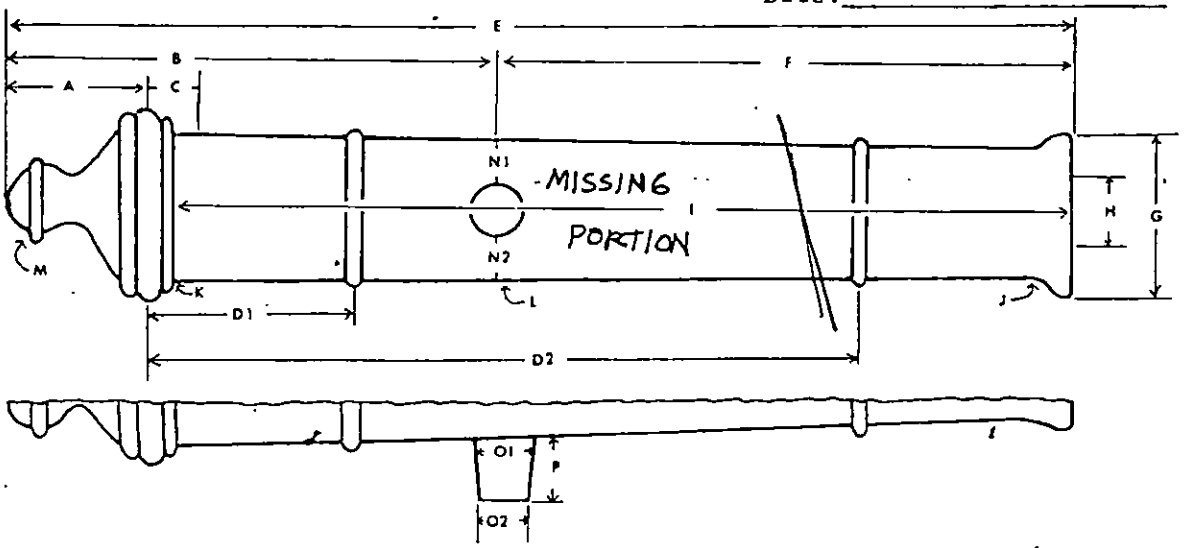
Underwater Archaeological Research Section

Site #: _____

CANNON DATA SHEET

Site name: _____

Date: _____



~~Site location and reference~~: NOTE: CANNON BADLY CORRODED W/ VERY LITTLE OF THE PARENT METAL LEFT.

Location of cannon on site ONE OF SEVERAL UNEARTHED DURING EXCAVATION FOR A BUILDING.

Date cannon was located: _____

Divers: _____

Recorder: _____

METRIC ATTRIBUTES

NOTE: Measurements requiring two readings for left and right sides should be taken viewing the cannon on the touchhole side (dorsal) from the cascabel down the tube.

A. Cascabel to breech reinforce *

B. Cascabel to trunion *

C. Reinforce to touchhole * BROKEN END

D. ~~Breech reinforce~~ to each other reinforce band

	Distance	Thickness
1.	*	*
2.	*	*
3.	*	*
4.	*	*
5.	*	*
6.	11 3/4"	6 3/4" — MUCH DETERIORATED IN PLACES

write any additional reinforce measurements on back

E. Overall length 19 1/4"

F. Trunion to muzzle length *

G. Muzzle diameter 8 1/8"

H. Bore diameter 4"

I. Bore depth 19 1/4"

J. Diameter behind muzzle flare 7" — MUCH DETERIORATED IN PLACES

K. Diameter in front of breech reinforce *

L. Diameter of tube at trunions *

M. Diameter of cascabel *

N. Vertical position of trunion on tube

1. trunion to dorsal *
2. trunion to ventral *

O. Diameter of trunion

1. at tube — left * right *
2. at ends — left * right *

P. Length of trunions — left * right *

Other: _____

NON-METRIC ATTRIBUTES

answer on reverse side

1. Depth to and description of bottom.
2. Type of sediment(s).
3. Lifting handles: description & necessary accompanying measurements.
4. Any other pertinent attributes: distinguishing marks, insignias, dates, color, condition, type of metal, etc.

NEW YORK CITY CANNON – BROKEN

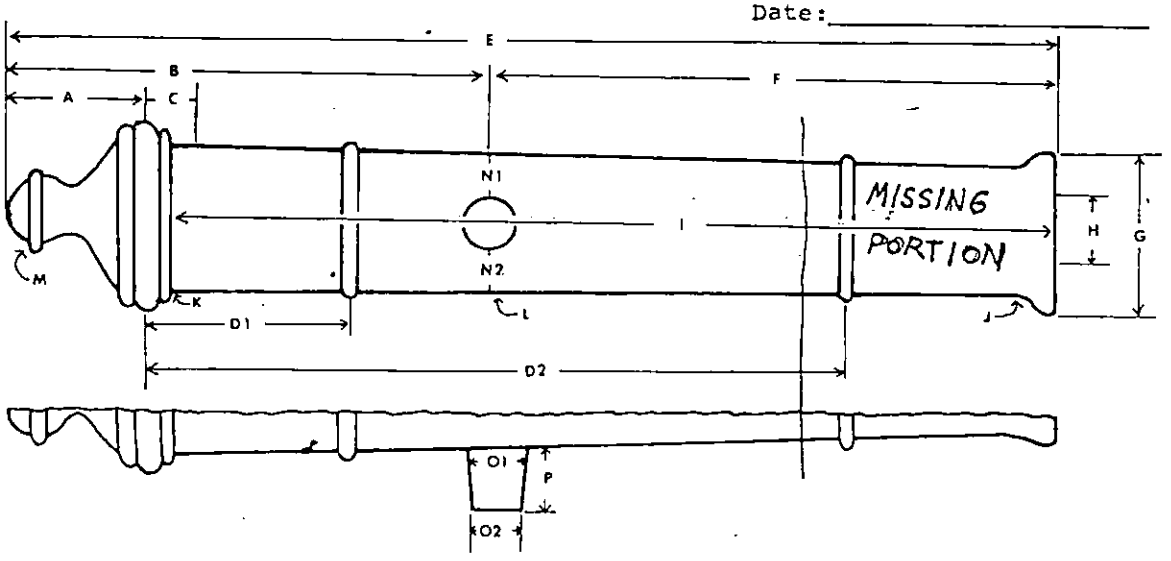
Underwater Archaeological Research Section

CANNON DATA SHEET

Site #: _____

Site name: _____

Date: _____



~~Site location and reference~~: Note: CANNON BADLY CORRODED W VERY LITTLE OF THE PARENT METAL LEFT

Location of cannon on site: ONE OF SEVERAL UNEARTHED DURING EXCAVATION FOR A BUILDING.

Date cannon was located: _____

Divers: _____

Recorder: _____

METRIC ATTRIBUTES

NOTE: Measurements requiring two readings for left and right sides should be taken viewing the cannon on the touchhole side (dorsal) from the cascabel down the tube.

A. Cascabel to breech reinforce: 7"

B. Cascabel to trunion: 39½" CA.

C. Reinforce to touchhole: _____

D. Breech reinforce to each other reinforce band

	Distance	Thickness
1.	6" ca. SURFACE IS	_____
2.	TOO OBLITERATED SURFACE IS TOO	_____
3.	OBLITERATED SURFACE IS TOO	_____
4.	OBLITERATED SURFACE IS TOO	_____
5.	OBLITERATED SURFACE IS TOO	_____
6.	OBLITERATED	_____

write any additional reinforce measurements on back

E. Overall length: 66¼" *

F. Trunion to muzzle length: 26¾" *

G. Muzzle diameter: 7½" *

H. Bore diameter: 3½" *

I. Bore depth: 55" *

J. Diameter behind muzzle flare: _____ *

K. Diameter in front of breech reinforce: 11"

L. Diameter of tube at trunions: TOO DETERIORATED

M. Diameter of cascabel: 11¾"

N. Vertical position of trunion on tube

1. trunion to dorsal: halfway
2. trunion to ventral: halfway

O. Diameter of trunion

1. at tube: left TOO DETERIORATED; right 3½"
2. at ends: left TOO DETERIORATED; right 3"

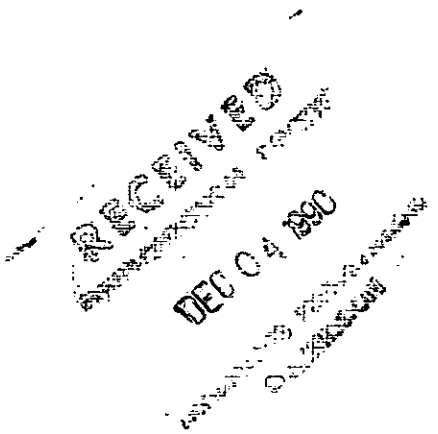
P. Length of trunions: left TOO DETERIORATED; right 4¼"

Other: _____

NON-METRIC ATTRIBUTES

answer on reverse side

1. Depth to and description of bottom.
2. Type of sediment(s).
3. Lifting handles: description & necessary accompanying measurements.
4. Any other pertinent attributes: distinguishing marks, insignias, dates, color, condition, type of metal, etc.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