

## VI. SUMMARY AND CONCLUSIONS

In this final chapter, we address questions posed in the original research design. Results of the study are summarized in terms of the four main objectives presented in Chapter I: 1) documenting the evolution of the built environment; 2) formulating a predictive model of buried archaeological deposits at the Landing; 3) identifying natural and cultural causes affecting the preservation of the Landing; and 4) assessing the significance of the Memphis Landing using criteria established by the National Historic Preservation Act of 1966.

### EVOLUTION OF THE BUILT ENVIRONMENT

To arrive at an understanding of how and when the Memphis Landing was constructed, we must compare the results of the literature and records research with the results of the on-site geological and archaeological surveys. The conclusions presented here are considered preliminary and could change in light of new historical information, subsurface archaeological data, or a reevaluation of the lithological patterns of the stones themselves.

#### Review of the Historical Record

The available historical record, presented in Chapter III and summarized in Table 3, suggests that the cobblestone Landing visible today is the product of three major nineteenth century building episodes and one twentieth century repaving project. The first major paving of the Landing was between 1859 and 1860. An 1860 audit suggests that John Lowdon had paved 12,428.88 square yards between Adams and Union streets and 7,129.39 square yards between Union and Beale streets. Work was already underway to repair part of the pavement between Union and Beale Streets that had "given way and sunk." The contract for the work suggests this pavement was 100 feet wide. Unfortunately, no extant documentation or maps indicate whether this paving was located against the bluff or at the water's edge.

The second major paving episode commenced after the Civil War between 1866 and 1869. In 1866, the City awarded a contract to John Loudon for new paving from Jefferson to Monroe streets, "to be one hundred feet in width, composed of square blocks of stone." In 1868, a resolution extended a contract with M. & J. Loudon to cover the unpaved portion of the city wharf from Court to Union streets. In 1869, J. & M. Loudon were contracted to pave the Landing at the foot of Union Street. The historical record suggests that the Landing was complete to Union Street by ca. 1869.

Ten years later, in 1879, the third and final nineteenth century effort to pave the Landing began with a contract to M. Larkin & Company. Material for the paving project was provided under a separate contract to James A. Loudon. In all probability, the work was halted due to the Yellow Fever epidemic of that year. However, Larkin & Company had probably finished part of the original work before the epidemic, for a renewed 1880 contract to Larkin included paving from the north edge of the old elevator site to the south edge of Beale Street (an area about 400 x 200 feet). At this point, the historical record becomes complicated. In June 1880, newspaper reports indicate W. H. Grider & Company began paving at the lower end of the old freight elevator, working toward Beale Street; in July 1880, the legislative council directed the City Engineer to design new specifications and advertise for bids to pave the area of the wharf from the north side of the old elevator to the south side of Beale Street. This contract was awarded

**Table 3. Historical Summary of the Memphis Landings.**

1819	Public Promenade is established from the mouth of Bayou Gayoso to Beale Street. The Public Landing extends from Auction Street to Winchester Street.
1830s	A sandbar accretes across the west and southwest frontages of the Public Landing. A wooden walkway and wharf are built across the bar in 1837 at the end of Winchester Street.
1838	Captain William W. Hart, wharfmaster, moves the wharfboat south to the vicinity of Union Street.
1844	The City formalizes the development of the Batture. Center Landing is established between the extensions of Poplar and Washington streets. A "public levee" extends along the frontage of the river on both sides of Center Landing. At least portions of Center Landing are paved before 1859.
1859	<p>In March, the City "introduces a plan for paving the wharf with limestone or granite, of not less than four nor more than eight inches in surface, to be laid on gravel not less than five nor more than eight inches in depth; the width of the pavement to be 100 feet, the length 3300." Amendments establish a uniform grade and set the depth of the paving at 12 inches. The completed revetment is to stretch from the north end of Jefferson Street to the south line of Union Street at Howard's Row.</p> <p>In September, the first stones of the pavement at the city wharf are put down by the contractor, John Lowdon.</p>
1860	Audit shows Lowdon has paved 12,428.88 square yards between Adams and Jefferson (Union?) streets and 7,129.39 square yards between Union and Beale streets. Also mentioned is the requirement for Lowdon to "grade from the wharf" some 40,000 cubic yards of earth. Lowdon is already obliged to repair "that portion of the nine inch pavement between Union and Beale Streets which has given way and sunk." The settling of the grade is attributed to the lack of "sewers or drains underneath said pavement necessary to conduct all water beneath it to the river."
1861	Mayor and board receive proposals "for the sinking of a barge or other river craft with sufficient stone or other material to hold it in place at the landing below Poplar Street where the bank is now being washed away."
1862	In June, Federal forces arrive in Memphis.
1865-1886	Changes in the currents of the Mississippi slowly begin to erode the Batture. By 1886, the paved frontage flanking the open square of the landing slips into the river.
1866	The City awards a contract to John Loudon for new paving from Jefferson to Monroe streets, "to be one hundred feet in width, composed of square blocks of stone."
1868	Loudon calls attention to caving conditions of public landing northward from Jefferson Street; a strip 700 x 100 already had disappeared, carrying away \$20,000 worth of paving. Caving could be stopped by sinking two or three old barges loaded with gravel opposite the head of "Old Hen." Resolution extends the contract of M. & J. Lowden to include unpaved portion of city wharf from Court to Union; the work is to be done within 60 days.
1869	City Engineer instructs J. & M. Loudon to pave Landing at the foot of Union Street.
1871-1872	The Vicksburg & St. Louis Anchor Line's massive freight elevator is constructed at the foot of Beale Street.
1878	Freight elevator is destroyed by fire.



Table 3. Historical Summary of the Memphis Landings. (cont.)

1879	<p>Ordinance requires "parties laying sewers to the River to use Iron pipe under the Landing."</p> <p>City Engineer recommends completing the levee south of Union Street. Contract is awarded to M. Larkin &amp; Co. Material for the paving project is provided under a separate contract with James A. Loudon.</p> <p>In March, T. C. Betts is awarded the contract to construct a "dump or dredge boat" at the elevator site.</p>
1880	<p>In June, Grider begins paving, breaking ground at the lower end of the old elevator and working up to Beale Street."</p> <p>In July, newspapers report a renewed contract for Larkin &amp; Company to finish "paving of the wharf &amp; Landing from the north edge of the elevator to the south edge of Beale Street, a distance of about 400 feet by 200." Also in July, the City Engineer designs new specifications and advertises for bids to pave the area of the wharf from the elevator to Beale Street. A contract calling for "paving the wharf from N side of old elevator to S. side of Beale Street [with] the district reserving the right to do any or all of the grading" was awarded to O. H. P. Piper. The fire and police commissioners are authorized to insure more rapid progress by W. H. Grider &amp; Co. to complete work.</p> <p>In August, a diver cuts away the burned pilings at the bottom of the river at the old St. Louis Packet Company elevator at the foot of Beale Street.</p>
1881	<p>In October, the contract with Grider &amp; Co., "having done the paving and not the rip rap &amp; repairing" because of the "stage of water and other reasons," is canceled.</p> <p>In December, a status report indicates the progress over the "past three years in grading and extending the wharf and landing southward from Union street and to the south side of Beale. About thirty thousand square yards of new pavement has been laid, making the new levee front some eleven hundred feet, by two hundred and fifty feet with the slope. Two-thirds of this work is of first-class block stone and the remainder first-class rubble-range work. About four thousand cubic yards of stone riprap has been placed at this levee as a protection against washing and undermining of same." The city's paved landing surface extends in an unbroken line from Beale Street north to Jefferson Street, a distance of more than one-half mile, averaging 225 feet in width.</p>
1881-1882	<p>The uppermost (eastern) edge of the Landing pavement is altered during the construction of the Mississippi &amp; Tennessee Railroad. These efforts also require the removal of "all of the bluffs out of their line between Beale and Jefferson (save that between Union and Monroe), amounting to over fifty thousand cubic yards."</p>
ca. 1912	<p>The massive Memphis Siphon storm sewer is constructed beneath the Landing between Union and Gayoso avenues.</p>
1932-1937	<p>Riverside Drive is constructed.</p>

to O. H. P. Piper. In any case, the paving appears to have been complete by 1881, when the City Engineer reported:

a large amount of work has been done in the past three years in grading and extending the wharf and landing southward from Union street and to the south side of Beale. About thirty thousand square yards of new pavement has been laid, making the new levee front some eleven hundred feet, by two hundred and fifty feet with the slope.



Although archaeological contexts at the Beale Street Landing Dump site indicate post-1881 paving episodes (Weaver et al. 1994), the next major modification to the Landing, ca. 1932–1937, was the completion of Riverside Drive. This project, funded by the Public Works Administration, elevated the grade of Riverside Drive and the Illinois Central Railroad tracks to a level at least 15 feet above the pavement on the eastern side of the Landing. The current system of automobile ramps was installed at this time, along with most of the culverts, walkways, and stairs that connect Riverside Drive with the Landing surface. On the northern end of the Landing, the block between Jefferson and Court avenues was raised to the level of Riverside Drive to create Jefferson Davis Park.

### Correlation of the Lithological and Historical Records

A working hypothesis throughout the project centered on the idea that raw material usage, construction pattern, and cultural features at the Landing could be associated with distinct building episodes reflected in the historical record. What we have been able to surmise from these separate lines of evidence suggests a complex sequence of procurement and construction over the last 136 years.

In regard to raw materials, we now know that the Memphis Landing is composed of nine rock types in three basic shapes: dimensional, roughly dimensional, and nondimensional. The Landing is approximately 85 percent nondimensional or roughly dimensional Mississippian age limestone (Types 1, 2, and 4). Evidence (detailed below) suggests the earliest extant sections of the Landing (ca. 1860–1868) were constructed using nondimensional fossiliferous limestone (Type 1). Later sections of the Landing south of Union Avenue (ca. 1880) were first built using nondimensional Type 1 with a high percentage of Type 4. Type 4 breaks apart under heavy use, and large-scale repairs apparently were undertaken almost immediately, using a better-quality, roughly dimensional oolitic limestone (Type 2). Later repairs are associated with roughly dimensional sandstone (Type 3). Construction of the service road at the base of Riverside Drive in the 1930s includes large areas of pink and white granites (Types 7 and 8), suggesting these materials were not incorporated into the fabric of the Landing until the twentieth century. The granites are sometimes found as pure patches but usually are in association with Type 1, 2, and 4 limestone blocks salvaged from the existing or disturbed areas of the pavement. In all likelihood, the use of rhyolite (Type 9) and syenite (Type 6) also dates from this period. Dimensional limestone (Type 5) appears to be the most recent raw material used, as similar stone was used in the construction of sidewalks at Confederate Park in 1983.

We have been partially successful in correlating extant stone patterns with the historical documentation. Although the use of specific stone types does seem to have rough chronological significance, the pattern analysis is complicated by the use of later stone types, including the igneous materials, as individual replacement stones. It also appears that older limestones were displaced and used for later repairs. Repairs began well before the Landing was completed and now account for 20–50 percent of the total area. These repairs have been necessitated by erosional undercutting from the Mississippi River, erosion due to runoff from Riverside Drive, breakdown and dissolution of less durable rock types, infrastructural additions to the Landing (sewers, utilities, etc.), and other damages caused by commercial and public use of the Landing. Repairs can usually be distinguished from the older pattern(s) of placement by the intrusive nature of the boundaries and the differences in rock type from pattern to pattern.

The Landing from Court Avenue to Union Avenue appears to have been constructed in a single building event (Pattern 1). Although many intrusive repair patterns are present, nondimensional fossiliferous limestone (Type 1) is predominant and continuous from the northern edge at Jefferson Davis Park to the drainage at North 875. From the lithology and the distribution of moorings, this section of the Landing likely corresponds to the second episode of



construction, completed between 1866 and 1869 by John Loudon and his sons. This section may even include the first portion of the Landing between Adams and Union streets, completed by Loudon between 1859 and 1860. The absence of any clear separation between the first and second stages of construction is not surprising, considering that the same contractor and supplier of stones were used for both stages. As mentioned in Chapter III, it is also possible that the work completed in 1860 was removed during the Civil War, eroded away, or was located against the bluff under what is now Riverside Drive.

Lithological evidence also suggests the area of the Landing south of Union Avenue (North 475) is associated with the third stage of construction, dated ca. 1879–1881. Instead of relatively homogenous and monolithic in character, the South Memphis Landing reflects a complex mosaic of patterns and mends. This complexity is mirrored in the historical record of multiple contractors and overlapping project areas.

At Union Avenue, there is a pattern change from Pattern 1 to the north to Pattern 9 to the south. The latter is a mixture of fossiliferous limestone (Type 1) and a low grade and friable limestone (Type 4). The rock types in Pattern 9 are similar in age and composition to the major component in Pattern 1 and are likely from the same source. We know from the historical record that Larkin & Company was using limestone procured from James Loudon. All this suggests Pattern 9 north of the Gayoso Avenue sewer (i.e., North 475) was laid by Larkin & Company ca. 1879.

Pattern 9 is the oldest pattern from North 875 to about North 475, but it is smaller than the 17,000 square foot coverage of Pattern 2 repairs. Pattern 2 and Pattern 11, which differ only in orientation, are almost entirely composed of high grade oolitic limestone. The change in building material suggests a change in contractors. In this case, the historical record suggests these patterns can be attributed to either O. H. P. Piper or W. H. Grider & Company. It is also possible that Patterns 10b and 9b are associated with one of these two contractors. Both patterns contain rock components found in Patterns 1 and 2 along with later materials, and it stands to reason they are later additions that incorporated materials already available. Alternatively, these units may be associated with unrecorded late nineteenth or twentieth century repairs.

The next major building episode is probably associated with the construction of the Gayoso Street storm sewer in ca. 1912. The sewer is covered with a mixture of limestones with a high incidence of igneous materials, designated Pattern 10. These repairs were followed some twenty years later by construction of the service road along the berm of Riverside Drive.

### Technological and Sociocultural Factors

In addition to documenting the physical environment at the Landing, our research was directed at furthering our understanding of the technologies employed in its construction. To date, no construction manuals have been located that provide information on nineteenth century methods and techniques of shaping and laying the stones. Such record groups may not exist. Contracts between the City and the Loudons specify the size and quality of stone used in the Landing, but these specifications have not been correlated with existing patterns and distributions of stones.

To date, our best information on construction techniques comes from archaeological evidence uncovered in Test Unit 1, located in the proposed Tom Lee Monument relocation site (40SY352) (Weaver et al. 1994:49–52). Test Unit 1 exposed nondimensional stones ranging in size from 0.6 x 0.3 feet to over 1.5 x 1.0 feet. Beneath the surface, some of the stones were massive, measuring more 1.5 feet in thickness. Spaces between the stones were often chinked with rock



spalls, then filled with sand. Other stone rubble in the sand layer beneath the stones suggests the stones were at least partially shaped while they were being laid. In most cases, facing the stones was completed on only the exposed side. The cobblestones are set in a coarse quartz sand layer 0.6–0.9 feet thick. A number of artifacts were recovered from the sand, including a high percentage of nails, tacks, and straight pins. Their significance and how they might relate to construction techniques are unknown. These questions can be addressed through further archaeological investigations.

Another objective of the research is humanistic in nature. The Landing as a physical entity should not be separated from the people who laid the paving and made a living working the steamboat trade. For the most part, the historical record is silent on these issues. Although we have a good deal of information on the contractor, John Loudon, the ethnic composition of his work force is unknown in spite of the attention lavished on the project by the local press. It may have been composed of slave labor, free labor, or a combination of both. The incident of a strike suggests that the work force included at least some free laborers, perhaps immigrant masons who had found previous employment on railroad projects. Questions of work conditions, ethnicity, and the organization of the work force should be part of a long-term research design.

## THE POTENTIAL FOR ARCHAEOLOGICAL RESOURCES

A major goal of the project is to identify the types of archaeological resources that might exist at the Landing and to delineate those areas with a high potential for archaeological resources. Because archaeological remains have the potential of contributing to our understanding of the social and technological history of the Landing, we recommend that all future construction and restoration efforts consider possible adverse effects to potentially significant archaeological deposits.

Archaeological resources at the Landing are of two types. The first includes sections of the original stone fabric and other surface features such as moorings and stone-lined drainages. Secondly, there is the potential for buried archaeological deposits and features beneath the stone pavement. Excavations at the proposed Tom Lee Monument relocation site indicate extensive buried cultural deposits beneath the southern section of the Landing (Weaver et al. 1994). Buried deposits associated with the Beale Street elevator are likely. Other refuse deposits are also likely, as suggested by cultural artifacts exposed in blowouts in the northern part of the Landing. In addition, historical documentation suggests that the practice of sinking boat hulls filled with gravel and rock may have been incorporated into the construction design as a means of bank stabilization. Finally, it is quite likely that sections of the original stone pavement are buried beneath modern landfills at Jefferson Davis Park on the north, Tom Lee Park on the south, and Riverside Drive on the east side of the Landing. Because these sections of pavement have remained covered for over sixty years, they could hold the key to refining the chronology of major rebuilding episodes and material acquisition.

Both buried archaeological deposits and surface features at the Memphis Landing can further our understanding of historic construction methods, exchange, and industry. However, in sections of the Landing the integrity of the cultural resources has been compromised by modern construction. Based on this variable integrity, we propose the Landing be divided into three zones.

In Zone 1, surface stones and associated features have good integrity. In addition, there is a potential for archaeological features and deposits buried beneath the surface. Zone 1 is associated with the original nondimensional Type 1 limestone in the northern part of the



Landing (shown as Pattern 1 in Appendix 1). A large part of the southern Landing associated with Patterns 2, 9, 10b, and 11 are also included, as are those portions of the original pavement believed to be buried under Tom Lee Park, Riverside Drive, and Jefferson Davis Park. It is recommended that future redevelopment of the Landing avoid disturbing the stone paving in Zone 1, or at the least minimize disturbance of the stones and underlying strata. If avoidance is impractical or unfeasible, Phase III archaeological data recovery is recommended to mitigate any adverse effect to the stones and/or underlying buried deposits.

In Zone 2, patching and road construction has replaced the original stone fabric, thereby compromising the integrity of the nineteenth century construction. Included in Zone 2 are the roadbed along the base of the berm west of Riverside Drive and the many patched areas in both the northern and southern parts of the Landing associated with Patterns 3, 5, 6, 7, 8, 9b, 10b, and 12-18. Current information suggests that any replacement of the stones or new surface constructions in these areas will have little or no adverse impact on significant archaeological deposits at the surface. However, because the present investigations did not include subsurface testing, significant, intact archaeological deposits beneath the stones are possible. Therefore, it is recommended that any new construction or restoration activities that impact deposits beneath the stones in Zone 2 should include Phase II archaeological testing to determine the significance of any possible buried deposits.

Zone 3 includes that part of the Landing where the original nineteenth century stone construction has been replaced by newer stone construction and there is little possibility of intact archaeological deposits beneath the stones. Zone 3 includes the area above the Gayoso Street storm drain and other areas previously impacted by sewers and utility lines. Zone 3 corresponds to Pattern 10a shown Appendix 1. Because of the low probability of intact cultural deposits, no further archaeological work is recommended for project impacts restricted to Zone 3.

## FACTORS CONTRIBUTING TO THE DETERIORATION OF THE LANDING

The Memphis Landing is a product of its use and its location in a high energy environment. The historical documentation and site inspection give clear evidence of the necessity of periodic repair to the Landing.

Factors contributing to the deterioration are both natural and cultural. Natural forces include erosion resulting from rainwater runoff, fluctuations of the water level, and alternating siltation and scouring from river currents. In many cases, these natural effects have been intensified by the lack of periodic maintenance. Cultural factors include the choice of raw materials, infrastructure additions, and use-attribution.

Specifically, the research suggests eight ongoing or proposed factors that constitute adverse effects to the continued preservation of the Landing:

- 1) Siltation and sediment buildup resulting in the chemical deterioration of the stone fabric and other cultural features;
- 2) Erosion resulting from unchanneled surface runoff from culverts under Riverside Drive;
- 3) Erosional undercutting from dredging and river action;
- 4) Displacement of stones by the bow thrusters of large river craft;

- 5) Displacement of the moorings from the lateral drifting of vessels during high winds (insufficient docking system);
- 6) Parking and automobile traffic;
- 7) Unsupervised utility installations;
- 8) Proposed new construction.

Specific recommendations addressing each factor are discussed in detail in Part 2, the Preservation Plan for the Landing, a separate volume of this report.

## SITE SIGNIFICANCE

The Memphis Landing is perhaps the one historic resource in Memphis that best exemplifies the scope of the City's history. When constructed during the nineteenth century, the Memphis Landing was second only to the St. Louis city landing in its scale and level of commercial activity. Today, of all of the great river landings on the Ohio, Missouri, and upper Mississippi rivers, the Memphis Landing is acknowledged to be the best preserved of these important commercial places.

The Memphis Landing was recognized as a significant historic resource by its inclusion in the the Cotton Row Historic District, listed on the National Register of Historic Places in August 1979. Given the detailed information gathered during the course of this cultural resource assessment, it is now possible—and appropriate—to resubmit the Memphis Landing as an individual listing on the National Register of Historic Places. Although this form of recognition is adequate to afford the Landing protection under the National Historic Preservation Act of 1966, it does not provide a comparative context to evaluate the Landing on a larger scale. On a national level, the Memphis Landing may best represent the significant national themes of river commerce in the nineteenth century, not to mention its significant role in westward migration. No resources listed as National Historic Landmarks represent these themes. Therefore, it is recommended that nomination of the Landing as a National Historic Landmark should be pursued.