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# Historical Background Report

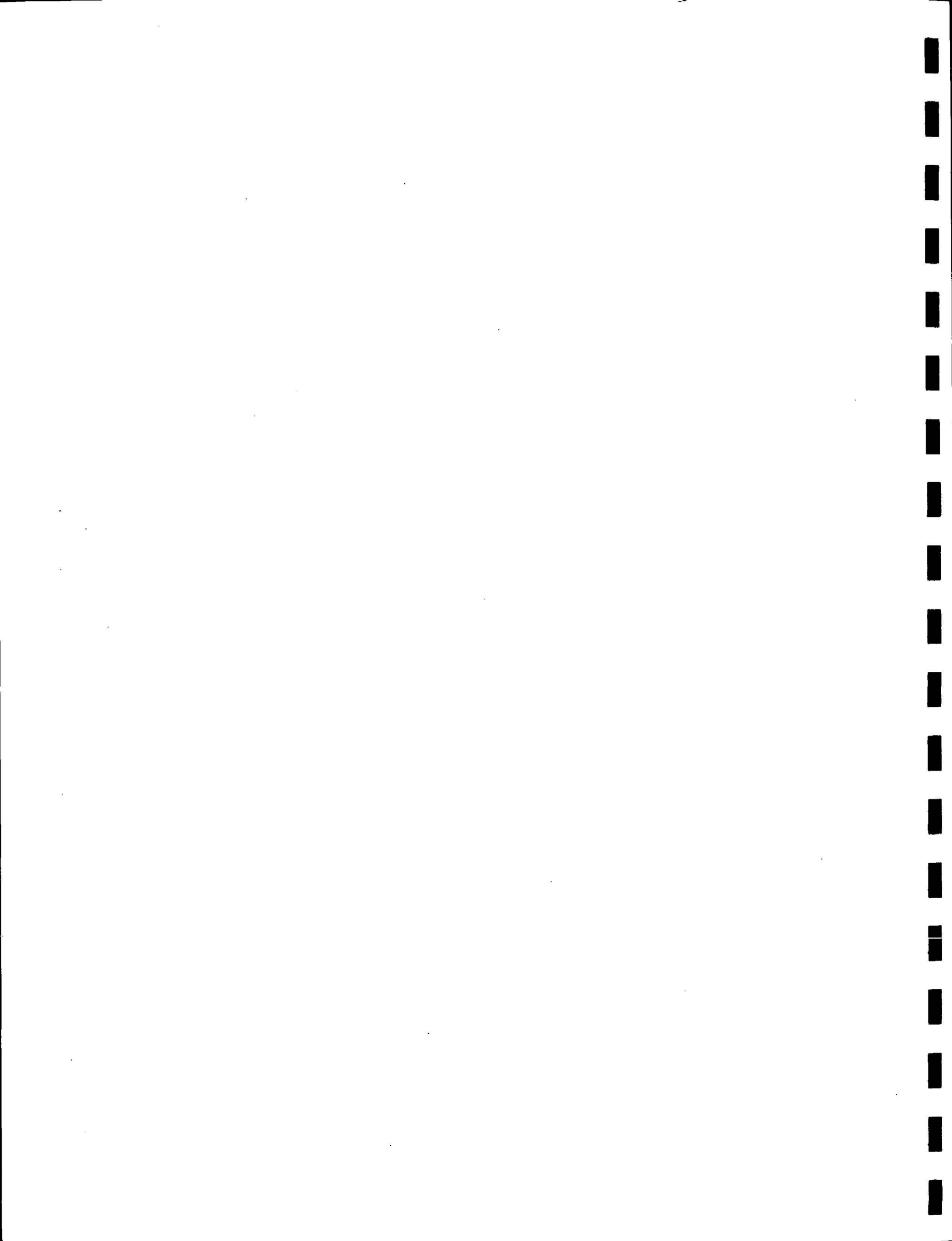
## Baltimore and Ohio Railroad, Harpers Ferry Station



Prepared by: Andrew S. Lee

Harpers Ferry National Historical Park

2003



Historical Background Report

Baltimore and Ohio Railroad, Harpers Ferry Station

Potomac Street

Harpers Ferry

Jefferson County

West Virginia

HAER No. WV-86

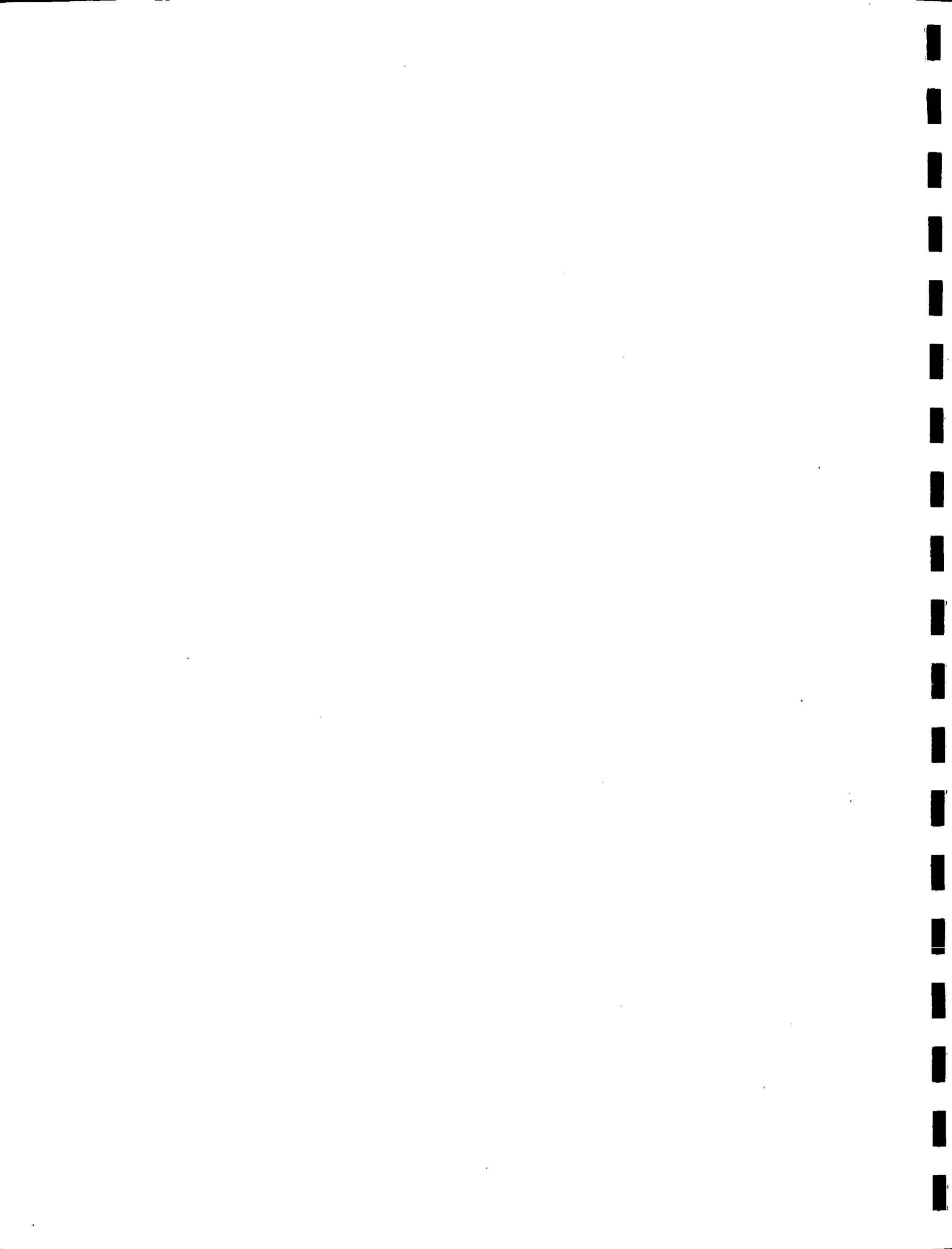
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Harpers Ferry National Historical Park

Archeology Program

2003



## Contents

List of Figures .....	v
Acknowledgements .....	vii
Preface .....	ix

### Part One:

<b>The Early History of the B&amp;O at Harpers Ferry .....</b>	<b>1</b>
The Founding and Early Challenges of the B&O Railroad .....	1
The Point of Rocks Dispute .....	3
The B&O Railroad Reaches Harpers Ferry .....	4
Early Railroad Structures in Harpers Ferry .....	6
The Railroad Continues West on a Less than Ideal Alignment .....	7
New-Found Freight and An Aging Railroad .....	11

### Part Two:

<b>The 1892-94 Improvements and Construction of the Harpers Ferry Station .....</b>	<b>13</b>
The "New" B&O Railroad at Harpers Ferry .....	13
The Maryland Heights Tunnel .....	13
The 1894 Bridge .....	14
Realignment of the Tracks .....	15
Harpers Ferry's New Railroad Station .....	19
E. Francis Baldwin, "Architect for the B&O" .....	20
B&O Passenger Stations and Standardization in the 1890s .....	22
Description of the Harpers Ferry Station .....	25
The Westbound Waiting Shelter and the "Subway for Safety" .....	31
The Grounds Around the Depot .....	34

**Part Three:**

<b>The 1930-31 Improvements and the Relocation of the Harpers Ferry Station</b> .....	39
The B&O's Financial Condition .....	39
The 1930-31 Bridge and Tunnel Work.....	40
Relocation of the Harpers Ferry Station .....	47
The Decline of the Railroads .....	51
Corporate Mergers, Modernization, and the Removal of the Station's Tower .....	55
Recent History and Conclusions.....	57
<b>Sources Consulted</b> .....	61

**Appendices**

I. Harpers Ferry Railroad Station Chronology.....	I-1
II. Miscellaneous Photographs. ....	II-1
III. Drawings of Proposed Station, 1913. ....	III-1
IV. ICC Valuation Survey, Harpers Ferry Station, 1919.....	IV-1
V. 1930-31 Alterations. ....	V-1
VI. Sanborn Fire Insurance Maps, Harpers Ferry, West Virginia. ....	VI-1
VII. 2002 HAER Drawings of the Harpers Ferry Station. ....	VII-1

## List of Figures

Cover: The station, 1931.

### PART ONE

1. Surveying for the railroad.....	3
2. The railroad and canal near Point of Rocks, Maryland.....	4
3. The curve at the Maryland end of the B&O bridge, 1865.....	5
4. A train stops at a restaurant.....	7
5. The armory at Harpers Ferry.....	9
6. View from the armory trestle.....	9
7. The junction of the armory trestle and bridge.....	10
8. View of the redesigned bridge.....	10

### PART TWO

9. The new Maryland Heights tunnel.....	14
10. The new railroad bridge.....	16
11. View of the Valley Branch and main line junction, 1896.....	16
12. 1896 view of the armory grounds and railroad improvements.....	17
13. The Potomac House, ca. 1885.....	18
14. Shenandoah Street culvert and the new railroad station, ca. 1896.....	19
15. E. Francis Baldwin.....	20
16. The stations at Rockville and Point of Rocks.....	21
17. E. Francis Baldwin-designed stations and B&O headquarters.....	22
18. Baldwin stations of the early 1890s.....	24
19. Closeup of the station, 1930.....	26
20. Ca. 1916 floor plan.....	27
21. The signal tower stairs, 1930.....	28
22. Ca. 1910 view of tower and semaphore.....	28

23. Cross section of women's waiting room. ....	29
24. The station, 1913.....	29
25. Baggage carts at the station, ca. 1915.....	30
26. The west bound waiting shelter, 1931. ....	32
27. Schematic for 1913 subway.....	33
28. Ca. 1920 view of depot grounds and station; 1913 site plan. ....	35
29. Commemorative markers on the depot grounds. ....	36

PART THREE

30. The new bridge, 1931. ....	40
31. The bridge piers, 1930. ....	41
32. Construction of the 1930-31 bridge.....	42
33. 1931 fire on the bridge.....	43
34. View of the tunnel entrance, 1931. ....	44
35. The embankment on the armory grounds, 1931. ....	45
36. A workman preparing the site for the relocation of the station. ....	45
37. Aerial photograph of B&O bridges and alignments, 1931. ....	46
38. Moving the west bound waiting shelter, 1931.....	47
39. The 1931 subway.....	47
40. Floor plan, 1930-31 alterations. ....	49
41. Hauling the station to its new location, 1931.....	50
42. 1940s views of the station.....	53
43. A tanker train at Harpers Ferry, 1942. ....	54
44. CSX company logo. ....	56
45. The station, ca. 1958.....	57
46. Views of the interior, 2002. ....	58



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Baltimore & Ohio Railroad, Harpers Ferry Station  
HAER No. WV-86  
(Page viii)

## Preface

The Baltimore & Ohio Railroad, conceived in the 1820s by the merchants of Baltimore as a way to capture a share of the burgeoning frontier trade, reached Harpers Ferry, (West) Virginia in December 1836. Though it was considered a marvel of surveying and engineering in its time, the B&O's main line from Baltimore to Wheeling incorporated numerous impediments to efficient operation—grades too steep, bridges too light, and curves too sharp. Oftentimes these conditions were the consequence of the need to select initial routes and construction methods based on financial constraints rather than engineering ideals. Compromises were made in order to complete the line quickly to the established end point, thereby initiating a flow of revenue. With the capital thus generated, the B&O could go back and make improvements along the line to increase the efficiency of its operations. Because of its unique physical geography, the landscape at Harpers Ferry presented B&O engineers numerous challenges.

The train station at Harpers Ferry provides an excellent opportunity to study the relationship between railroad engineering and railroad economics. Designed by architect E. Francis Baldwin, the station was built as the finishing touch on a series of improvements made to the main line at Harpers Ferry from 1892-94. The station was moved from its original location to its present site in 1931 during a second round of improvements. Both sets of improvements were made during periods of economic uncertainty and both significantly modified the historic landscape of Harpers Ferry. The station is historically significant today, not only for its association with a notable architect, but also because it continues a long record of service for the region's rail passengers.

This historical background report focuses on the history of the station within the context of the B&O's alignment and facilities at Harpers Ferry. The financial health of the railroad during crucial episodes of the station's history is also a central theme. Part One is a review of the early history of the railroad at Harpers Ferry. It explains how and why the railroad reached the town in the first place. It also recounts how the B&O's dangerous and inefficient alignment came to be. Part Two covers the 1892-94 improvements to the alignment. Details of the construction and description of the station are included. These details are examined within the context of the career of its architect as well as general trends in passenger station design of the era. Part Three begins with a discussion of the 1930-31 improvements to the B&O main line at Harpers Ferry. These were the last major betterments made to the line in town. Structural changes were made to the station as well, and these are also discussed. Lastly, this section recalls the more recent history of the station, a history that mirrors the slow decline of the railroads as they faced increasing competition from other modes of transportation. The report ends with the National Park Service acquisition of the station.

Treating the subject in such a manner requires a certain simplification of a very complex history. Unfortunately, as a result, some interesting subjects are only mentioned in passing while others are left wholly unexplored. While the main focus of this report is the B&O train station at

Harpers Ferry, it is not intended to be a detailed study of the building's historic fabric. Instead the author hopes to relate the station to the broader history of railroading at Harpers Ferry. By doing so, it is hoped that a deeper understanding can be reached of the station's true place in the historic landscape.

## **PART ONE: The Early History of the B&O at Harpers Ferry**

### *The Founding and Early Challenges of the B&O Railroad*

In the first third of the nineteenth century significant internal improvements caused a dramatic growth of domestic commerce in the United States. A transportation revolution occurred with the rapid development of turnpikes, canals, and railroads. Each of these improved modes of travel fueled the transportation revolution by reducing the cost and lessening the difficulties of internal trade. These years also were characterized by the swift expansion of the western frontier beyond the Appalachian Mountains. The population of the frontier boomed, resulting in the opening of many new markets. The seemingly unlimited potential of the region captured the attention and fostered competition between the merchants in the east. Businessmen of the principal Atlantic seaport cities—particularly those in New York, Philadelphia, and Baltimore—realized that whoever could capture the trade of the Ohio and Mississippi River region would enjoy an immediate advantage over his rivals. It was this race to reach the new western markets that sparked the drive to build transportation systems across the mountains and link east and west.

With the opening of the Erie Canal, the merchants of New York won the first advantage in the competition to tap the western trade. Completed in 1825, the canal connected the waters of the upper Hudson River with Lake Erie. It spurred growth all along its corridor. The financial success of the Erie Canal was immediate and it firmly established New York as the dominant eastern city in the quest for the western trade.<sup>1</sup> The superior economic position of New York City over its rivals caused a panic among the business communities up and down the eastern seaboard. New York's early success prompted Baltimoreans to act.

The businessmen of Baltimore realized they needed to adopt some course of action to keep pace with the brisk commercial traffic enjoyed by the Erie Canal. A canal, though, did not hold much appeal for them as a solution. Situated almost halfway between where the Susquehanna River enters the Chesapeake Bay and the Potomac River at Washington, Baltimore lacked its own waterway into the interior of the country. Surveyors explored possible connections with the Susquehanna to the north and the Potomac to the south, but a suitable route could not be found. Geographical, financial, and political obstacles left the merchants of Baltimore in a quandary.<sup>2</sup> Realizing they had little chance for a practical all-water route to the west, Baltimore's leaders in 1827 decided instead to support a new kind of transportation system developing in Britain—the railroad.

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<sup>1</sup> John F. Stover, *History of the Baltimore and Ohio Railroad*, (Purdue University Press, West Lafayette, Indiana, 1987), 6-8.

<sup>2</sup> Herbert H. Harwood, Jr., *Impossible Challenge: The Baltimore and Ohio Railroad in Maryland*, (Barnard, Roberts and Co., Inc., Baltimore, Maryland, 1979), 4.

After nearly a century of experimenting and refining, the British had proven that railroads, at least for short distances over moderate terrain, were a practical alternative to canals. The business leaders of Baltimore were inspired by the British example. In February 1827 they approved a resolution that an immediate application be made to the Maryland legislature for an act to incorporate a company to be called the Baltimore and Ohio Railway Company.<sup>3</sup> The Company's goal was to build a railroad all the way to Wheeling, nearly 400 miles to the west on the Ohio River. It was a bold idea. It was, most historians of engineering agree, equivalent to a nineteenth-century moon shot. Properly trained individuals and the engineering knowledge required to build it simply did not exist in this country at that time. And though it was not the nation's first railroad, the Baltimore and Ohio (B&O) was a pioneer that proved the practicality of railroading over long distances and rugged terrain.

Almost as soon as construction began in 1828, B&O officials encountered delays. They soon realized that building a railroad all the way to the Ohio would take much longer than the five years that some optimistically hoped. Chief among the reasons for delays was disagreements between engineers and the board of directors. Because the company was, in effect, inventing the railroad as it went, debates arose on nearly every topic—debates on what type of track to use, how to prepare the roadbed, and what type of bridges to build. However, the most critical decision for the B&O's engineers was to determine the basic grade and curvature standards for building the railroad. Because there were so few precedents to gauge from, the engineers simply had no idea how much a steam locomotive would weigh, what it could pull, how steep a hill it could climb, or how sharp a curve it could take. Financial pressures and competition from rivals also forced the railroad to make quick, though not always the best, decisions with regards to engineering and construction questions. The primitive state of railroading led to much disagreement on how the railroad should be built.

The nature of the terrain presented another serious challenge to engineers during the early stages of designing of the railroad. The land to be covered was rough, ranging from rolling hills to high mountains. There were rivers with high rocky bluffs. Even a slight variation in grade and curvature standards in this type of landscape would make huge differences in construction costs. Should the terrain dictate the alignment or should the alignment be designed around the approximate capabilities of the railroad locomotive? In the end the engineers compromised. The maximum grade was set at 18 feet to the mile, or 0.3 percent, and 14 to 18-degree curves were allowed. As railroad historian Herbert Harwood, Jr. notes, it was exactly the wrong compromise. The grades could have been steeper, but the curves should have been gentler.<sup>4</sup>

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<sup>3</sup> Stover, *History of the Baltimore and Ohio Railroad*, 17.

<sup>4</sup> Harwood, *Impossible Challenge*, 8; James D. Dilts, *The Great Road: The Building of the Baltimore & Ohio, The Nation's First Railroad, 1828-1853*, (Stanford University Press, Stanford, California, 1993), 96.

### *The Point of Rocks Dispute*

The B&O built its line westward from Baltimore in essentially three surges. The first of these began in 1828 and ended in 1834 at Harpers Ferry, eighty-two miles west of Baltimore. The B&O's engineering corps quickly finished a reconnaissance survey for a route from Baltimore to the Potomac River (Figure 1). They selected a route from Baltimore that met the Patapsco River at Relay, Maryland, and then followed the Patapsco and Monocacy Rivers to the Potomac at Point of Rocks, Maryland.<sup>5</sup> From Point of Rocks the railroad would follow the river upstream to Harpers Ferry, a dozen miles to the west. However, at Point of Rocks the railroad came into direct conflict with its regional competitor, the Chesapeake and Ohio (C&O) Canal.



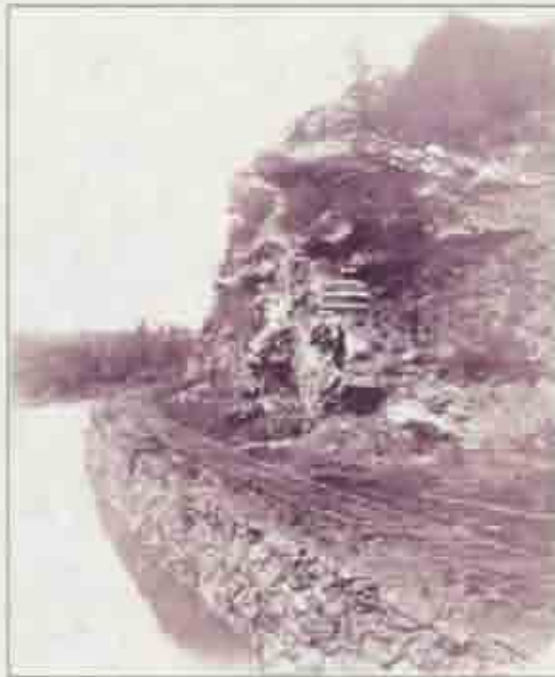
*Figure 1. B&O surveyors at work in the Potomac River Valley (painting by H. D. Stitt)*

The railroad was completed to Point of Rocks, about seventy miles from Baltimore, on April 1, 1832. Progress beyond Point of Rocks was halted there, however, because of a bitter dispute with the C&O Canal. Both the canal and railroad, in their earliest planning, had proposed to follow the north bank of the Potomac to a point as far as Cumberland, Maryland. The problem was one of space. From Point of Rocks to Harpers Ferry, the shoreline is at several places reduced to a very narrow piece of land by the sheer cliffs of the Catoctin Mountains (Figure 2). Along this narrow shelf the projected routes for the two works overlapped and the two companies fought a long drawn out court battle to win the desired right-of-way.

The legal conflict was settled in 1833 when the Maryland legislature forced a compromise agreement with conditions quite favorable to the canal company. By the agreement the two improvements would share the narrow strip of land. One component of the agreement was that the C&O Canal would be responsible for building the railroad's roadbed in the three tightest spots, with the cost to be paid by the B&O. Another major component of the agreement forced the B&O to halt construction on the railroad west of Harpers Ferry until the canal reached Cumberland. Most important of all in regards to the fledgling railroad, though, was that the agreement required the B&O to abandon its original planned route to reach Cumberland using the north side of the river above Harpers Ferry.<sup>6</sup> This last stipulation would have serious engineering ramifications for the railroad when the B&O reached Harpers Ferry and contemplated its next move west.

<sup>5</sup> Harwood, *Impossible Challenge*, 9.

<sup>6</sup> Harwood, *Impossible Challenge*, 29-31.



*Figure 2. The terrain forced the C&O Canal and B&O Railroad to share limited space near Point of Rocks, Maryland. (NPS photo.)*

### *The B&O Railroad Reaches Harpers Ferry*

The railroad had a decision to make: The B&O's exclusion from the north shore of the Potomac meant that the railroad either had to cross the river at Harpers Ferry, or else bypass Harpers Ferry altogether by heading off instead in the direction of Hagerstown, Maryland. There were political pressures and financial advantages for the railroad to remain as much as possible in the state of Maryland. Another factor to weigh in this decision was the nature of the river and bluffs around Harpers Ferry. For the railroad to reach Harpers Ferry much work was required just to make room for the tracks. As daunting as the terrain around Harpers Ferry was, the prospect of connecting the line with the Winchester and Potomac (W&P) Railroad, a new thirty-mile rail line that was then being built from Winchester, Virginia along the Shenandoah River towards Harpers Ferry, was too much to pass up.

A B&O connection with the W&P, it was reasoned, would immediately bring traffic from the fertile Shenandoah Valley.<sup>7</sup> In this way a steady stream of revenue could be generated and the income used to make improvements to the completed line. Likewise, the new source of revenue

<sup>7</sup> Charles W. Snell, "The Town of Harpers Ferry in 1859, A Physical History." (Unpublished typescript, 65 pages, on file Harpers Ferry National Historical Park, Harpers Ferry, West Virginia, 1959), 31-32.



could be used to fund construction of the line further west. There were also vague notions of continuing the line further south into Virginia, with the W&P envisioned as an extension of the B&O line. For the moment, however, the primary goal was to reach Harpers Ferry and connect with the W&P.

The B&O line was finished to the Maryland side of the Potomac opposite Harpers Ferry on December 1, 1834.<sup>8</sup> There, below the sheer, rocky cliffs known as Maryland Heights, the railroad ended at the east end of the Frederick and Harpers Ferry Turnpike bridge. The existing bridge was adequate for wagons and pedestrians, but useless for the passage of a railroad. The B&O therefore had to build its own bridge.

The problem facing B&O engineer Benjamin Latrobe, Jr. was a difficult one. Because of a bend in the river, the entrance to the bridge from the Maryland shore had to be placed where the railroad, turnpike, and canal were crowded together on the narrow space below Maryland Heights. This unfortunate geographical arrangement prevented him from designing a gradual curve of the tracks onto the bridge (Figure 3). Because the bridge was practically at a right angle to the river, a fairly sharp curve was the only answer. On the Harpers Ferry side, the goal was simply to align the bridge directly with the grade of the W&P. Little thought was given to how the main line would eventually continue west from there. Ultimately, when the B&O did decide on a course out of Harpers Ferry, the alignment of the bridge proved to be quite unsatisfactory.



*Figure 3. Railroad, canal, and turnpike competed for limited space on the Maryland end of the bridge. The awkward curve of the railroad track, seen here in 1865, hindered train movements here for years. (NPS photo.)*

<sup>8</sup> Everhart, William C., *A History of Harpers Ferry*. (Unpublished typescript, 243 pages, on file Harpers Ferry National Historical Park, 1952), 25.

*Early Railroad Structures in Harpers Ferry*

When Latrobe's Potomac River bridge was completed in 1837, it connected the B&O to the newly completed W&P and transformed the old ferry landing into an area of bustling commercial activity. This commercial area was known as the Ferry Lot, a parcel of land retained by private landowners as the federal government acquired the surrounding property for its armory and arsenal buildings.<sup>9</sup> Just prior to the completion of the bridge, the B&O's president predicted that once the junction with the W&P was made, "the passenger and burden trains of the two companies will then stop, side by side, in the same depot, and the transit from one to the other will be effected promptly and with great convenience."<sup>10</sup> In 1836 the B&O purchased a lot at the west end of the new bridge on the south side of the W&P tracks. Here the railroad company erected a ticket office, a small 1 ½-story brick building measuring 30' x 20'.<sup>11</sup> Presumably, passengers loaded and unloaded near the ticket office. And contrary to the B&O president's prediction in 1836 of a single freight depot, the town lacked adequate freight and passenger facilities for years.

The B&O and the W&P maintained separate freight depots and these were not even built until nearly a decade had passed. The B&O built a freight depot in 1846-47. It was a two-story brick structure of unknown dimensions.<sup>12</sup> The W&P freight depot was located along its right-of-way through the Arsenal Square on Shenandoah Street. The one-story brick building, built around 1847, measured approximately 125' x 30'.<sup>13</sup> Prior to the construction of these buildings, freight interchange was problematic; goods to be loaded or unloaded sat in boxcars on a siding across the Potomac River from the town.<sup>14</sup>

With the expectation of increased passenger traffic and greatly increased amounts of freight at Harpers Ferry, why did it take the B&O nearly a full decade to build a freight depot and no passenger depot at all? The answer is a simple combination of economics and tradition. First of all, the company preferred to spend its limited resources on facilities for accommodating its

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<sup>9</sup> Cathy Gilbert et al, "Cultural Landscape Report: Lower Town, Harpers Ferry National Historical Park," (Department of the Interior, National Park Service, Harpers Ferry National Historical Park, Harpers Ferry, West Virginia), 3.8.

<sup>10</sup> *Annual Report of the President and Directors to the Stockholders of the Baltimore and Ohio Railroad.* (Baltimore, 1836), 3.

<sup>11</sup> Snell, *The Town of Harpers Ferry*, 30.

<sup>12</sup> Snell, *The Town of Harpers Ferry*, 32.

<sup>13</sup> Gilbert, *Cultural Landscape Report*, 3.59; Snell, *The Town of Harpers Ferry*, 32.

<sup>14</sup> Michael W. Caplinger, *Bridges Over Time: A Technological Context for the Baltimore and Ohio Railroad Main Stem at Harpers Ferry, West Virginia.* (West Virginia University Institute for the History of Technology and Industrial Archeology, Morgantown, West Virginia, 1997), 26.

freight. Still in its infancy and scrambling to raise money for tracks and equipment, the company's goal was to start operations quickly and generate badly needed revenue. And since merchandise needed protection from weather and thieves, a freight depot was simply deemed more necessary than a passenger depot. Only after its financial health improved and revenue was generated, did the railroad turn its attention to a structure for passengers.

Furthermore, while the lack of a passenger station may appear to be a glaring oversight to a modern-day traveler, passengers in the 1830s were accustomed to fending for themselves. It was, after all, a long-standing custom for canal and turnpike travelers to make their own arrangements for food and lodging. The B&O Railroad, following the lead of turnpike operators, loaded and unloaded passengers at privately owned, pre-existing trackside structures (Figure 4). Taverns, stores, and hotels were the types of buildings most often used.<sup>15</sup> An 1836 advertisement notified residents of Harpers Ferry that "Passengers wishing to take the rail road cars at this place will, for the present, leave their names at the Carter's Hotel, where a flag will be hoisted to apprise the conductor on the road. Without such notice, the conductor may pass on with the cars, under the impression that there are no passengers."<sup>16</sup>



Figure 4. Many towns had no fixed depot in the early days of railroad travel. Hotels and taverns were used instead. (detail of a painting by H. D. Smith.)

#### *The Railroad Continues West on a Less than Ideal Alignment*

By 1838 the B&O was ready to resume building the main line towards Cumberland, Maryland and then to the Ohio River beyond. The first problem, though, was how to get out of the Harpers Ferry bottleneck. Because of its unique physical geography, the town, federal armory, arsenal buildings, and railroads all competed for the limited level land by the rivers. The B&O had two alternatives: it could either continue along the Shenandoah River on the W&P tracks and then turn north outside of town or head directly west through the U.S. armory property. Because of

<sup>15</sup> Janet Greenstein Potter, *Great American Railroad Stations*, (John Wiley & Sons, Inc., New York, New York, 1996), 3; H. Roger Grant, *Living in the Depot: The Two-Story Railroad Station*, (University of Iowa Press, Iowa City, Iowa, 1993), 7.

<sup>16</sup> *Virginia Free Press*, 24 March 1836, p3c3.

the orientation of the Potomac bridge, the Shenandoah route was the preferred choice. A train crossing the bridge could continue upstream along the north shore of the river. By leasing six miles of the W&P's track, the B&O main line could leave the Shenandoah Valley near Charles Town, turn northwest towards Martinsburg and then rejoin the Potomac.<sup>17</sup> After surveyors demonstrated the feasibility of this route, the B&O entered into negotiations with the W&P. Motivated by reasons that are not clearly understood, the W&P refused to grant the B&O the necessary track rights.<sup>18</sup>

The W&P's refusal to share its tracks left the B&O little choice but to utilize the south bank of the Potomac River for its route west. This was not a desirable alignment because the large federal armory already occupied nearly all of the level land by the river (Figure 5). To go this way the railroad company would have to obtain a narrow right-of-way through the armory grounds from the government. The government was initially hesitant to allow the railroad access to the armory grounds. The fear of possible fires caused by embers and sparks from the train's steam engine was a major concern. Finally the two parties reached an agreement in mid-1838.<sup>19</sup> The agreement required the B&O to build an elevated track with the trestle to be placed atop a parallel set of walls along the edge of the armory that protected it from floodwaters (Figure 6). The construction and future maintenance costs of the extensive masonry work and lengthy wooden trestle promised to be high. Worse than all of this, however, was the fact that this alignment intersected the railroad bridge over the Potomac at almost a right angle (Figure 7). The bridge was designed to connect head-on with the W&P, not to turn upstream alongside the Potomac. As things stood, there was no space to introduce a gradual connecting curve.

With a bridge essentially pointing the railroad up the wrong river, B&O engineer Benjamin Latrobe faced yet another perplexing problem at Harpers Ferry—how to engineer an acceptable turn onto the armory wall while maintaining the junction with the W&P. Latrobe's solution was to re-design the western end of the bridge by inserting a switch and starting a curve 265' out on the bridge from the south shore. He then rebuilt the Harpers Ferry end of the bridge so that it resembled the shape of the letter "Y." The resulting curved span took the westward track around the curve and onto the trestle along the armory (Figure 8). The curve was still sharp and dangerous, but Latrobe made the best of a bad situation. He apparently justified his somewhat awkward design for the bridge based on the nature of the B&O's early traffic. In the early days of railroading the typical train was light, short, and slow. In any case, Latrobe's alignment was an inventive solution to the problem. And though the alignment was far from perfect, at least the railroad was headed west again.

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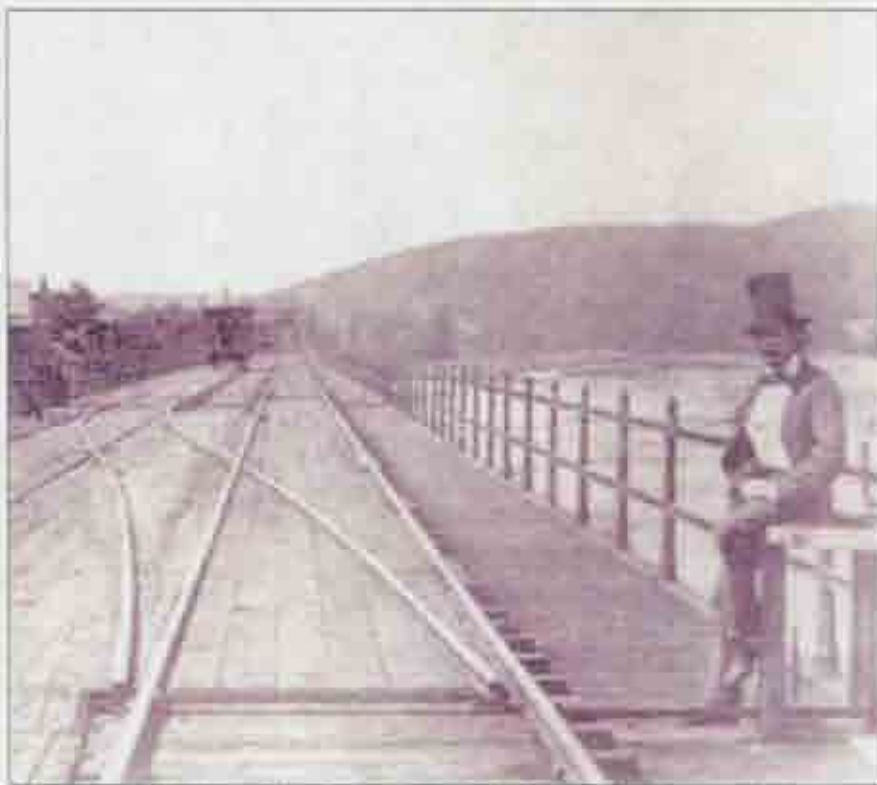
<sup>17</sup> Dwight E. Stinson, "The First Railroad Bridge at Harpers Ferry," (National Park Service, Harpers Ferry National Historical Park, Harpers Ferry, West Virginia, 1970), 8.

<sup>18</sup> Harwood, *Impossible Challenge*, 42.

<sup>19</sup> Caplinger, *Bridges Over Time*, 28.



*Figure 5. The government armory occupied most of the level land on the Potomac. Circumstances forced the railroad to seek a right-of-way through the armory grounds. (NPS.)*



*Figure 6. 1859 view of the elevated trestle, looking up the Potomac River. (West Virginia and Regional History Collection.)*



*Figure 7. The junction of the armory trestle and the bridge resulted in a sharp curve. With tight curves at both ends of the bridge, the alignment was far from ideal. (NPS photo.)*



*Figure 8. The requirement to turn the tracks up the Potomac River necessitated rebuilding the Harpers Ferry end of the bridge. There was no room to maintain the junction with the W&P and still make an acceptable turn onto the armory trestle. (NPS photo.)*

*New-Found Freight and An Aging Railroad*

Compared to its earlier progress, construction on the line west of Harpers Ferry moved rapidly. Construction began in 1839 and the line was opened in sections. The Harpers Ferry to Martinsburg, (West) Virginia section opened on May 21, 1842. Ten days later the railroad reached Hancock, Maryland. Work continued for a period of months on the section west of Hancock, with crews laying rails at a rate of one mile per day. Though still a long way from its Ohio River goal, the B&O main line finally reached Cumberland, Maryland on November 5, 1842.<sup>20</sup> With the line complete to Cumberland, the B&O finally had a source of sustainable heavy traffic—coal.

Although still a decade away from reaching the Ohio River, the completion of the B&O to Cumberland was a major accomplishment for the railroad. Coal began moving east in 1843, at first slowly, but then in ever increasing amounts as more mines opened around Cumberland and as the B&O improved its port terminals to handle the flow. For the year 1848, more than 66,000 tons of coal—about 40 percent of the railroad's entire eastbound freight—was shipped through Harpers Ferry on its way to Baltimore. Just two years later this had doubled to 132,000 tons, now nearly 60 percent of the eastbound freight.<sup>21</sup> Other freight included thousands of tons of iron, crushed stone, and tobacco. The boom in coal traffic and the money from this new business was certainly welcome, but it had a negative effect as well. It underscored some of the original engineering problems on the railroad between Harpers Ferry and Baltimore.

By the 1850s, the primitive state of early sections of the railroad was becoming a problem for the B&O. Not only was the massive weight of the freight wearing on the tracks, but also the types of locomotives used to haul it became heavier and heavier. During the 1830s the typical weight of freight and passenger locomotives was ten to eleven tons. Beginning in 1844, the B&O introduced powerful new freight-only trains that weighed between twenty and twenty-four tons.<sup>22</sup> And the problems only worsened as train lengths and their wheelbases increased.<sup>23</sup> With trains and weights of this type, the already serious problems of track types, bridges, and sharp curves became nearly impossible.

The B&O realized that improvement projects were long overdue. But with the line not yet completed from Cumberland to Wheeling, capital to make the improvements was limited. There

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<sup>20</sup> Caplinger, *Bridges Over Time*, 34; Stover, *History of the Baltimore and Ohio Railroad*, (Purdue University Press, West Lafayette, Indiana, 1987), 54.

<sup>21</sup> Stover, *History of the Baltimore and Ohio Railroad*, 61.

<sup>22</sup> Stover, *History of the Baltimore and Ohio Railroad*, 57.

<sup>23</sup> Harwood, *Impossible Challenge*, 46.

were those within the company, including Benjamin Latrobe (now the Chief Engineer), who advocated immediate and permanent solutions to the continuing irritations. The company, however, elected to spread out its improvements over a period of years, prioritizing the jobs and tackling the most serious ones first.<sup>24</sup> In 1845, Latrobe and his engineering crews were detailed to study the railroad's physical condition between Harpers Ferry and Baltimore. On the issue of track reconstruction he wrote:

I cannot but reiterate the expression of my fears that this track will absolutely go down under the weight of this increased trade. Already it is carrying three or four times the trade of any similarly constructed track in the country, and the iron, which has borne up well under 15 years hard use, is now beginning to break up...The velocity with which trains are obliged to pass over it also creates risks which, although happily productive thus far of few disasters, are not a little to be dreaded...Without such reconstruction, it will hardly be possible, at any expense, to maintain the road under this augmented trade.<sup>25</sup>

The alignment at Harpers Ferry, its wooden bridge with sharp curves at both approaches, was particularly worrisome. Wendell Bollman, who was responsible for maintenance as B&O's Master of Road, desperately wanted to replace the timber bridge at Harpers Ferry using a new iron truss system of his own design. In 1851 the so-called "Winchester Span"—the portion carrying the W&P connection and the highway—was reconstructed with iron trusses supported by granite towers.<sup>26</sup> The patchwork repairs continued on portions of the main line, but the awkward layout at Harpers Ferry remained. Other projects kept taking precedence.

The alignment of the B&O Railroad as it passed through Harpers Ferry, though inefficient and even somewhat dangerous, proved to be a durable one. Even after repeated destruction and multiple rebuildings during the Civil War and abandonment of the armory afterward, subsequent bridges built at the crossing followed this same layout. Unfortunately, however, the design actually hindered efficient railroading operations at Harpers Ferry for years to come. A few minor improvements were made as finances allowed, but the tight curves continued to be a real operating burden for the railroad. Finally, after nearly sixty-five years, the railroad abandoned its stopgap measures and in 1892 decided to address the problems. In the end, a virtually brand new railroad was built at Harpers Ferry.

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<sup>24</sup> Harwood, *Impossible Challenge*, 46.

<sup>25</sup> As quoted in Dilts, *The Great Road*, 310.

<sup>26</sup> Stinson, "The First Railroad Bridge," 19.



## **PART TWO: The 1892-94 Improvements and Construction of the Harpers Ferry Station**

### *The "New" B&O Railroad at Harpers Ferry*

In the summer of 1892 the B&O began work at Harpers Ferry on a major improvement project that had been contemplated for some time. The project was designed to ease the operating problems long experienced at this important point on the main line. The B&O's bridge across the Potomac had become obsolete and dangerous in the face of ever increasing locomotive weights and trainloads. The serpentine nature of the tracks at both approaches to the bridge was also a serious problem. The evolving design of locomotives, in which the wheelbases were becoming more and more rigid, made these curves increasingly difficult to negotiate. Having faced these problems for several decades and only finding them worsening, the B&O was forced to formulate a plan of action. The plan for improvements at Harpers Ferry had several components that, when completed two years later, would cause the greatest physical change in the town's appearance since the dramatic days of the Civil War.

The principal components of the plan for the Harpers Ferry improvements were the construction of a tunnel through Maryland Heights; the replacement of the old bridge with a modern double-track steel bridge; the realignment of the road bed to run through the armory grounds on top of a 20' high embankment; and the erection of a new company-owned passenger station. B&O Chief Engineer William Lee Sisson prepared most of the tunnel, grade, and alignment changes and supervised much of the work. E. Francis Baldwin, the B&O's principal architect, designed the passenger station.

### *The Maryland Heights Tunnel*

For over fifty years the B&O had been troubled by the lack of space at the base of Maryland Heights. The lack of space was due to the presence of a turnpike road and the C&O Canal, both running side by side with the railroad. The imposing cliffs of Maryland Heights and a bend in the river had prevented the railroad from designing a gradual curve of the tracks onto the bridge. To improve the situation the B&O contracted with Jones and Thorne & Company of Baltimore to bore an 815' long two-track tunnel through the base of the mountain in 1892.<sup>27</sup>

The nearly vertical rock face of Maryland Heights prevented the engineers from conducting a standard survey across the mountain to correctly align the tunnel, so the method of mathematical triangulation had to be employed. Survey lines were projected around the base of the mountain from which angles and distances were carefully measured to a point on the center line of the tunnel on the east side. Workers then began drilling through the rock at both ends

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<sup>27</sup> *Spirit of Jefferson*, 3 January 1893, p3c4.

simultaneously using drills supplied by a steam-powered air compressor. In drilling the tunnel, first a small hole about 7' in diameter called a "heading" was made. The heading would later form the top section of the tunnel. As soon as the headings were far enough advanced, allowing room to drive the drill horizontally, work on the "benches" or lower part of the rock was begun. In this way larger masses of rock could be blasted out. This was slow work; crews advanced only about 18' per week. Begun in December 1892, the sound of dynamite explosions soon became common. By January the *Spirit of Jefferson* reported that the flock of wild goats living on Maryland Heights, which at first was spooked by the blasts, had become accustomed to the noise.<sup>23</sup> When the headings met in the middle in July 1893, they were just  $\frac{1}{2}$ " out of line. Considered a feat of engineering in its day, the distance measured through the tunnel upon completion was 2  $\frac{1}{2}$ " less than originally calculated.

After completing the excavation of the tunnel, the rock was stable enough to support itself. Workers lined 80' at the west end and 45' at the east end with limestone masonry walls and a brick arch roof. At first the company constructed limestone portals on both ends of the tunnel, but the deep approach cuts at either end of the tunnel caused immediate problems and new portals had to be built. The steep cuts posed a safety hazard from above, as rocks falling from the cliffs were dangerous to employees and threatened to block the tracks. To remedy the situation, in 1896 construction workers extended the lining of the tunnel over 30' on each end and added sufficient covering over the arch to shield it from falling debris. New brick portals were also built (Figure 9). This lengthened the tunnel to 885'. The tunnel, oriented on nearly an east-west axis, almost completely eliminated the tight turn once required at the east end of the bridge.



Figure 9. Completed in 1896 with the addition of brick portals, the Harpers Ferry tunnel eliminated the tight curve on the Maryland end of the bridge. (NPS photo.)

### *The 1894 Bridge*

Another major element of the improvements was the new double-track bridge across the Potomac River, located just upstream from the old Bollman bridge. Long overdue, a more modern, rugged bridge was required to handle the larger engines and trainloads pounding over the line. First the B&O purchased the Wager lot, a piece of land in the commercial area on the

<sup>23</sup> *Spirit of Jefferson*, 3 January 1893, p3c4.

Harpers Ferry shore where a new abutment was built. Next, an abutment was built on the Maryland riverbank and cables were stretched from shore to shore. The cables allowed construction crews to lower stones into the river that were used in building the bridge's masonry piers. Eight piers were constructed of local "Gettysburg Granite" and set on solid bedrock. The Penncoyd Bridge and Construction Company of Philadelphia fabricated the steelwork of the bridge's superstructure. James McLean was contracted for the trestle work, in which about 500,000 feet of lumber were required.<sup>29</sup>

The bridge builders experienced a setback in November 1893 when a shipment of construction materials was sunk during a storm on the Great Lakes, but the new B&O bridge was opened for traffic on April 12, 1894 (Figure 10).<sup>30</sup> Its nine steel spans were a combination of six deck plate-girder spans and three Pratt through trusses.<sup>31</sup> Not only was the bridge designed to handle the heaviest loads of the day, it was also located on a better alignment. The new bridge was between 8 to 11' higher than the old bridge. This not only provided a better gradient, but also made the bridge less vulnerable to floods. The Harpers Ferry end of the 1894 bridge still resembled Latrobe's design of sixty years earlier, but the design incorporated a better junction to the Valley Branch (the former W&P line running along the Shenandoah River). Whereas the old bridge formed a 'Y' with the Valley Branch going straight across and the main line branching off, the new design reversed the order. With the new design, the junction remained over the river, but now the main line remained on a tangent and the Valley Branch curved to meet it (Figure 11). Though not particularly long or massive, the new bridge represented state-of-the-art engineering in the 1890s. Still in use today, the bridge has been called an excellent representative of steel, pin-connected trusses and standardized bridge design of the period.

### *Realignment of the Tracks*

The U.S. government's abandonment of the armory grounds after the Civil War made the realignment of the tracks in Harpers Ferry possible. Since the mid-1850s the B&O was forced to run its trains along an iron trestle mounted on top of the stone river wall. The trestle and right-of-way extended 20' into the armory yard from the river wall.<sup>32</sup> In 1892 the B&O finally purchased a new right-of-way through the armory grounds from owner Thomas E. Savery. Armed with a new right-of-way that was considerably more inland, the railroad was free to abandon its original layout along the river wall (Figure 12). Instead they chose to run the tracks through the former armory grounds on top of a 20' high stone and earthen embankment.

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<sup>29</sup> *Spirit of Jefferson*, 29 August 1893, p2c3.

<sup>30</sup> *Virginia Free Press*, 11 August 1893, p3c4.

<sup>31</sup> Caplinger, *Bridges Over Time*, 62.

<sup>32</sup> Snell, "Town of Harpers Ferry," 7.



*Figure 10. The new railroad bridge, seen here at left, was a central component of the 1892-94 improvements. (NPS photo.)*



*Figure 11. 1896 photo showing the realigned junction of the Valley Branch and main line. The new design kept the main line on a tangent while the Valley Branch, seen here on the left, curved to meet it. (NPS photo.)*



*Figure 12. The abandonment of the armory grounds after the Civil War made the realignment of the railroad possible. The new main line, built atop a 20' high rubble embankment, greatly reduced the curvature of the tracks. The old armory trestle was still in place when this photo was taken in 1896. (NPS photo.)*

By sweeping the tracks broadly around on the town side rather than the river side of the old armory grounds, the result was a much gentler turn coming off the new bridge. This was a great improvement to what had been one of the tightest curves on the B&O's main line. With the need for the elevated trestle thus eliminated, the wood planking, ties, and rails were removed as was a small bridge spanning the armory boatway. The iron framework of the trestle remained in place until around 1898. A small section of the old tracks was maintained as an industrial siding. The siding served Savery's pulp mill located at the end of the former armory grounds.<sup>11</sup>

Another facet of the realignment was the modification of a small tunnel just west of the Savery's mill and the armory grounds. Construction crews cut into the mountainside and converted the tunnel into an open cut. The hillside cuts, some of which were 80' deep, produced nearly 50,000 cubic yards of dirt and stone rubble. The resulting rubble was used to build the embankment across the armory grounds upon which the new track alignment was set. Rubble from the Maryland Heights tunnel excavation and from the construction of the new bridge piers was also

<sup>11</sup> See U.S. Department of the Interior, Historic American Engineering Record (HAER), No. WV-61, "Potomac Power Plant," 1998, Prints and Photographs Division, Library of Congress, Washington, D.C. for the history of Savery's mill.

used for that purpose. Chief Engineer Sisson calculated that, when broken up into smaller pieces, the volume of the rubble actually increased by 80 percent.<sup>34</sup>

The new embankment necessitated the removal of a cluster of structures from the old Ferry Lot at the Harpers Ferry end of the new bridge.<sup>35</sup> Notable among these buildings was the Potomac House restaurant, a three-story tavern/hotel that had served as the B&O's passenger station since the Civil War. On the river side of this building was a large two-story frame porch that opened directly onto the railroad platform. The B&O's trains stopped at the Potomac House regularly to permit the passengers to dine (Figure 13). The new alignment would also have required the



*Figure 13. The Potomac House restaurant, the three-story white building just left of center, served as the B&O passenger station at Harpers Ferry for years. Pictured here ca. 1885, it was torn down to make way for the new alignment through the armory grounds. (NPS photo.)*

removal of "John Brown's Fort," the old armory fire engine house made famous in the 1859 raid. The only building that remained in the armory yard, it had just recently been dismantled and shipped (by B&O rail) to Chicago in time for the 1893 World's Columbian Exposition.

Several changes in the streets and roads were required by the improvements. The county road that ran along the Maryland side from a point near Sandy Hook, parallel with the railroad tracks, was changed to cross above grade at the east end of the tunnel and below grade at the west end. In doing this, the road was raised 35' at the east end and was cut down 5' at the west end of the tunnel. Potomac Street in Harpers Ferry, which runs parallel with the river, was raised 4' for a

<sup>34</sup> William Lee Sisson, "Harpers Ferry Improvement," *Transactions of the American Society of Civil Engineers*, Vol. XXXII, October 1894, 352.

<sup>35</sup> Gilbert, "Cultural Landscape Report," 3:95.

distance of about 800'. The lower end of the street was realigned to pass diagonally under a new overpass constructed as part of the realignment of the Valley Branch approach to the bridge. And because the newly created embankment blocked drainage of water from downtown Harpers Ferry, it was necessary for the B&O to construct a 186' long drainage culvert near the east end of Shenandoah Street (Figure 14).



*Figure 14. Ca. 1896 view of the Shenandoah Street drainage culvert. The B&O's new railroad station sits on top of the embankment in the background. (NPS photo.)*

### *Harpers Ferry's New Railroad Station*

Overall, the series of improvements in 1892-94 dramatically altered the appearance of Harpers Ferry and gave the town its current street layout. Of all of the B&O improvements, the one that most excited town residents was the construction of a new passenger station. When it became clear that the old Potomac House would be torn down for being in the path of the newly designed main line, townspeople realized that a new station must be built. Rumors initially placed the new station somewhere near Savery's pulp mill at the north end of the armory yard, but it was finally confirmed that it would instead occupy a site in the angle formed by the new junction of the main line and the Valley Branch.<sup>88</sup> The *Baltimore Sun* reported, "the old station will be torn away and

<sup>88</sup> *Spirit of Jefferson*, 16 August 1892, p2c4.

a new stone station of handsome architectural design will replace it."<sup>77</sup> Other writers predicted the depot would be "handsome, convenient, & roomy" and a "fine, commodious" building.<sup>78</sup> But despite all of the eager speculation on the appearance of the future station, the fact was that no one really knew what the new station would look like. All that could be hoped for was a station that matched the town's perception of itself as a gateway for tourists and travelers and an important junction on the railroad's main line.

*E. Francis Baldwin, "Architect for the B&O"*

Architect E. Francis Baldwin (1837-1916) designed the Harpers Ferry train station (Figure 15). Though not formally trained at a university, Baldwin learned architecture in Baltimore as a draftsman and apprentice in the offices of Niernsee & Nielson during the 1860s. Ultimately his career spanned fifty years, periods of which he worked with partners and practiced on his own. Employed by a diverse clientele, Baldwin designed many types of buildings including churches, banks, office buildings and warehouses, railroad stations, hotels, municipal and public buildings, hospitals, schools, clubs, and residences. Though the greatest concentration of his work was in and around Baltimore, his buildings could be found from New York to Ohio, from Pennsylvania to Georgia.<sup>79</sup> Baldwin was a deeply religious man and he took a special interest in ecclesiastical works. In fact, one of his two biggest clients was the Roman Catholic Church. He received a distinguished award from Pope Leo XII for his designs of buildings at Catholic University in Washington, D.C.



Figure 15. E. Francis Baldwin.

<sup>77</sup> *Spirit of Jefferson*, 29 August 1893, p2c3.

<sup>78</sup> *Spirit of Jefferson*, 20 September 1892, p2c3; 27 June 1893, p3c3.

<sup>79</sup> About 500 buildings or design projects have been identified as the work of Baldwin or Baldwin and his associates. About eighty percent of these were in Maryland. As of 1991, approximately one-third were extant. Prior to designing the Harpers Ferry railroad station, at least two of Baldwin's works were built in nearby Charles Town, West Virginia: In 1878 he devised plans for the correction of the faulty acoustics of the courtroom at the Jefferson County Courthouse (For details see *Virginia Free Press*, 7 September 1878, p3c3). Later, in 1892, Baldwin and a partner designed the highly acclaimed Hotel Powhatan (For details see *Spirit of Jefferson*, 12 July 1892, p3c2). After a brief period, the Powhatan came to be known as Wormley's Inn. In 1901 it was sold and reopened as Powhatan Female College. In 1914 the building was renamed St. Hilda's Girls School. It burned down in 1937.



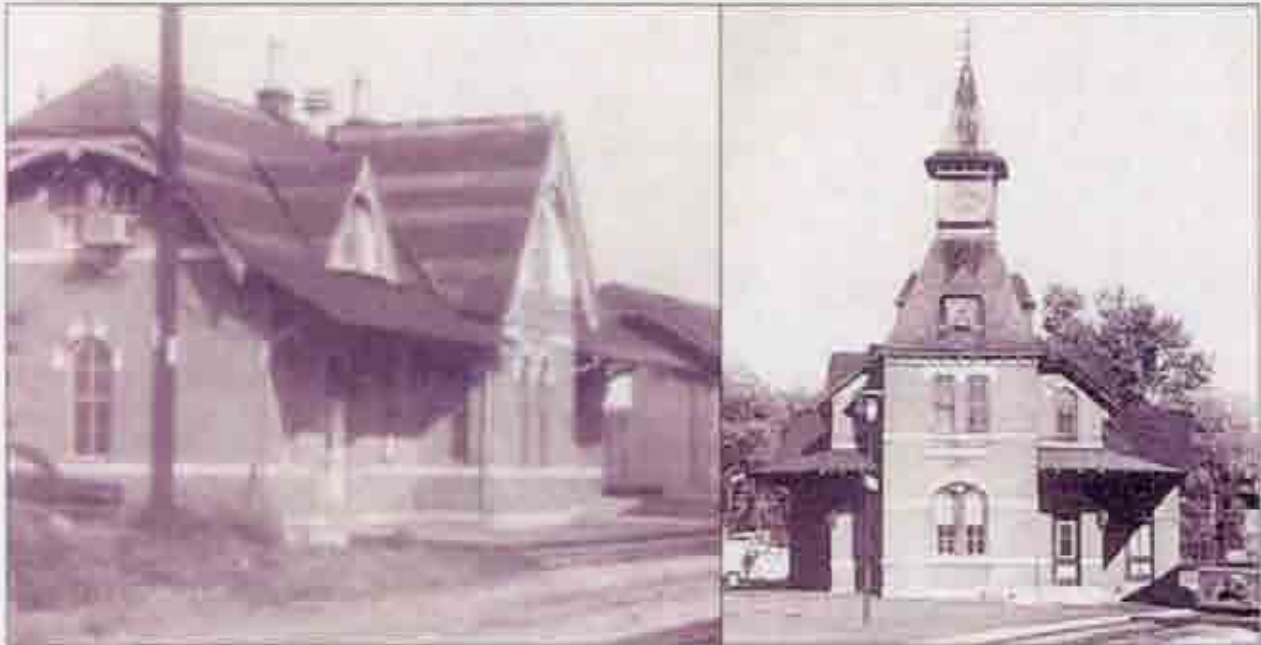


Figure 16. B&O passenger stations at Rockville (left) and Point of Rocks. (photos by H. Harwood.)

Baldwin's other major client was the B&O Railroad. His career with the B&O began around 1872 when he was hired by company president John W. Garrett and designated the "Architect for the B&O Railroad." Some of Baldwin's first works for the company were built on the newly created Metropolitan Branch line, a railroad that ran from Washington, D.C. to the old main line at Point of Rocks. Although it is not known for certain, the notable Baltimore architect is suspected to have supervised the B&O's construction of the distinctive, Gothic-style Rockville station in 1873.<sup>40</sup> One of his most famous works, the ornate Point of Rocks passenger station, was designed in 1875. It has been described as "the zenith of Railroad Gothic" architecture (Figure 16).<sup>41</sup>

In 1883 Baldwin formed a partnership with his former draftsman Josias Pennington. They collaborated on designs until Baldwin's death in 1916. Together they designed several prominent B&O buildings in downtown Baltimore, including the company's ostentatious headquarters building, the Camden Yards Warehouse, and the Mount Clare Roundhouse.<sup>42</sup> In the 1880s Baldwin designed several distinctive passenger stations for the B&O's Washington Branch

<sup>40</sup> U.S. Department of the Interior, Historic American Buildings Survey, No. MD-228, "B&O Railroad Station and Freight House, Rockville, Maryland," 1977. (Prints and Photographs Division, Library of Congress, Washington, D.C.), 1.

<sup>41</sup> Harwood, *Impossible Challenge*, 429.

<sup>42</sup> Historic American Buildings Survey, No. MD-228, 1.



*Figure 17. Baldwin-designed passenger stations at Laurel (left) and Hyattsville (center). The railroad company's headquarters (right) was designed by Baldwin and partner Pennington. (left: H. Harwood; center: Smithsonian Institution; right: B&O Railroad Historical Society.)*

line. His stations at Laurel and Hyattsville, both built in 1884, were ornate and substantial brick buildings (Figure 17).<sup>41</sup>

Baldwin's buildings, especially those of the 1870s and 1880s, incorporated characteristics reflecting the eclectic Queen Anne and Gothic Revival styles of architecture. Hallmarks of these Victorian-era styles that often appeared in his works include towers; steep gabled roofs; large wooden support brackets; bay and oriel windows; and colored glass window accents. His passenger station designs were distinctive and picturesque, and though many had similar floor plans and served the same basic function, no two were exactly alike. Baldwin's career as B&O's principal architect lasted until around 1900. Table 1 provides a list of extant B&O buildings attributed to Baldwin.

#### *B&O Passenger Stations and Standardization in the 1890s*

In the 1890s Baldwin's new passenger stations began to reflect the B&O's growing financial problems. The company was struggling to remain solvent and attention shifted away from architectural concerns. Major improvements to the line, like the tunnel and bridge at Harpers Ferry, were costly and left the B&O fewer financial resources to channel towards elaborately designed stations. Other expensive undertakings of the period included the completion of the B&O's Baltimore to Philadelphia line and the modernization of its terminals and shipyards in Baltimore and Chicago.<sup>42</sup> The railroad labor strikes, the nation-wide economic panic of 1893, and the ensuing depression all contributed to the B&O's problems. The increasingly cash-strapped railroad lost interest in fancy designs and, as a result, many of the stations erected along

<sup>41</sup> U.S. Department of the Interior, Historic American Buildings Survey, No. MD-973, "Baltimore & Ohio Railroad Station, Laurel, Maryland," 1990, (Prints and Photographs Division, Library of Congress, Washington, D.C.), 3.

<sup>42</sup> Stover, *History of the Baltimore and Ohio Railroad*, 165-66, 174-76.

Table 1. Extant B&O Buildings Attributed to E. Francis Baldwin.  
 (\*from a list compiled by Carlos P. Avery, with additions by Herbert Harwood, Jr. and John P. Hankey)

<u>YEAR</u>	<u>LOCATION</u>	<u>STATE</u>	<u>STRUCTURE</u>
1873	Rockville	MD	Passenger Station
1875	Point of Rocks	MD	Passenger Station (Reconstruction)
1875	Keyser	WV	Passenger Station
1876	Martinsburg	WV	Passenger Station Addition?
1876-82	Mt. Airy	MD	Passenger Station
1876	Brosius (Hancock)	MD	Passenger Station
1882	Paw Paw	WV	Passenger Station
1883	Lexington	VA	Passenger Station
1884	Mt Clare	MD	Passenger Car Shop
1884	Sykesville	MD	Passenger Station
1884	Laurel	MD	Passenger Station
1884	Morgantown	WV	Passenger Station
1884	Gaithersburg	MD	Passenger Station and Freight House
1884	Rockville	MD	Freight House
1884	Mountain Lake Park	MD	Passenger Station
1885	Ellicott City	MD	Freight House
1885	Oakland	MD	Passenger Station
1891	Kensington	MD	Passenger Station
1891	Germantown	MD	Passenger Station (Reconstruction)
1891	Dickerson	MD	Passenger Station (Reconstruction)
1891-92	Frederick	MD	Passenger Station Addition
1892	Brunswick	MD	Passenger Station
1892	Washington	PA	Passenger Station
1892	Weston	WV	Passenger Station
1892	Winchester	VA	Passenger Station
1893	Quicksburg	VA	Passenger Station
1893	West Newton	PA	Passenger Station
1894	Harpers Ferry	WV	Passenger Station
1896	Baltimore	MD	Hendersons Wharf Warehouse
1896	Baltimore	MD	Mt Royal Station
1898-1905	Baltimore	MD	Camden Warehouse
no date	Zanesville	OH	Freight House

its lines during the 1890s were smaller and lacked the decorative embellishments of the earlier stations.

Baldwin responded to the company's financial constraints by both reducing the scale of his designs and moving towards standardized station plans. Simply put, both strategies saved his client money. Rather than produce the more costly two-story brick structures characteristic of his earlier designs, Baldwin displayed his architectural flexibility by designing much more modest single-story frame buildings. The designs for the stations at Kensington (1891), Landsdowne (1892), and Brunswick (1892), all of which share certain design elements with the Harpers Ferry station, are typical of his smaller stations of the period (Figure 18).



Figure 18. (from left to right): The Kensington, Landsdowne, and Brunswick stations illustrate Baldwin's more modest designs of the early 1890s (left: Montgomery Co. Historical Society; center: Smithsonian Institution; right: H. Harwood.)

Another result of the B&O's frugality in the 1890s was Baldwin's development of a standardized pattern for passenger stations. The benefit of standardization was that stations could be reproduced cheaply with slight variations at multiple locations. Several rural and suburban towns in Maryland received these standardized Baldwin stations, including the ones at Landsdowne, St. Denis, and Morgan.<sup>45</sup> During the first few years of the twentieth century, standardization of B&O structures became even more commonplace. Not only did the practice encompass passenger stations, but it also extended to waiting shelters, signage, and trackside equipment such as lamp posts. To illustrate the extent that standardization occurred, it is interesting to note that a 1919 survey of B&O properties states that, with a few exceptions, the Harpers Ferry station is "similar to [building] Type W-4."<sup>46</sup> The railroad's use of standardized plans was not a new phenomenon though. As far back as 1867, railroads had begun standardizing everything from locomotive parts to the ingredients used in dining cars.<sup>47</sup>

While Baldwin's use of standardized plans may have been encouraged by the B&O's financial health, such standardized stations can also be viewed as a product of the late nineteenth-century industrial age. For the first time, interchangeable parts and machine-sawn wood allowed railroad companies a quick and inexpensive way to erect depots. Most railroads had stock blueprints for stations, with several different styles in perhaps three sizes each. The blueprint was then tailored to fit a particular location's importance, its physical landform, and amount of traffic. The company's "bridge and buildings" crews easily constructed such plans, in some cases using modular parts. By making only slight modifications to the standard design, the company avoided monotonous duplication for travelers and satisfied local desire for a unique depot. For only a little extra money, distinctive differences could be made to a structure. The use of ornamental extras—roof bracketing, the addition of a finial, or fancy trimwork—were common and inexpensive ways to alter a stock blueprint.

<sup>45</sup> Harwood, *Impossible Challenge*, 128.

<sup>46</sup> Interstate Commerce Commission, "Engineer Field Notes of ICC Parties Surveying the Physical Property of Railroads, 1914-1929", (Baltimore and Ohio Railroad, Record Group 134, Vol. 61, National Archives and Records Administration, National Archives at College Park, MD), 1.

<sup>47</sup> Potter, *Great American Railroad Stations*, 11.

Also, railroad companies were not oblivious to the benefits of standardization. By repeating certain design elements, they promoted an identity and distinguished their own stations from those of other companies. This purposeful repetition of architectural forms, or logotyping, can be considered one of the earliest examples of corporate identity campaigns.<sup>48</sup> For example, the standard depot of one company was easily recognizable by its beveled agent's window with a gabled dormer. Modern-day fast food businesses and advertisers know the value of the type of visual consistency that was practiced by the railroads.

Consistently applied paint schemes were used for the same effect. The early standard color scheme used along B&O lines was brown and "Indian red." In some locations this combination of colors was used until the late 1940s. From the 1940s on, the most frequently used paint colors were combinations of cream and black or cream and brown.<sup>49</sup> In this scheme, the trim was painted black or brown. A royal blue and gold leaf color scheme was used for some of the company's signage, but there is no evidence that it was employed at Harpers Ferry.<sup>50</sup> A passenger on the B&O instantly recognized B&O properties by the familiar paint scheme. By utilizing repetitive architectural forms and adopting a corporate paint scheme, the B&O hoped to foster feelings of trust, dependability, and familiarity among its customers.

#### *Description of the Harpers Ferry Station*

Although Baldwin's original building design drawings for the Harpers Ferry station do not survive, the plans are described in the March 24, 1894 edition of the *Virginia Free Press*. It states, "the new depot building is to be about sixty feet in length, with two twenty by twenty feet waiting rooms, agents' office, ticket office, and freight office. It will be a wooden structure costing \$8,000. New platforms are being constructed with 80,000 feet of lumber."<sup>51</sup> Construction crews began work on the wood-frame station in the summer. On August 14<sup>th</sup> the *Spirit of Jefferson* noted this activity and reported, "Work is in progress on the new B&O Railroad depot."<sup>52</sup> When the station was finished in the fall of 1894, the *Virginia Free Press*

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<sup>48</sup> Potter, *Great American Railroad Stations*, 12.

<sup>49</sup> "Sprucing Up the Right-of-Way." *Baltimore and Ohio Magazine*, April 1946. Reprinted in *Sentinel*, July-August 1985. (Baltimore and Ohio Railroad Historical Society, Baltimore, Maryland, 1946), 11.

<sup>50</sup> *Baltimore and Ohio Railroad, Standard Plans for Maintenance of Way and Construction*. (Akron Railroad Club, Inc., Akron, Ohio, 1977), 68-69.

<sup>51</sup> *Virginia Free Press*, 21 March 1894, p2c5; Other information on the station during this period, where not specifically cited, is derived from a ca. 1916 floor plan, a 1919 Interstate Commerce Commission valuation survey (see Appendix IV), Sanborn Fire Insurance maps (see Appendix VI), and photographs.

<sup>52</sup> *Spirit of Jefferson*, 14 August 1894, p3c1.

called it "well planned and neatly furnished."<sup>10</sup> The dimensions of the building, however, at 101' x 21', were larger than the newspaper's initial report. Situated on the large open platform formed by the curve of the new track alignment, the station became the focal point at the eastern end of Shenandoah Street.

Except for a distinctive two-story tower, it was a rather plain building (Figure 19). The station's tower and its slate-covered, hipped roof were its visually dominant features. The roof covering the single-story portion of the station was low pitched and interrupted only by two hipped dormers, one on each side of the building. The dormers each had three small windows with diamond-shaped glass panes. The tower had a pyramidal roof (also slate-covered) with a slightly steeper pitch. The slates, light gray in color, were hung in a staggered shingle pattern. Pole gutters funneled water from the roof into box-protected downspouts all around the building. A number of large decorative brackets beneath the overhang also tended to emphasize the roof. The walls were covered with horizontal clapboard siding and painted. A 1915 newspaper item



Figure 19. 1930 photo of the Harpers Ferry train station. The two-story signal tower was easily its most distinctive feature. (NPS photo.)

<sup>10</sup> *Virginia Free Press*, 6 February 1895, p3c3.

states a "force of painters are refreshing the station and accompanying buildings with standard B&O red and brown." In 1929 it was reported that the "B&O station at Harpers Ferry has been greatly improved by being painted on the inside. The colors are soft shades of cream and tan."<sup>54</sup>

On the east end of the station was the two-story signal tower (Figure 20). A brick chimney with a flared top was built flush with the edge of the roofline on the west side of the tower. In 1900 a new interlocking switch system was installed for the Valley Branch junction. From that point on trains were controlled from the upper story of the tower.<sup>55</sup> Prior to that, the switching mechanism was operated manually. Entrance to the tower from the outside was initially gained through a door located on the southeast corner of the first floor. Though no documentation has been found, it can be assumed that interior stairs or a ladder led to the upper reaches of the tower. Later, around 1900, exterior stairs were added on the east side that wrapped around the tower, providing access to the upper story through a door on the south side (Figure 21). Photographs of the station around 1910 show a semaphore bracketed on the main line (north) side of the tower (Figure 22). Block tower signs with the telegraph call letters "HF" hung on the east and west sides of the tower. In addition, a station-identifying sign of "Harper's Ferry" hung on the east face of the tower.

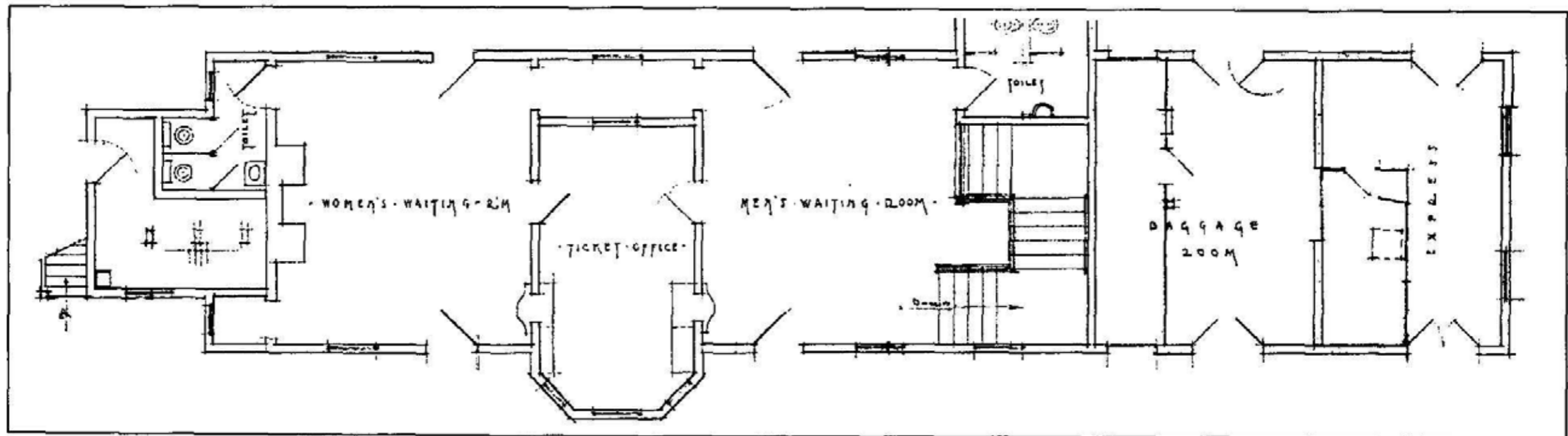


Figure 20. Ca. 1916 floor plan of Harpers Ferry station.

In the interior, about one-third of the tower's lower story was taken up by the women's restroom, though the restroom was accessible only through the adjacent waiting room. The remainder of the tower's lower story presumably housed apparatus related to switching functions. One news account refers to the tower as the "telegraph tower," though it is not clear where the equipment was housed.<sup>56</sup>

<sup>54</sup> *Spirit of Jefferson*, 20 July 1915, p4c1; 16 May 1929, p1c1.

<sup>55</sup> *Spirit of Jefferson*, 20 November 1900, p2c2.

<sup>56</sup> *Farmer's Advocate*, 20 February 1915, p2c2.



Figure 21. Exterior stairs were added to the tower around 1900. (Henry Freeman collection.)

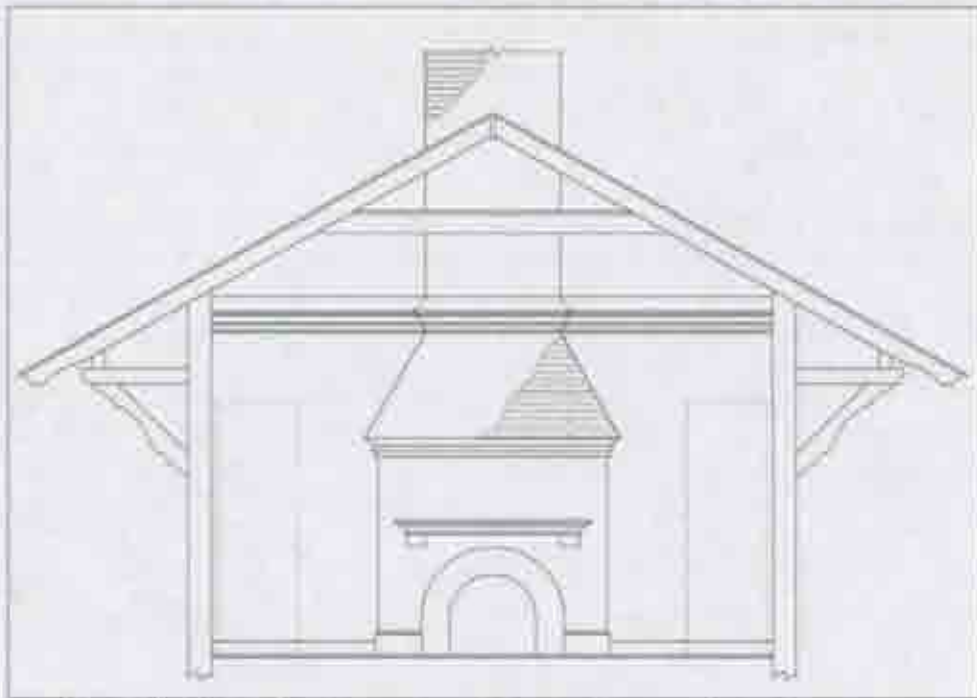


Figure 22. Ca. 1910 view of tower and semaphore. (Henry Freeman collection.)

Designed in a time when society deemed it proper to shield women from the more vulgar male population, the station had two waiting rooms—one for each gender. The waiting rooms were located on either side of the ticket agent's office and were connected to each other by a short hallway on the south side of the station. The waiting rooms had high mansard ceilings supported on exposed chamfered rafters. A wood cornice and baseboards provided additional ornamentation. The women's waiting room boasted a large brick fire box which probably housed a coal-burning stove (Figure 23). Each of the waiting rooms had a bathroom and each bathroom had two toilets and a sink. The women's bathroom, as noted above, was incorporated into the first floor of the signal tower. The men's bathroom projected from the south façade (Figure 24). In general, waiting rooms in small town stations like Harpers Ferry were furnished with pew-like benches lining the walls or set back to back in the room's center.

Near the center of the station was the ticket agent's office. Typically, the agent at a combination freight and passenger station such as Harpers Ferry was responsible for numerous duties. Among his specific duties were selling tickets to passengers, operating the telegraph, announcing train departures and arrivals, stoking the heat stoves, washing windows, repairing tools, and picking up mail deliveries. In the midst of this already hectic job, the agent also filled the critical role of "operator." The operator was a pivotal figure who controlled train movements. He notified approaching train crews whether instructions or freight were awaiting by shifting indicators on a lighted semaphore known as the "order board."





*Figure 23. A large fireplace with mantel graced the women's waiting room.  
(adapted from a B&O drawing by John W. Ravenhorst.)*



*Figure 24. The men's bathroom, located beneath the dormer, stuck out from the south  
facade. (Henry Freeman collection.)*

At the Harpers Ferry station, the ticket agent's office had a bay window, allowing the agent/operator a clear view up and down the main line tracks and platform. The room had a dropped ceiling with attic space overhead. The ticket office was accessible by doors from both the men's and women's waiting rooms. The room also had two ticket windows and counters, one that opened into each waiting room.

The freight section of the station, located at the west end of the building, consisted of a baggage room and an express room. There wagons and teams of horses (and later motor vehicles) pulled up to the station to load and unload their cargo. Carts were used to help move the larger loads (Figure 25). Both the baggage and express rooms had two sets of double doors that opened inward.



*Figure 25. Ca. 1915. Baggage carts were used for loading and unloading cargo. (Henry Friseman collection.)*

Though little documentary evidence exists about the appearance of the station's interior, an early floor plan shows that the baggage room was partitioned into two spaces, a hallway spanning the width of the station (presumably for the ingress and egress of passenger's retrieving their baggage) and a larger storage area. An inventory of the property states that a large oval tub requiring floor support was located somewhere in the baggage room. The open-topped tub was constructed of white pine staves and wrought iron straps. Its function is not identified though a note indicates that the capacity of the tub was approximately 4000 gallons. Possible uses include a supply tank for the station's plumbing or storage of water for steam powered trains. The inventory also states that the tub dates to the year the station was originally constructed. It has

been pointed out that a tub this size would take up much of the available space in the baggage room and it has been suggested that it may have been stored in the attic above the baggage room.

After 1916 the express room was also partitioned. That was the year the B&O removed all its outside buildings with the exception of a freight storage house. An advertisement in the *Farmer's Advocate* related to these improvements stated, "Edward Fossett's Traveling Express Agent Office will be in the main building hereafter."<sup>57</sup> When moved inside, the express agent's office occupied the northeast corner of the room, taking up approximately one-quarter of the entire space. The office was utilized for the obvious clerical duties involved with the freight and, more likely than not, contained a large scale. Due to their utilitarian function, freight spaces in most stations were typically left unfinished, or at best had wainscoting to protect the walls from damage by carts or shifting cargo. The freight space at the Harpers Ferry station, however, with vertical bead board from floor to ceiling, was an exception to this general rule. The windows of the express room were covered with diamond mesh guards. A sign identifying the station as "Harper's Ferry," identical to the one on the tower, hung on the exterior (west) wall of the express room.

#### *The Westbound Waiting Shelter and the "Subway for Safety"*

In October 1898 a three-sided wooden waiting shed was erected on the north side of the tracks for the benefit of westbound passengers.<sup>58</sup> As depicted on a 1902 Sanborn Fire Insurance map, the shed was located directly across the tracks from the freight section (west end) of the station building. The shed was enlarged in 1910 by a 20' addition on its east end and covered with a metal roof. The addition resulted in a small area that was totally enclosed (Figure 26). This enclosed area was referred to as a "winter room."<sup>59</sup> As this name implies, the purpose of the addition was to provide additional shelter against the elements. Photographs show a vent pipe projecting through the waiting shelter roof, indicating the presence of a coal or woodburning stove.

Passengers arriving at Harpers Ferry on eastbound trains and those catching westbound trains were required to walk across the tracks. This was a severe safety hazard, as lines of sight at the crossing were poor in both directions due to the curve in the tracks. In addition, train traffic through Harpers Ferry was very high in the early 1900s. For example, in 1912 at least twenty-eight passenger trains and unnumbered freight trains passed the station daily.<sup>60</sup> People were

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<sup>57</sup> *Farmer's Advocate*, 28 October 1916, p2c3.

<sup>58</sup> *Spirit of Jefferson*, 11 October 1898, p3c3.

<sup>59</sup> *Farmer's Advocate*, 15 October 1910, p2c3.

<sup>60</sup> *Farmer's Advocate*, 31 August 1912, p2c1.



*Figure 26. The westbound waiting shelter. It is pictured here after an enclosure was built on the east end to protect passengers from the elements. (Henry Freeman collection.)*

killed every year going to or from the station and waiting shelter. Local newspapers ran stories referring to "the killing of people by B&O trains" and editors called for something to be done to "alleviate the death trap" that existed at the Harpers Ferry station.<sup>65</sup> The B&O responded with a plan to construct an underground passageway connecting the station and the waiting shed. The railroad also decided to erect a 700' long iron fence between the tracks so that all passengers would be required to use the subway and avoid danger.

Plans for the subway were drawn up in September 1912. It was to be constructed of concrete, 7' wide, 8' high, and 70' long (Figure 27). A contract to build the subway was awarded to Edward Brady & Sons of Baltimore in February and work commenced in April under foreman R. J. Raft. The subway, when completed in June 1913, was reported to be "well lighted at night by electricity, but requires the light of one lamp during the day." On the shelter side of the tracks the subway surfaced on the north side of the shelter and was protected by a new shed addition. Though it was initially planned to open into the women's waiting room, the new subway was accessed on the station side by stairways leading down from the men's waiting room. This

<sup>65</sup> *Farmer's Advocate*, 31 August 1912, p2c1; *Virginia Free Press*, 13 February 1913, p2c1; *Spirit of Jefferson*, 7 January 1913, p2c6.

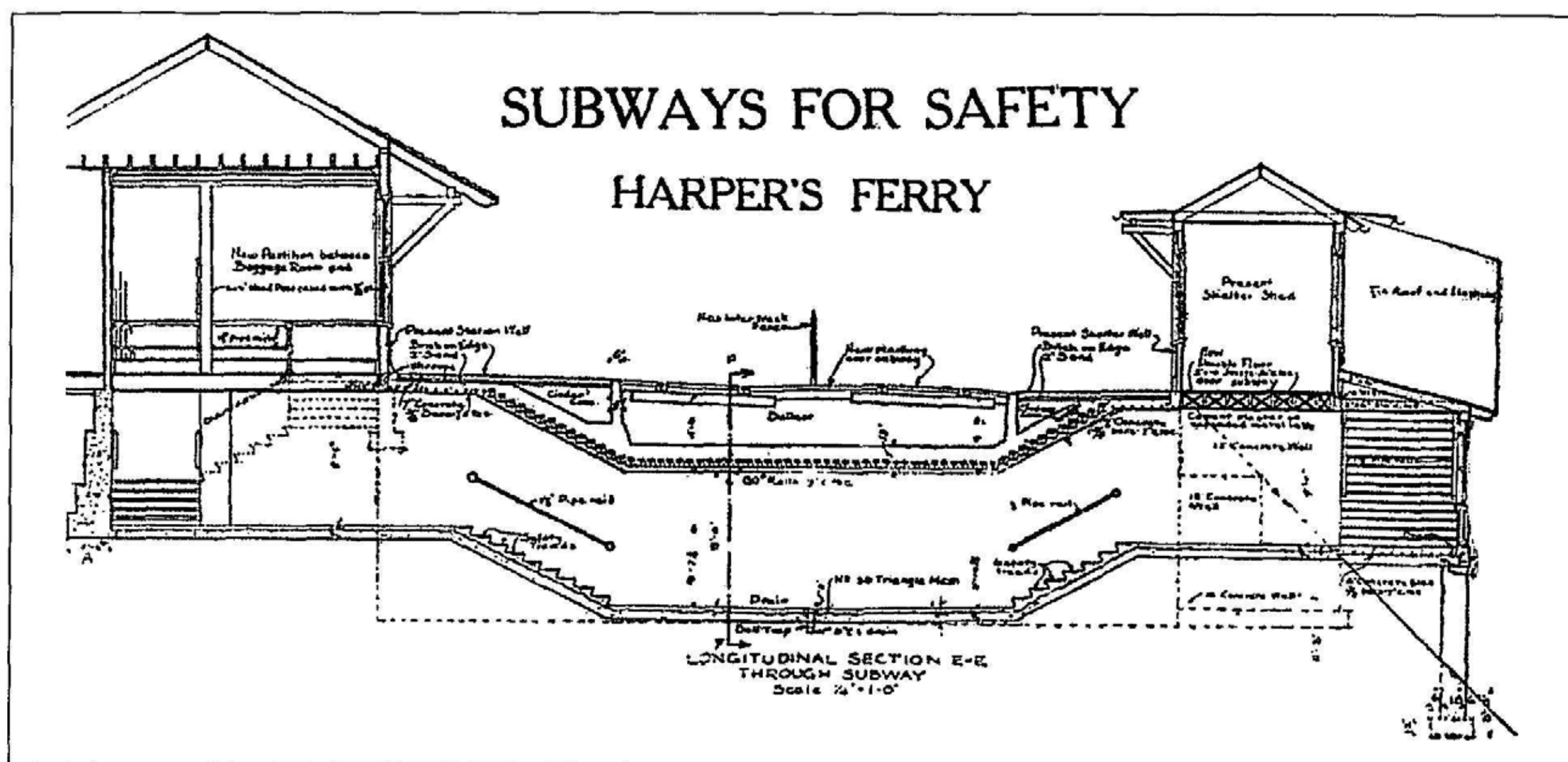


Figure 27. A concrete subway was built in 1913 to improve safety conditions at the busy station. (B&O Railroad Museum.)

modification to the station required a new partition between the waiting room and the baggage room.<sup>62</sup>

The addition of the subway to the Harpers Ferry station was part of a larger "Safety First" movement started by the B&O in 1911. General safety committees were formed on each division of the railroad and the theme was stressed in a newly created magazine for employees. In 1912 the railroad announced it would spend \$2.5 million on infrastructure and safety improvements between Brunswick and Harpers Ferry.<sup>63</sup> Plans were even drawn up for a brand new passenger station to be built in a Renaissance Revival-type of style.<sup>64</sup> For reasons unknown, the proposed new station was never built and much of the money was dedicated to safety-related improvements. Drastic reductions in the numbers of deaths and injuries due to accidents over the next decade clearly indicated the success of the B&O's emphasis on safety. The improved safety record also had beneficial financial results for the company. The funds paid out to cover death and disablement benefits, for example, were cut by more than half.<sup>65</sup>

<sup>62</sup> For subway construction details see: "Subways for Safety", *Baltimore and Ohio Employees Magazine*, Volume 1, No. 8, October 1912, 10; *Spirit of Jefferson*, 11 February 1913, p3c2; *Virginia Free Press*, 13 February 1913, p1c4; *Farmer's Advocate*, 22 March 1913, p2c5; 5 April 1913, p2c2; 7 June 1913, p3c2; and 5 August 1916, p2c4.

<sup>63</sup> *Virginia Free Press*, 2 May 1912, p5c4.

<sup>64</sup> See Appendix III, Drawings of Proposed Station, 1913.

<sup>65</sup> Stover, *History of the Baltimore and Ohio Railroad*, 256-57.

The addition of a number of electric lights at the Harpers Ferry station in November 1913 no doubt reduced nighttime accidents around the station. Workers initially laid conduit piping along the sidewalks and under the platform to establish thirteen electric lamps to light the grounds. Twenty-one electric lights were added inside the station in January and eleven additional lamps were placed along the platforms in May 1914.<sup>66</sup> It has not been determined if the station had electric lights prior to 1913. In 1898 a pulp mill on the nearby armory grounds was converted to generate electricity for the town and poles to light the town streets were erected. Many businesses and homes in Harpers Ferry added electric lights during the first decade of the twentieth century<sup>67</sup>.

### *The Grounds Around the Depot*

The depot grounds consisted of wood platforms on the north, east, and west sides of the station and a large, flat unimproved area on the south side of the station. The south side of the station grounds was left unpaved for several years. Then, in 1904, a 7' wide x 110' long bluestone sidewalk was built that led to the edge of the rubble embankment on which the station sat. In 1910 the south side of the station was paved with bricks and stone curbs were added all around. Brick paving replaced the wood platform around the west end of the station and north side of the tracks. A wood fence ran along the edge of the depot grounds until 1913 when it was replaced with an iron picket-style fence. The iron fence, erected by contractor J. S. Burton, ran from the Valley Branch overpass, along the edge of the embankment, and down the station's driveway (Figure 28).<sup>68</sup>

Travelers and pedestrians reached the station from the town either by the driveway off Potomac Street or by one of two sets of stairs up the embankment. A set of wood stairs led to the station from the Valley Branch side, located between the freight office and a small building "used by track and linemen."<sup>69</sup> The other stairs were constructed of 10' wide slabs of stone and were located near the drainage culvert on Shenandoah Street. The stone stairs connected the train station with the town's commercial district as well as a cluster of hotels and restaurants on Shenandoah Street that catered to tourists and travelers. Safety railings were added to the steps in 1916. In 1916 the B&O also established a park on the grounds of the old armory yard

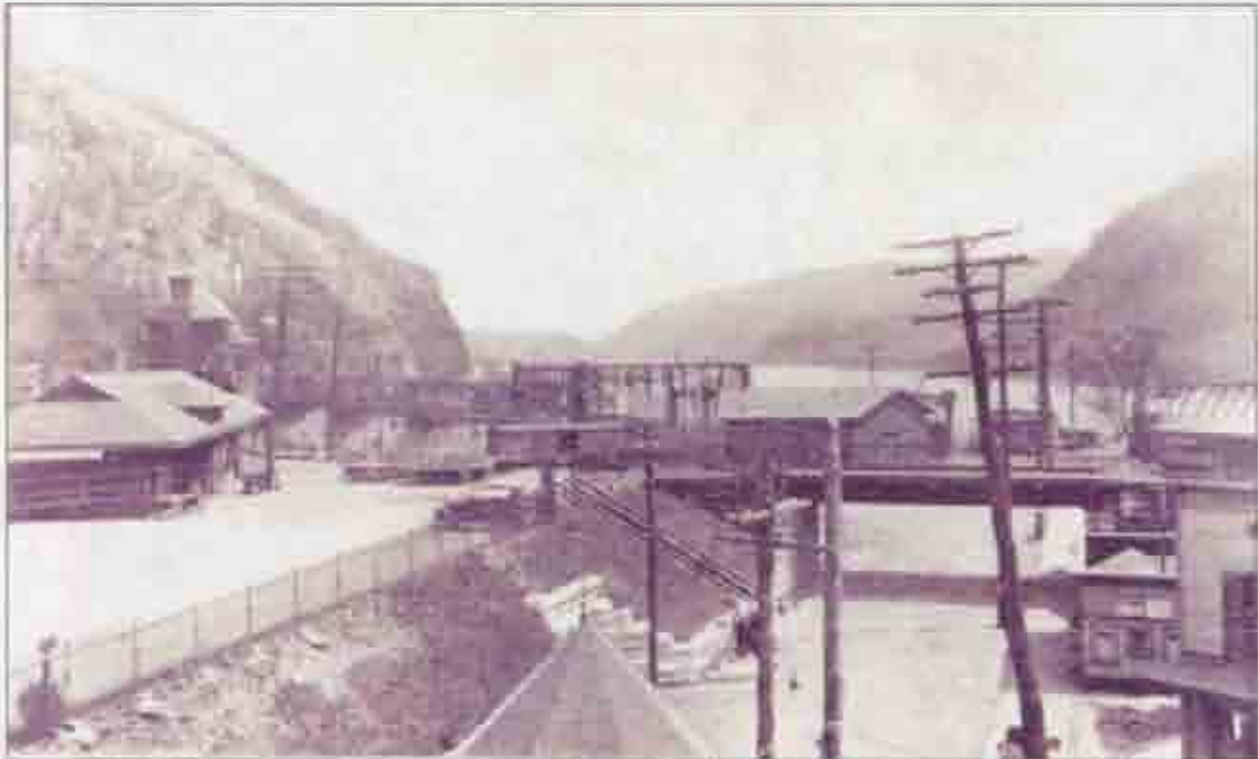
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<sup>66</sup> *Farmer's Advocate*, 22 November 1913, p2c2; 17 January 1914, p2c4; and 23 May 1914, p2c3.

<sup>67</sup> See HAER, "Potomac Power Plant," for the role of Savery's mill in the production of electricity.

<sup>68</sup> *Farmer's Advocate*, 7 June 1913, p3c2.

<sup>69</sup> *Farmer's Advocate*, 30 September 1916, p2c4. The two buildings flanking the stairs were either demolished or removed in 1916. The freight office was demolished and its functions were moved inside the station building. Also referred to as a "depot," the freight office probably temporarily served passengers during the construction of the 1894 depot. The other building was sold for \$100 to farmer Peter Snyder of Loudoun County, Virginia and converted to a small shed or barn.

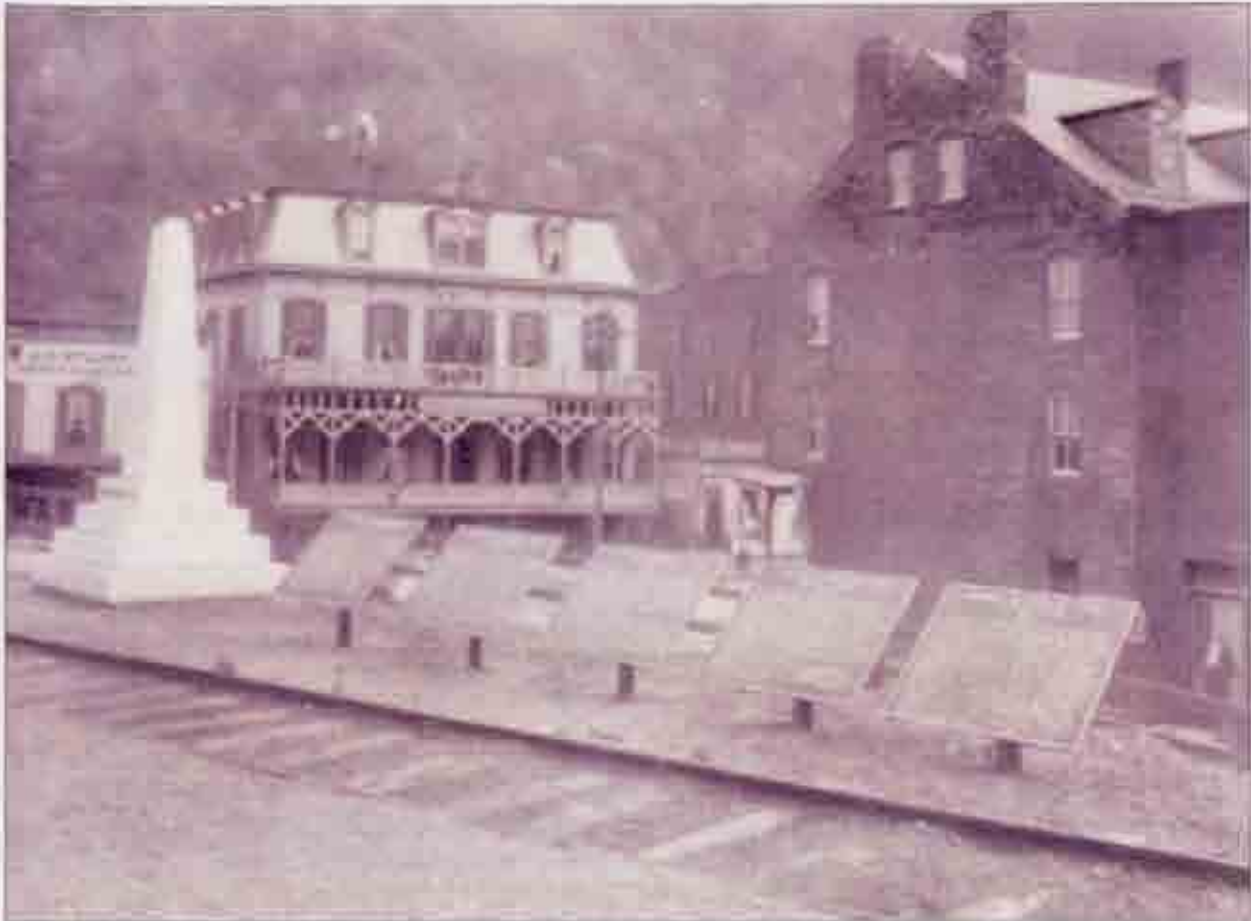


*Figure 28. In 1913 an iron picket fence was erected along the edge of the embankment and across the Valley Branch overpass. This ca. 1920 photograph illustrates how the depot was perched above the rest of lower town Harpers Ferry. (B&O Railroad Historical Society.)*

between the station and the Potomac River. A walkway from the station and concrete steps were constructed to descend to the new park grounds. Workmen cleaned up debris around the old armory building foundations and landscape gardeners established flower beds and planted grass and shade trees.

Other B&O facilities and notable features of the depot grounds related to the development of Harpers Ferry as a tourist stop. The railroad company erected a monument in 1895 to mark the former location of the armory engine house, made famous as "John Brown's Fort." The obelisk monument is located on the side of the driveway near the edge of the embankment created during the realignment of the tracks. In 1897 the federal government also installed five tablets here commemorating the capture of Harpers Ferry during the Civil War (Figure 29). The John Brown monument and the interpretive tablets were clustered in a small grassy area so as to be visible from the train and the platform.

The B&O promoted Harpers Ferry as a tourist destination and from roughly 1880 to 1930, the town was a regular destination and departure point for numerous tourist excursion trains. Excursion trains left Harpers Ferry for the short trip to nearby Martinsburg and Frederick, and for the slightly longer trip to Winchester, Edinburg, Harrisonburg, and Staunton in the



*Figure 29. A monument marking the former location of "John Brown's Fort" and five commemorative tablets were erected on the grounds of the depot. (NPS photo.)*

Shenandoah Valley. Other special excursion trains took tourists to and from destinations even further afield, to Atlanta, Philadelphia, New York City, Newark, Atlantic City, and Niagara Falls. Even the far-off tourist sites in Kansas City, Detroit, Omaha, and San Francisco were connected to Harpers Ferry by the excursion trains. Aside from bringing people to Harpers Ferry to see the area's tourist sites, B&O excursion trains also brought people to hold celebrations, reunions, political conventions, religious retreats, hiking trips, and for a whole host of other special occasions. Many of these events were held at Island Park, the B&O's very own "first-class excursion ground."

In 1878 the B&O purchased Byrnes Island, an island in the Potomac River a short distance upstream from Harpers Ferry. The company developed Byrnes Island into a summer resort and renamed it Island Park. In 1894, the same year the new train station was built, Island Park boasted an "eating house," several pavilions, a dining tent, refreshment stands, as well as swings, a skating rink, and a steam powered merry-go-round. A Ferris wheel was added by 1916. The



attractions of the place were listed as boating, swinging, see-sawing, baseball, promenading, and wading. Operated under B&O management, the resort at Island Park was perhaps best remembered as the location of the company's annual employee picnic from 1881 to around 1918. This popular event was always well-attended. In 1910, The *Farmer's Advocate* reported "the usual number" of attendees, estimating the crowd at 5,000 to 6,000 employees and family members.<sup>70</sup> The island was susceptible to flooding, however, and in 1923 the company dismantled its remaining facilities and leased the island to a local farmer for pasture.

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<sup>70</sup> *Farmer's Advocate*, 6 August 1910, p2c3-4.



### **PART THREE: The 1930-31 Improvements and the Relocation of the Harpers Ferry Station**

#### *The B&O's Financial Condition*

The reconstruction of the railroad at Harpers Ferry during the early 1890s served its purpose well for several decades. By the mid-1920s, however, freight train weights and speeds had so increased that even the broad curves of the 1894 realignment were beginning to restrict efficient railroading operations through the town. It was difficult and expensive to brake the heavy fast trains through the curves. So, beginning in 1930, the B&O began a second round of improvements to the main line at Harpers Ferry. As before, the betterments included a new Potomac River bridge, tunnel work, and realignment of the main line and Valley Branch junction. This time, however, rather than build a brand new passenger station, the budget conscious B&O picked up the Harpers Ferry train station—two-story tower included—and moved it to its current location. The 1930-31 improvements were the B&O's last major alterations to the railroad at Harpers Ferry. For the station in particular, several changes to the floor plan were made that more or less resulted in the building's current configuration.

Work began just in time, too, as the financial condition of the B&O Railroad Company deteriorated significantly after 1930. During the generally prosperous and expanding times of the 1920s, the B&O had spent nearly \$100 million on railroad improvements. The 1930s, however, were very lean years for the company. Each year after 1930 brought a sharp decline in total traffic and revenue and the B&O's stock value plummeted. Money was hard to find. Naturally, this decline prohibited the company from making any significant improvements and even some basic maintenance had to be deferred. At first company officials perceived the drop in revenues to be only temporary. Therefore no reductions in the improvement program occurred in 1930 and the Harpers Ferry project was allowed to proceed. Before the full severity of the Great Depression was realized and the economic downturn brought even minor projects to a halt, the B&O managed to complete its Harpers Ferry improvement.

Times were different a year later when B&O President Daniel Willard wrote his *Annual Report* to stockholders. Reporting on the company's expenditures during 1931 he wrote, "Because of the general conditions prevailing, expenditures for additions and betterments were confined chiefly to improvements that had been under way and were nearing completion."<sup>71</sup> Whereas more than \$10 million dollars was spent during the previous year on infrastructure and equipment, in 1931 virtually no money was spent on these things. The rest of the decade was little different than 1931. Few years saw more than modest expenditures for maintenance of the railroad. Had the Harpers Ferry improvements been delayed by a single year, it is doubtful they

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<sup>71</sup> *Annual Report of the President and Directors to the Stockholders of the Baltimore and Ohio Railroad.* (Baltimore, 1932), 8.

would have occurred until America emerged from the Depression with the outbreak of World War II.

#### *The 1930-31 Bridge and Tunnel Work*

The principal feature of the improvements was a new double-track bridge, consisting of fourteen deck plate-girder spans. The new bridge was constructed at an angle to the river axis, making it approximately 50 percent longer than the 1894 bridge. The bridge met the West Virginia shore considerably upriver from the landing of the previous one, but still within the old armory grounds (Figure 30). It was also aligned on a tangent in relation to the tunnel, which once and for all eliminated the curvature on the Maryland side. On the West Virginia side, the new alignment resulted in a wide, sweeping curve (a 4 degree curve versus the previous 9 degree one) that permitted nearly unrestricted train speeds. The B&O's engineers finally succeeded in ridding the railroad of its troublesome, curvy track at Harpers Ferry.



*Figure 30. The angle of the new Potomac River bridge, at far right in this 1911 photograph, helped eliminate the curvature at both approaches. The 1894 bridge is at center and the original span is at left in this view from the Maryland side. (Honey Freeman collection.)*

Construction of the bridge proceeded rapidly. The Empire Construction Company from Baltimore was contracted to build the abutments and piers and B&O's Engineer of Bridges, Philip G. Lang, supervised the work. Steam shovels arrived on site in October 1930 and within a month, eleven of the thirteen massive bridge piers were completed (Figure 31). Crews constructing the piers took full advantage of a protracted drought that the area was experiencing. Because of the drought, the waters of the Potomac neared record low levels, permitting men and heavy equipment to work in the riverbed with only minimal cofferdams. The conditions were so favorable that the work, originally estimated to take nine months, instead was finished in five. "No grass has tickled the soles of those engaged on this work," Lang wrote of the rapid rate of construction.<sup>72</sup> The bridge piers were set on solid bedrock and rose 35' above the foundations. Four thousand cubic feet of reinforced concrete was used in their construction.<sup>73</sup>



*Figure 31. Maryland Heights towers in the background of this 1930 view of the new bridge piers. Construction of the bridge progressed quickly thanks in part to low water levels. The 1894 bridge is on the right. (Jay Maury collection.)*

<sup>72</sup> Philip George Lang, "Beating 'Ole Man River: The Reconstruction of Our Potomac River Bridge at Harper's Ferry, W. Va.," *Baltimore and Ohio Magazine*, December 1930, 20.

<sup>73</sup> Jeffrey R. Hollis and Charles S. Roberts, *East End: B & O's "Neck of the Bottle."* Barnard, Roberts and Co., Inc., Baltimore, Maryland, 1992, 30.

The American Bridge Company was hired to complete the superstructure of the new bridge. They fabricated the steel girders, which were then brought to the site on flatcars and hoisted into place by a rail-mounted crane (Figure 32). The bridge was built using four lines of parallel girders and approximately 4.4 million pounds of structural steel.<sup>74</sup> The rails were placed on wood cross-ties resting directly on top of the girders. The tracks averaged 47' above the river. Wood walkways were built on both sides of the tracks and "goose-neck" light posts lined the West Virginia end of the bridge. Though not nearly as graceful as the B&O's two previous Potomac River bridges, the 1931 bridge was functionally far superior.



Figure 32. The 1930-31 steel girder bridge. (NPS photo.)

On March 6, 1931, before construction was even completed, fire swept rapidly from one end of the bridge to the other after a workman accidentally dropped a red-hot rivet into a barrel of creosote (Figure 33). The newly laid cross-ties had been soaked in creosote and burned so fiercely that the steel girders were warped and weakened. Seven and a half of the fourteen spans and thirty of the girders had to be replaced. The damage was estimated at \$200,000. Fortunately, the responsibility for the loss did not fall on the budget-minded B&O. At the time of the fire, employees of the Empire Construction Company were in charge of the work and the

<sup>74</sup>Hollis and Roberts, *East End*, 30; Caplinger, *Bridges Over Time*, 69.



*Figure 33. Fire damaged the new bridge before construction was completed. Fortunately, the cash-strapped B&O was not responsible for the \$200,000 loss. (NPS photo.)*

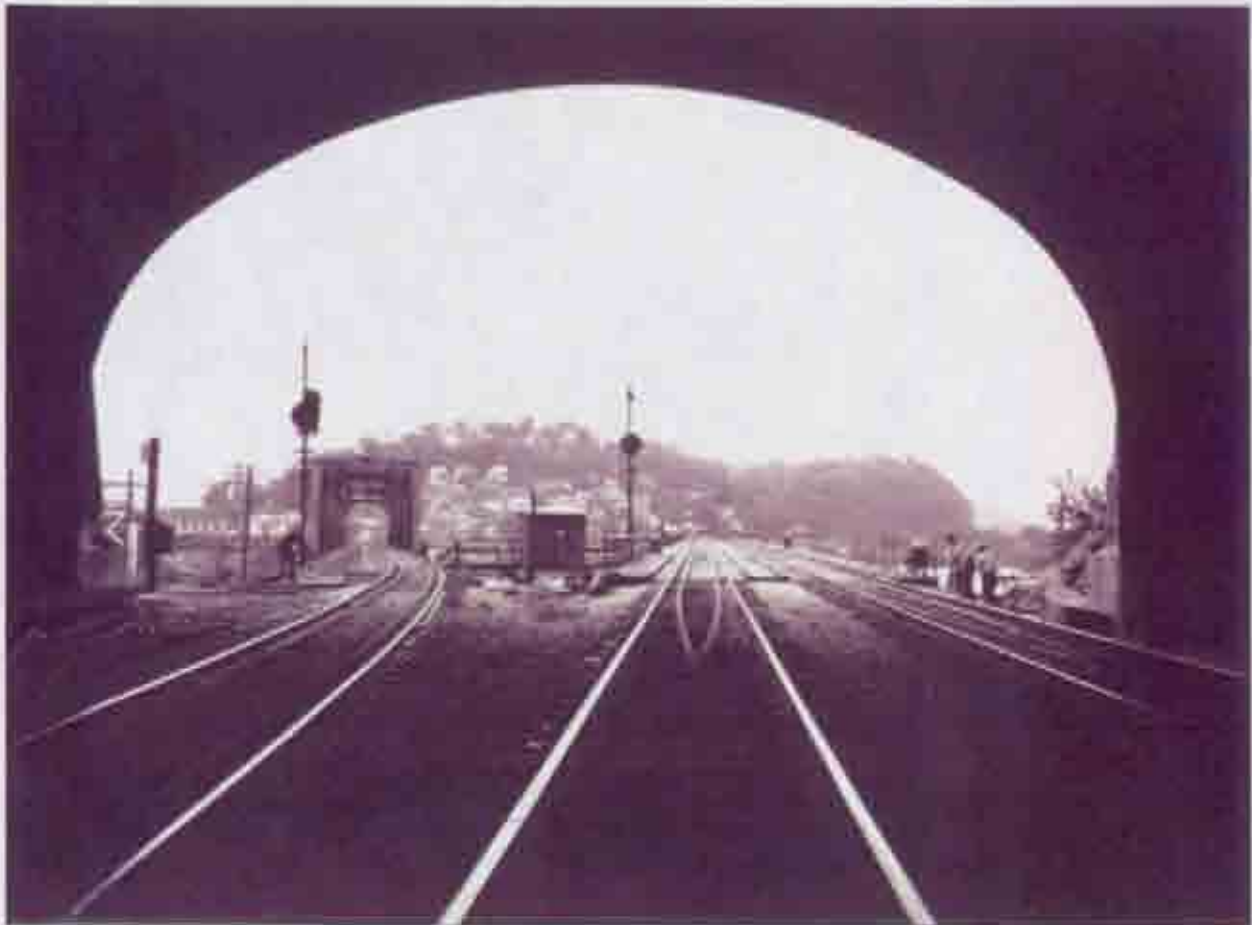
bridge had not yet been turned over to the railroad.<sup>75</sup> The necessary repairs were made quickly and the bridge opened for traffic on June 1, 1931.<sup>76</sup>

Another important feature of the improvement was the modification of the tunnel through Maryland Heights. The angle of the new bridge required that the west end of the tunnel be

<sup>75</sup> *Shepherdstown Register*, 9 April 1931, p4c3.

<sup>76</sup> Philip George Lang, "Ninety-Four Years of Bridges at Harpers Ferry," *Engineer-News Record*, September 17, 1931, 448. Incredibly, the bridge would catch fire two more times, once on April 11, 1951 and yet again on June 9, 1956. The 1951 fire began when a train passed over the bridge with its ash pan door slightly ajar, accidentally starting the blaze. The 1956 fire began when a coal train derailed, setting both the coal and bridge on fire. To halt the spread of the fire, firefighters tore up sections of the wood platforms that led out about half way across the bridge. Eyewitnesses reported that fire trucks coming down into lower town Harpers Ferry on (then) Rt. 340 had difficulty getting water to fight the fire because the river was low. After 1956 B&O installed fireproof coatings and firestops to prevent future disasters, a precaution they had previously deemed too expensive.

widened, or "bell-mouthed," to a width of 45'. This widening also allowed for the convergence of the tracks from the old and new bridges at a location just inside the tunnel (Figure 34). This unusual arrangement is one of the few in-tunnel interlock junctions in the nation.<sup>77</sup> Additional alterations to the tunnel removed clearance restrictions. A new reinforced-concrete lining and portal were also added, giving the tunnel its current appearance.



*Figure 34. The B&O modified the Maryland Heights tunnel to allow the convergence of the tracks within. (Henry Freeman collection.)*

Other changes were made to the railroad on the West Virginia shore. The abutment of the new bridge was set back from the armory river wall. The approach to the bridge required that another fill embankment be made on the former armory grounds (Figure 35). Once again, the 20' high fill covered portions of several of the old armory building foundations. Three temporary frame structures and an outhouse were erected on the old armory grounds near the base of the new

<sup>77</sup> Hollis and Roberts, *East End*, 32.



embankment. Bulldozers prepared a roughly triangular-shaped platform that stretched from the abutment all the way to Potomac Street. The flat area, which would become the new home for the passenger station, was graded and used as a staging area for construction supplies (Figure 36). Access to the new depot grounds was gained via a driveway off Potomac Street. The surfaces of the driveway and new depot lot were left unpaved.



*Figure 35. The 1930-31 realignment required another fill embankment to be placed on the former armory grounds. Note the armory building foundation visible in the photo at right. (both courtesy of Henry Freeman.)*



*Figure 36. A workman prepares the site for the relocation of the Harpers Ferry train station. (NPS photo.)*

Another feature of the new alignment was the rearrangement of the rails for through traffic. After 1931, the 1894 bridge carried only the trains of the Valley Branch. A single track of the old main line was left in place to connect the two bridges on the Harpers Ferry side. This connection between the 1894 alignment and the new main line was maintained as a detour for emergency purposes for several years. It was eventually converted to a nineteen-car siding in 1958.<sup>78</sup> When the 1930-31 improvements were completed, for a period of five years, until the destruction of the Bollman bridge in the 1936 flood, all three of the B&O's Potomac River crossings and alignments could be seen side by side (Figure 37).



Figure 37. This aerial photograph, taken in 1931 just prior to the relocation of the station, shows all three Potomac River crossings and alignments at Harpers Ferry. (NPS photo.)

<sup>78</sup> Hollis and Roberts, *East End*, 34.

### *Relocation of the Harpers Ferry Station*

As early as 1925 local newspapers were speculating on the proposed realignment through Harpers Ferry. The *Farmer's Advocate* informed its readers that heavier locomotives and freights would compel the B&O to build a new bridge and make its curves longer and straighter. Though the reports were characterized at that time as "rumors," the paper correctly predicted that such a realignment would require the relocation of the station somewhere "farther up the Potomac."<sup>79</sup> In fact, the station and its companion westbound waiting shelter were moved several hundred yards upstream and placed at the west end of the new bridge.

The westbound waiting shelter was the first structure relocated. Compared to the station, the shelter's relatively small size and light framing made it the easier of the two tasks to complete. In February 1931, workmen utilized a rail-mounted crane to lift the shelter onto a flat railcar and move it to the new location (Figure 38). The structure was left largely intact, except for a minor change in its river-facing wall. There the sliding door that provided access to the 1913 subway stairs was removed. The resulting opening was then enclosed. The stairs, too, were torn away and the old subway tunnel was filled in prior to the relocation.



Figure 38. Moving the west bound waiting shelter. (NPS photo.)

At the new site, pedestrian access to the shelter was once again controlled by means of a cast-iron fence between the two sets of rails. A new concrete subway was built. The tunnel passed below the tracks and through the bridge abutment. On the eastbound side of the tracks, a new subway-covering shed was built. It rested on a concrete foundation and was covered with tongue and groove siding that matched the passenger station building (Figure 39). Later, when the station was relocated, the new subway-covering shed was connected to the main building by a matching slate roof.



Figure 39. At the new site, the B&O built a subway to provide safe access to the waiting shelter. (B&O Railroad Museum.)

<sup>79</sup> *Farmer's Advocate*, 28 November 1925, p1c1.

In the meantime, the B&O prepared to move the passenger station to its new location. Before the move, during the month of March, several changes were made to the building's floor plan (Figure 40; see also Appendix V). Many of the changes were made in order to upgrade the building's heating system once the station was moved to the new location. The most drastic alteration in this regard was the conversion of the women's waiting room into a boiler room. The boiler for the existing hot water furnace, originally installed in 1925, was to be moved to the former women's waiting room and adapted for steam heat. The plan for the new heating system did not require the large firebox or such a large brick chimney and these features were therefore removed. Also the openings on both sides of the firebox were closed off, effectively cutting off access to the tower from the inside of the station.

The adaptive reuse of the women's waiting room for this new function led to several other changes in the station's floor plan. The hallway that connected the two waiting rooms was blocked off and this space was added to the ticket agent's office. The ticket office's bay window was removed and the wall was then rebuilt in line with the side of the building. The existing three windows were reset and the new section of wall was covered with matching clapboard siding. The ticket-selling counter and window that had opened into the women's waiting room, now the boiler room, were also removed. Once the station reopened at its new site, there would be only one passenger waiting room.

No longer separated by gender, men and women would now wait for their trains together in the waiting room formerly designated for men's use only. This change necessitated the relocation of the women's bathroom. It was moved from the lower story of the tower to a more convenient space adjacent to the new waiting room, occupying the space where the stairwell to the old subway previously had been. A new partition was put up between the new women's bathroom and the baggage room and obscured glass was hung in the bathroom window. At the bathroom's former location in the tower, a small corner of the space was converted for use as a "battery room."

The men's bathroom, too, was altered before the station reopened at its new site. The room remained the same size, but the projecting bay section was removed and the space, in essence, was shifted back into the building. The room's two windows were reset and new partitions were built to separate it from the new women's bathroom and the waiting room. The dormer above the men's bathroom with its three decorative mesh-guarded windows was also removed at this time and the slate roof was patched.

Finally, by April 15, 1931, the alterations were completed and the station was ready to be transported to its new location.<sup>80</sup> As a crowd of curious onlookers gathered, the station was carefully lifted onto the old main line rails and hauled by a steam crane towards its new home (Figure 41). Once there, the station was lifted with its cribbing and put into place.

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<sup>80</sup> *Spirit of Jefferson*, 15 April 1931, p6c1.





*Figure 41. Hauling the station to its new location, 1931. Notice the chimney and south dormer were removed prior to the move. (NPS photo.)*

The timbers that made up the cribbing functioned as the foundation and were set resting directly on the surface of the fill.

After the move, a few finishing touches were made to the station. These changes were primarily related to the building's heating, plumbing, and drainage systems. Throughout the station, all new joists and flooring were added after water supply and drainage lines were installed. The station's main outlet for drainage was a 166' long, 2' in diameter terra cotta pipe that discharged directly into the river. Numerous radiators throughout the station were moved from one location to another.

The women's waiting room-boiler room conversion was also among the tasks completed after the station was moved. A partition was added to divide the boiler room into two spaces. One of the spaces served as a coal storage bin. Coal was stored in a sunken pit with a dirt floor. The rest of the boiler room space was devoted to the heating equipment. A 5' deep pit was dug and lined with concrete to house the boiler and heating pump. A new water tank was placed above the

ceiling of the signal tower and a vent pipe was put through the roof. A smaller, square brick chimney replaced the original chimney. The following fall, in October 1932, a new furnace was installed.<sup>81</sup>

### *The Decline of the Railroads*

Beginning almost immediately after it was moved, the newly relocated railroad station at Harpers Ferry began a slow, almost imperceptible decline. It was a decline caused by neglect that fully mirrored the health of the B&O Railroad Company and the entire railroad industry. The seeds for the decline had been planted years earlier during the first few decades of the twentieth century. Several factors contributed to the difficulties experienced by the railroads in that era. One cause was an increase in governmental regulations. The railroads suffered as the authority of the Interstate Commerce Commission expanded. A more critical threat to the vitality of the industry, however, was the birth of two competitive modes of transportation that would ultimately be the undoing of the railroads—airplanes and automobiles.

In 1903 Wilbur and Orville Wright made the first successful sustained powered flights in a heavier-than-air machine, thereby ushering in the age of flight. Of greater and more immediate concern to railroad business was the development of the automobile. By 1917 Henry Ford was selling nearly a half million cars and trucks per year.<sup>82</sup> Seen at first as little more than a rich man's toy, the automobile was slow to catch on. Besides, there were very few good roads and intercity highways were virtually non-existent. It would take several more decades for automobiles and airplanes to really challenge the railroads as carriers of passengers and cargo, but the day was coming.

As the infrastructure to support automobiles continued to develop in the 1920s and 1930s, there was a corresponding drop in rail passenger traffic. During the 1920s, the number of cars and trucks had increased from 8 million to 23 million, and many small intercity buses had started to provide service over a growing highway system.<sup>83</sup> With the emergence of the private automobile, decent roads, and motorbuses, passengers began to favor the car over the train, especially for traveling short distances. As a result, the railroad's passenger revenue shrank. The phrase "hitting the road" was no longer synonymous with catching a train.

"The passenger problem," as the decline in passenger train usage came to be called in the late 1920s, became more acute in the 1930s. As America entered fully into the Great Depression, the decline of the railroads accelerated. The B&O continued to lose passengers and freight to the

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<sup>81</sup> *Spirit of Jefferson*, 12 October 1932, p1c2.

<sup>82</sup> Stover, *History of the Baltimore and Ohio Railroad*, 205.

<sup>83</sup> Stover, *History of the Baltimore and Ohio Railroad*, 270.

highway. Its passenger revenue declined during the decade from \$18.5 million in 1930 to \$10.6 million in 1940.<sup>84</sup> With less and less capital on hand to devote to its passenger facilities, the once-proud railroad stations slowly lost their luster. As automobiles and roads continued to appear across the land, railroad stations such as the one at Harpers Ferry, lost their dominant position in the transportation landscape. The "golden age" of railroading was fading from the American scene.

Railroad executives tried in vain to counter the steep decline in passenger train usage. One solution in that era was to replace a steam train with a gas-electric motor car, which was less expensive to operate, and to reduce the number of main-line locals and branch trains. Fewer trains were operated on marginal or money-losing services.<sup>85</sup> At the same time, in order to lure the public back to the rails, the railroads introduced innovative concepts in train travel. For example, in 1930 the B&O introduced trains with reclining seats and air-conditioned dining cars. By 1931 it operated the first completely air-conditioned passenger train. Later in the decade, a stewardess/nurse service was inaugurated to look after the comforts of passengers. Faster and faster classes of trains were also introduced to the B&O lines.<sup>86</sup> Though these advancements were well received, the erosion of the B&O's passenger services and facilities continued their slow but steady decline. According to one account, during the bleakest of times, traffic on the B&O line past Harpers Ferry station dropped to as low as six trains per day.<sup>87</sup>

America's entrance into World War II provided a brief but welcome interruption to the B&O's downward financial trend. The war brought an upswing to the American economy that lifted the nation out of the Depression and provided a much-needed spark to the railroad industry. Though the industry prospered as a whole, it was an especially beneficial time for the B&O and Harpers Ferry in particular (Figure 42). The railroads played a key role in transporting vast quantities of men and materials for the war effort. It has been estimated that over the course of World War II, special troop trains carried 43.7 million members of the armed forces, or an average of nearly 1 million men per month.<sup>88</sup> Even with this great upsurge in wartime passenger traffic, freight traffic continued to be the basic economic mainstay of the B&O. The freight traffic during the war consisted of the usual civilian peacetime shipments as well as a mix of wartime munitions, equipment, and shipbuilding materials.

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<sup>84</sup> Stover, *History of the Baltimore and Ohio Railroad*, 290-91.

<sup>85</sup> Charles W. Turner, *Chessie's Road*. (Revised 2<sup>nd</sup> edition, 1993, The Chesapeake & Ohio Historical Society, Inc., Alderson, West Virginia, 1956), 200.

<sup>86</sup> Stover, *History of the Baltimore and Ohio Railroad*, 287.

<sup>87</sup> Harwood, *Impossible Challenge*, 169.

<sup>88</sup> Stover, *History of the Baltimore and Ohio Railroad*, 310.



Baltimore & Ohio Railroad, Harpers Ferry Station  
HAER No. WV-86  
(Page 53)



*Figure 42. 1940s views of the station. Top, ca. 1945. (Fleury Freeman collection.); Middle, Workmen riding the rails, 1940. (NPS photo.); Bottom, Waiting shelter, 1942. (NPS photo.)*

The versatility of the railroad as a mode of transportation was highlighted during the war. Huge amounts of oil and coal and nearly all troops were carried by America's railroads. Other means of shipping these goods were negatively affected by wartime circumstances. Shipment by trucks over highways, for example, declined because of a scarcity of tires and shortages of gasoline. Normal coastal shipping lanes were also affected by the war. As German U-boats disrupted tanker traffic from the Gulf Coast to the east, the railroad came to the rescue by diverting immense quantities of petroleum products overland.<sup>89</sup> Rail deliveries of oil from the southwestern oilfields to the east coast refineries surged from 11,250 barrels per day to more than 1 million barrels per day (Figure 43).<sup>90</sup>



*Figure 43. Tank cars passing the station in 1942. Railroad activity dramatically increased at Harpers Ferry during World War II as huge amounts of materials and men moved over the line. (NPS photo.)*

<sup>89</sup> Hollis and Roberts, *East End*, 30; Harwood, *Impossible Challenge*, 173.

Because of its position along the B&O's main line, Harpers Ferry benefited from the wartime prosperity enjoyed by the B&O Railroad. Railroading activities at Harpers Ferry were infused with a vitality not seen for years. From an average of about twenty trains a day in 1940, traffic at the station rose to forty-two by the midpoint of the war.<sup>91</sup> This formerly depressed section of the main line was brought back to life as export merchandise, military supplies, and troop movements flooded the line on its way to Washington, Baltimore, and other east coast ports. The demand for coal skyrocketed and the trains rumbled by day and night on their overland route to the industrial cities of the northeast. All the bustle made a lasting impression on one longtime Harpers Ferry resident. He recalls sitting on some nearby rocks and watching the wartime traffic pass. The trains were "constant" and laden with coal, tanks, and other weaponry. The nearby rail yard at Brunswick, he recalls, was jammed with train cars filled up with these things, all of which "was quite a sight for locals."<sup>92</sup>

#### *Corporate Mergers, Modernization, and the Removal of the Station's Tower*

The prosperity of the war years allowed the B&O to pay off a substantial share of its pre-war, Depression-era debt. But the postwar years were characterized by another decline in revenue, owing largely to another drop-off in passenger service. As revenues declined and truck traffic increased, once again the B&O faced mounting financial difficulties. Many of the other railroads in the eastern United States were declaring bankruptcy and proposing mergers.<sup>93</sup> B&O officials believed that only through consolidation could the decline of the eastern railroads be halted. And whereas federal regulators once opposed the idea on grounds of monopolies, by the 1950s the ICC took notice of the sharp and increasing competition from other modes of transportation and allowed the mergers to begin. The Chesapeake and Ohio Railroad (C&O), one of the dominant players of the scene, wanted to acquire the B&O.

Although talks to unite C&O with B&O had begun in 1958, the merger was not completed and approved until January 1963.<sup>94</sup> The combined C&O-B&O system controlled 11,000 miles of track. The following year, in June 1964, C&O-B&O took control of the Western Maryland Railroad. Together, the three merger partners controlled a large share of the east's great coalfields. Passenger traffic on the new family of railroads, however, continued its decline. Though the three companies initially retained their full corporate identities, slowly various departments of the lines began to consolidate into a unified whole. By the early 1970s the

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<sup>90</sup> Stover, *History of the Baltimore and Ohio Railroad*, 312.

<sup>91</sup> Harwood, *Impossible Challenge*, 173.

<sup>92</sup> Jay Mauzy, personal communication, July 2002.

<sup>93</sup> Turner, *Chessie's Road*, 191.

<sup>94</sup> Turner, *Chessie's Road*, 194.

transition to one company was complete. Company executives decided it was time for a new image and in 1972 a holding company called the "Chessie System" was created.

By 1980 the Chessie System railroads would themselves be subsumed in a series of mega-mergers that resulted in the formation of the giant CSX Corporation (Figure 44). The company quickly branched out into other modes of transportation including sea, air, barge and highway, and in 1986 formed CSX Transportation (CSXT) with its headquarters in Jacksonville, Florida.

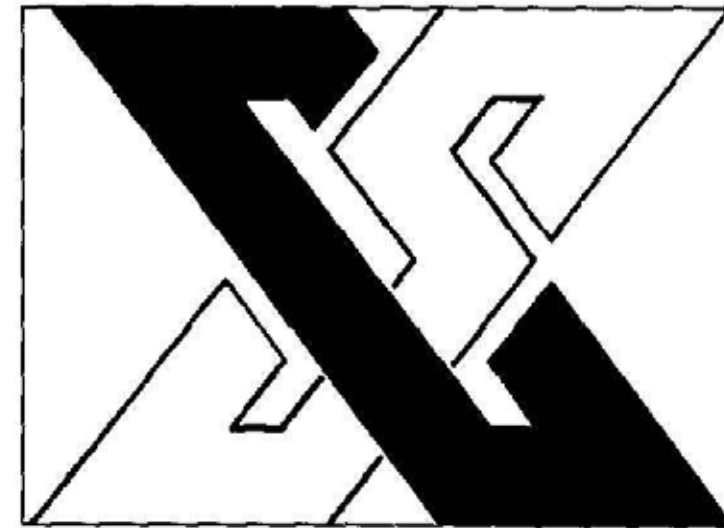


Figure 44. CSX logo. (CSX Corporation)

Throughout the merger process, the C&O pumped enormous amounts of money, supplies, and equipment into the B&O to help bring its deferred maintenance and antiquated equipment up to date. A committee was set up to consider what parts of the system were duplicative, unproductive, or otherwise a drain on company resources. This process, which the B&O had already begun in the early 1950s, led to physical facilities reductions and service abandonments. These changes had a dramatic impact on the appearance of the B&O's old main line and the station at Harpers Ferry. First, the company tore down all structures it deemed unnecessary. Next, unprofitable passenger services were cancelled. Though the Harpers Ferry station was spared the wrecking ball, many of the region's other stations were not. For example, in 1950 virtually all of the company's frame way stations and passenger shelters between Baltimore and Point of Rocks, Maryland were completely dismantled.<sup>95</sup>

The appearance of the station at Harpers Ferry did change dramatically, however, when it lost its interlock tower. On February 3, 1950, the interlocking controls were moved from the tower to the agent's office. The tower itself was dismantled between August 1950 and March 1951.<sup>96</sup> The removal of the interlocking tower was a typical end result in the railroad's usage of technological developments. Advancements in technology rendered the tower obsolete and it was removed. With the second floor of the two-story tower gone and the subsequent remodeling of that section of the roof, the station looked much as it does today (Figure 45). It did not fully achieve its current configuration, however, until the building's north dormer was removed. Photographic evidence suggests this was done sometime after 1958 but before the mid-1970s.

During recent decades, other advances in technology have affected modern railroading operations at the Harpers Ferry station. High tech innovations such as radio communications, sophisticated computer systems, and geo-localational tracking devices have all allowed dispatchers to control train movements remotely. On November 5, 1986, the train order and switching

<sup>95</sup> Harwood, *Impossible Challenge*, 174.

<sup>96</sup> Hollis and Roberts, *East End*, 34.



Figure 45. The station as it appeared in the late 1950s, not long after the interlock tower was removed. (B&O Railroad Museum.)

functions at Harpers Ferry were removed to nearby Brunswick, Maryland thereby ending the long history of the individual agent/operator at the station.<sup>97</sup> Even the days of the Chief Dispatcher on each division of the railroad are coming to an end as evolving technologies allow the CSX central dispatching center at Jacksonville, Florida to assume more efficient control from a distant location.

### *Recent History and Conclusions*

As has been noted, steadily declining passenger revenues prompted the railroad to cut or scale back services. In 1953 alone, the B&O discontinued nine passenger trains.<sup>98</sup> As the huge highway building program launched during the Eisenhower administration gained momentum, each year saw additional passenger services cut. By 1970 there was a growing public concern over the disappearance of passenger trains throughout the country—down alarmingly from 20,000 intercity trains in 1929 to only 500 in 1970.<sup>99</sup> In response to the public concern, in October 1970, Congress passed legislation that created the National Railroad Passenger Corporation, better known as Amtrak. Amtrak's passenger services commenced operation on May 1, 1971 and established a limited national rail network. The Harpers Ferry station currently provides daily passenger service on Amtrak's Capitol Limited line between Washington and Chicago.

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<sup>97</sup> Rob Brzostowski, "Harpers Ferry Station to be Restored," (*Bull Sheet* newsletter), 3.

<sup>98</sup> Stover, *History of the Baltimore and Ohio Railroad*, 351.

<sup>99</sup> Stover, *History of the Baltimore and Ohio Railroad*, 368.

Around the same time as Amtrak's formation, there was a surprising renaissance in the daily commuter business. Construction of Interstate 270 in Maryland encouraged suburban growth to the north and west of Washington, D.C. As the suburbs expanded and the area's population increased during the 1970s and 1980s, the Maryland Department of Transportation (MDOT) began subsidization of commuter service on the old B&O lines. This allowed residents of the region easy access to points in and around the Baltimore-Washington metropolitan area. The service, now operated by CSXT, was officially named the Maryland Rail Commuter (MARC) Train Service in 1983. Under a lease agreement, MARC commuter services were extended into West Virginia as far west as Martinsburg. The Harpers Ferry depot currently provides weekday commuter service on MARC's Brunswick line.

The fact that the Harpers Ferry station remained in active use while other stations in the region were abandoned, did not exempt it from falling into disrepair. Indeed, conditions had deteriorated to the point that in 1999 the National Trust for Historic Preservation and the Great American Station Foundation named the station one of the "Top 10 Most Endangered Stations in America" (Figure 46). The list was designed to highlight historic stations that were in danger of losing their capacity to operate as rail stations due to imminent demolition, destruction by neglect, or plans to terminate station operations. The nomination for the Harpers Ferry station states that "the former B&O Railroad Depot has fallen into disrepair and today faces an endangered future...A revitalized depot," it continues, "can serve as a welcoming front door to the popular community of Harper's Ferry and encourage individuals, families, and groups to use rail service as an easy, safe, and efficient way to visit this historic attraction."<sup>100</sup>



*Figure 46. Preservationists put the station on an "endangered" list 1999. The condition of the station can be seen in these views of the interior. Parts of the station had deteriorated from disuse and neglect. (photos by John W. Ravenhorst.)*

<sup>100</sup> Great American Station Foundation, Endangered Stations Archive, 1999 Winners, Harpers Ferry, West Virginia, Baltimore and Ohio Railroad Station, [www.stationfoundation.org](http://www.stationfoundation.org), accessed 2 December 2002.

While the endangered designation may have helped foster public dialogue about the future of the station, at the time of the listing the National Park Service (NPS) had been negotiating the ownership of the building with CSX for quite some time. In an on-again-off-again deal that took almost four decades to negotiate, CSX and NPS finally reached an agreement in September 2001. The NPS had long been aware of the station's potential as a gateway for visitors to Harpers Ferry National Historical Park. The idea that the NPS could acquire the station was first proposed in Congress in 1960, but negotiations did not begin in earnest until about twenty years ago. Negotiations intensified more recently with West Virginia Senator Robert Byrd's involvement. The final agreement was a trade that transferred the station and five acres of the former armory grounds in exchange for property in Cumberland, Maryland.<sup>101</sup>

In a press release, Senator Byrd said, "This property is vitally important to both the history of the region and to the local economy. After decades of negotiation, the land transfer will allow community leaders, working in conjunction with the National Park Service, to rehabilitate the historic B&O train station."<sup>102</sup> In the summer of 2002, the Historic American Engineering Record (HAER) recorded the existing conditions at the Harpers Ferry station. Measured drawings and photographs were completed as part of HAER's mission to document historically significant engineering and industrial works in the United States. With regards to the future use of the building, Park Service officials are working on a cooperative agreement with both the Town of Harpers Ferry and CSX Corporation. The NPS has pledged to continue to support Amtrak and MARC operations during the restoration process.

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<sup>101</sup> For details of the transaction see: Brad Pierce, "Park Service Takes Control of U.S. Armory Grounds." *Martinsburg Journal* and Andrew Schotz, "Park Service Gets Train Station." *Morning Herald*. (both 26 September 2001).

<sup>102</sup> as quoted in Schotz, "Park Service Gets Train Station." *Morning Herald*, 26 September 2001.

Baltimore & Ohio Railroad, Harpers Ferry Station  
HAER No. WV-86  
(Page 60)



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Baltimore & Ohio Railroad, Harpers Ferry Station  
HAER No. WV-86  
(Page 66)

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**APPENDIX I - Harpers Ferry Railroad Station Chronology.**

- 1894 Station constructed; designed by architect E. Francis Baldwin.
- 1898 Westbound waiting shelter constructed. All depot buildings repainted.
- 1900 New interlocking functions installed in tower. Exterior stairs to tower probably added at this time.
- 1910 Westbound waiting shelter enlarged with 20' addition. Paving (brick) and curbing (stone) installed around depot.
- 1913 Subway to westbound waiting shelter constructed. Access to subway by stairwell added to men's waiting room. Construction of stairs required a new partition between men's waiting room and baggage room. Iron fences erected between tracks and around depot grounds. Forty-four "electrical lamps" added at depot and grounds.
- 1915 Station painted "standard B&O red and brown." (Prior to this date, station was a light color.)
- 1916 Express room partitioned when express agent's office is moved into station.
- 1923 Station painted.
- 1925 New hot water furnace installed.
- 1929 Interior of station painted shades of cream and tan.
- 1930-31 Chimney and south dormer removed. Subway stairs closed off. Bay windows of men's toilet room (south facade) and ticket office (north facade) removed. Women's toilet room relocated to subway stairs area. Women's waiting room partitioned and converted to boiler room and coal bin. Hall connecting waiting rooms blocked off and incorporated into ticket office. Numerous heating, plumbing, and drainage changes.
- 1931 Station and waiting shelter relocated to present site. Construction of new subway and subway covering shed. Iron fence erected between tracks. Door added to north side of tower (1st floor). Smaller chimney rebuilt.
- 1932 New furnace installed.

- |               |  |
|---------------|--|
| 1950          | Interlock tower removed.   |
| 1958-ca. 1975 | North dormer removed.  |
| ca. 1986      | Station sandblasted.   |
| 1986          | Interlock controls removed to Brunswick, Maryland.   |
| 1999          | Great American Station Foundation and the National Trust for Historic Preservation name Harpers Ferry train station one of the "Top 10 Most Endangered Stations in America." |
| 2001          | NPS acquires train station and former armory grounds site from CSX Corporation.  |
| 2002          | Historic American Engineering Record documents existing conditions.  |



APPENDIX II – Miscellaneous Photographs.



Circa 1895 (HFNHP).



1897 (HFNHP).



Circa 1920s (Henry Freeman collection).

Baltimore & Ohio Railroad, Harpers Ferry Station  
HAER No. WV-86  
(Page II-3)



Circa 1920 (BORHS).



1924 (HFNHP).



1930 (Henry Freeman collection).



1931 (Henry Freeman collection).



1931 (HFNHP).

Baltimore & Ohio Railroad, Harpers Ferry Station  
HAER No. WV-86  
(Page II-7)



1931 (BORM).

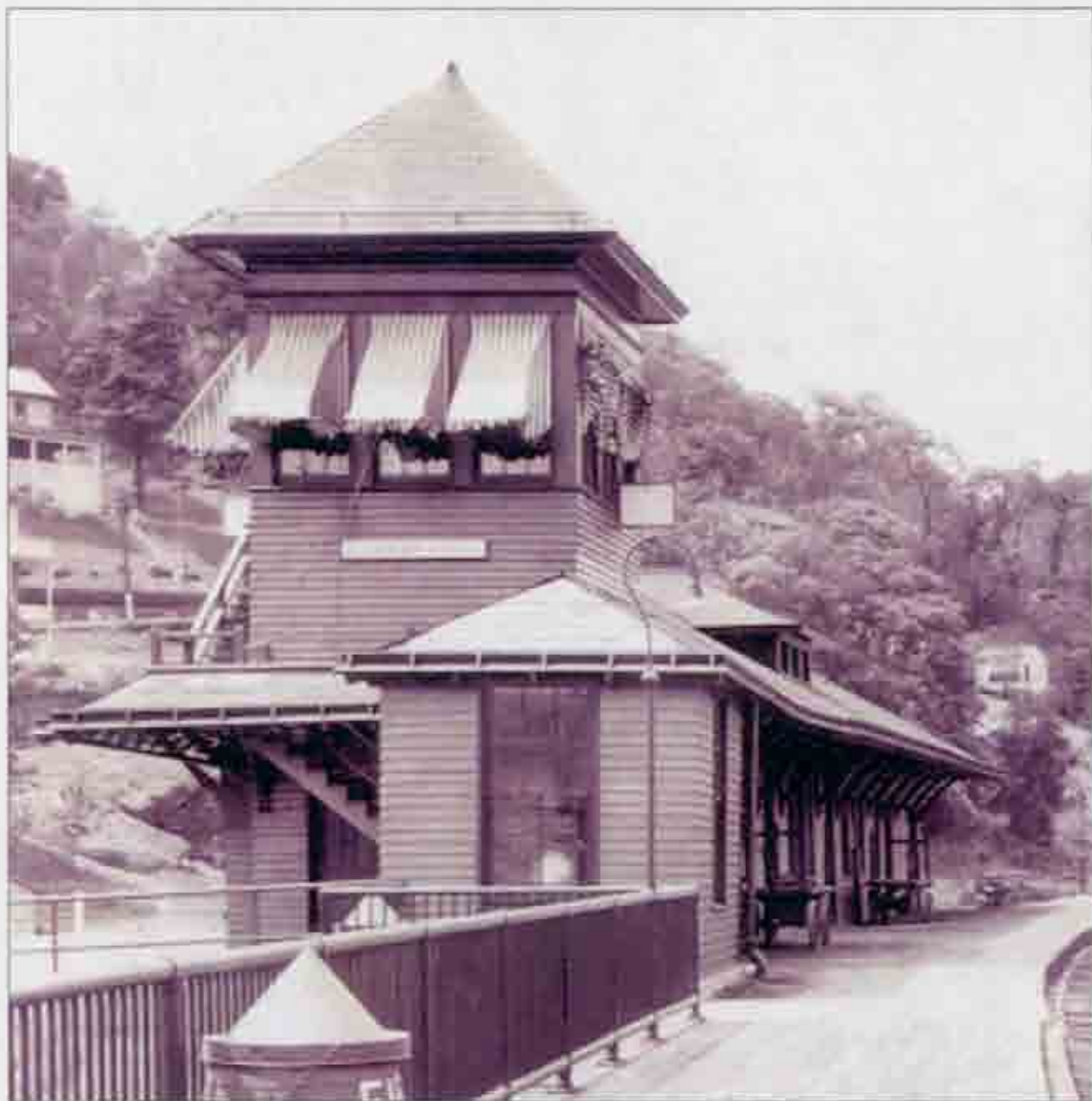


1931 (Henry Freeman collection).

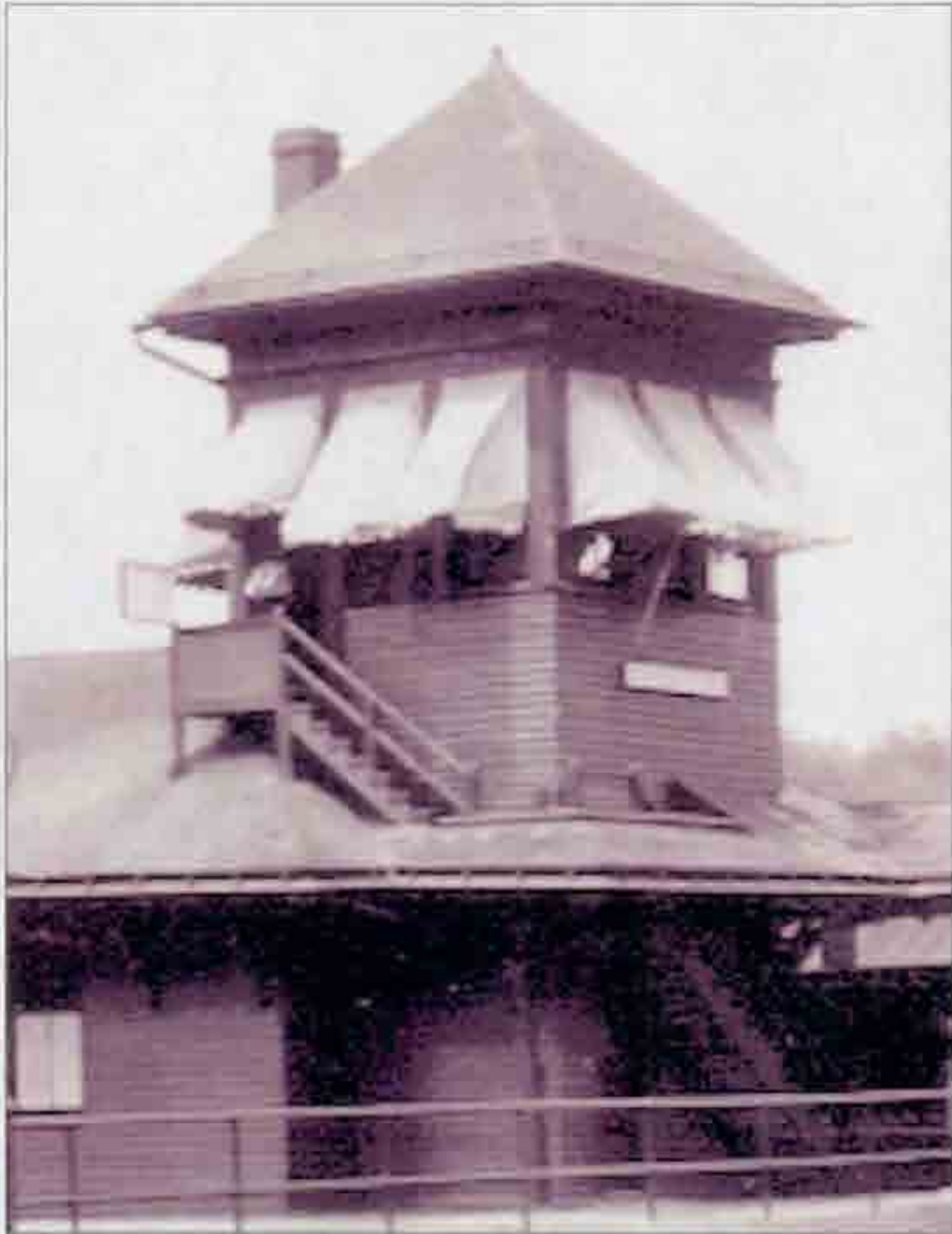


1931. (Henry Freeman collection).





1931 (Henry Freeman collection).



1931 (Henry Freeman collection).



Post 1931 (Henry Freeman collection).



Post 1931 (Henry Freeman collection).



1931 (BORM).



1948 (Henry Freeman collection).

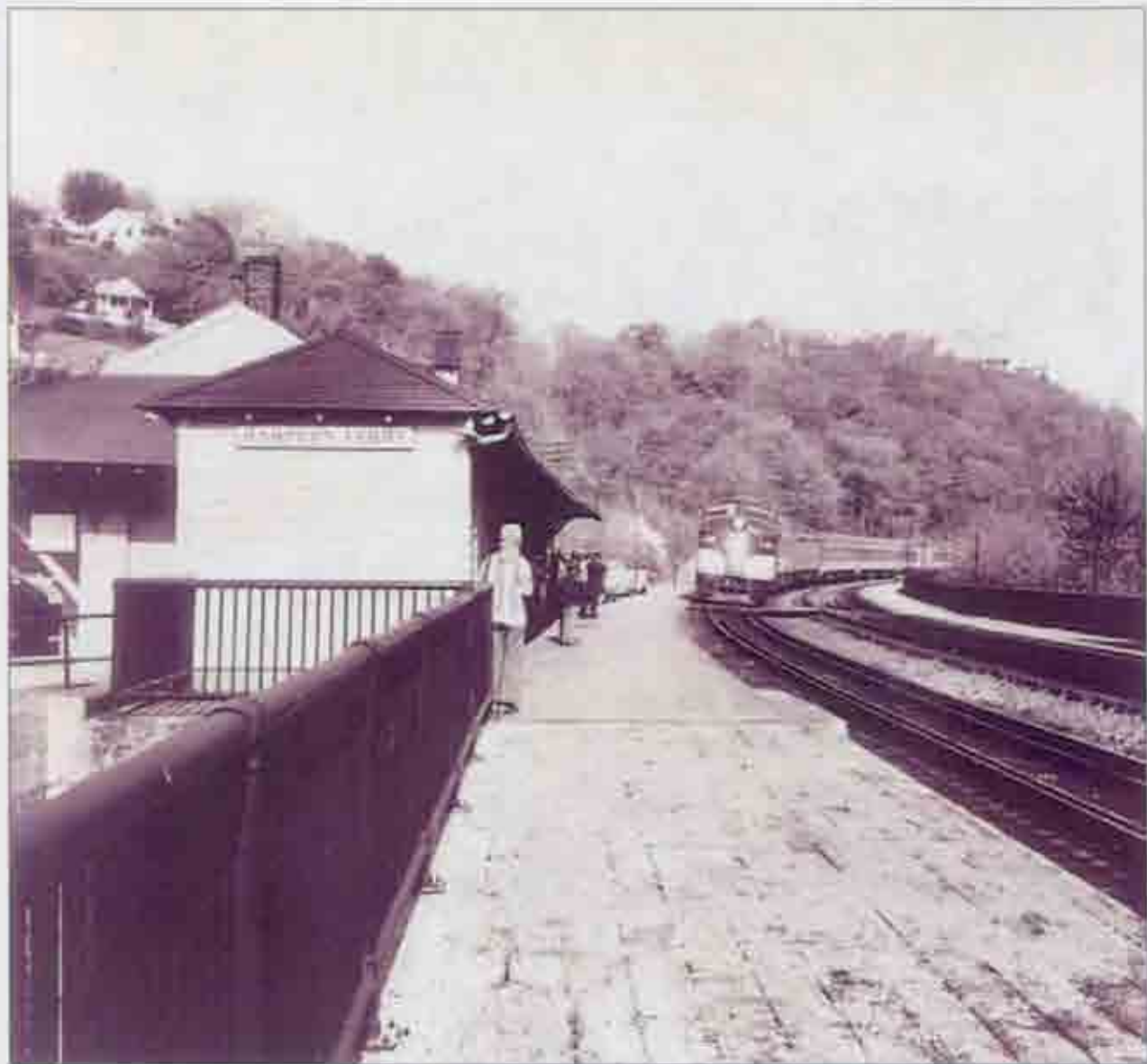


Circa 1950 (BORM).



Circa 1955-57 (HFNHP).





Post 1950 (BORM).



1973 (BORHS).



Circa 1970s (John King collection).



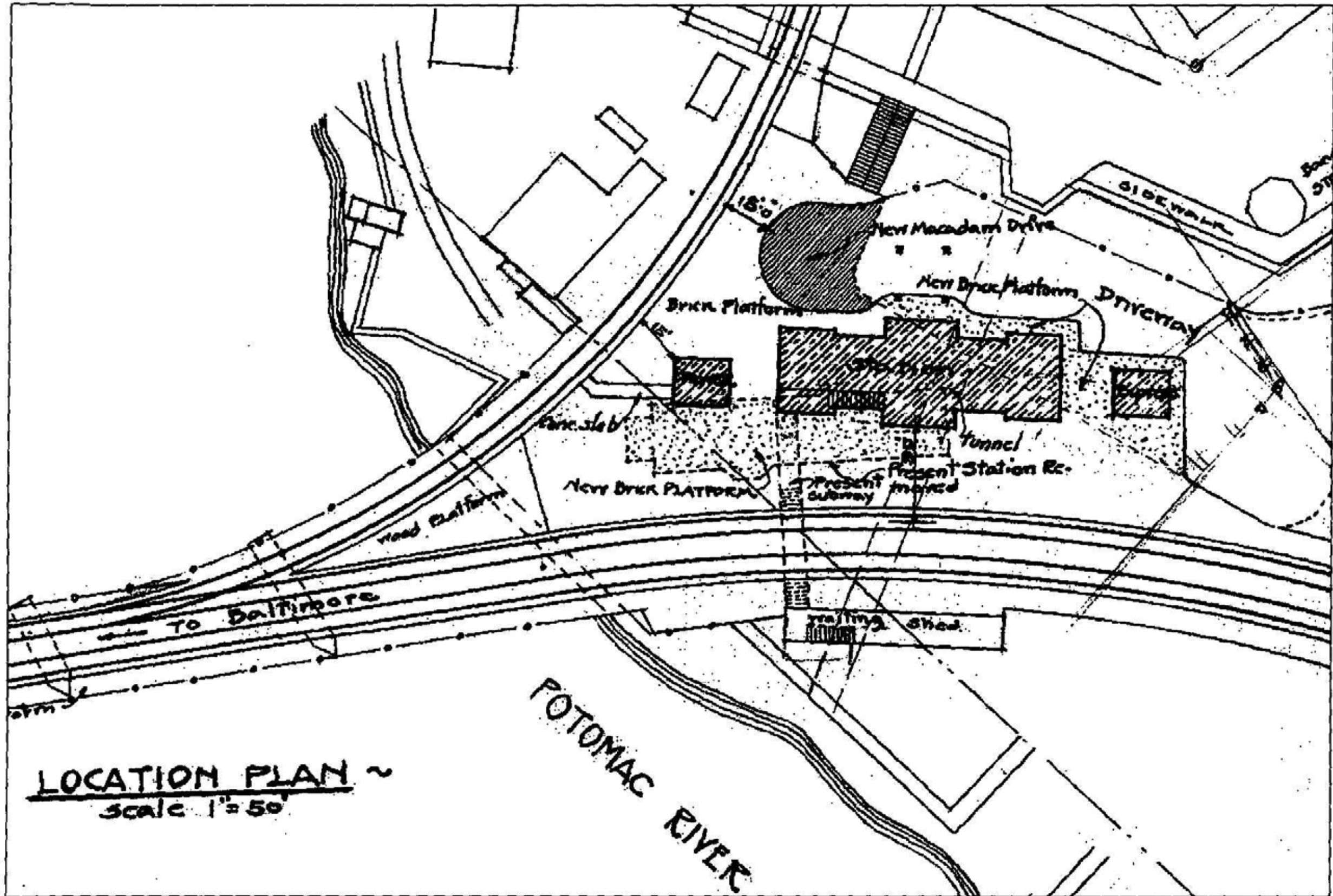
Circa 1970s (John King collection).



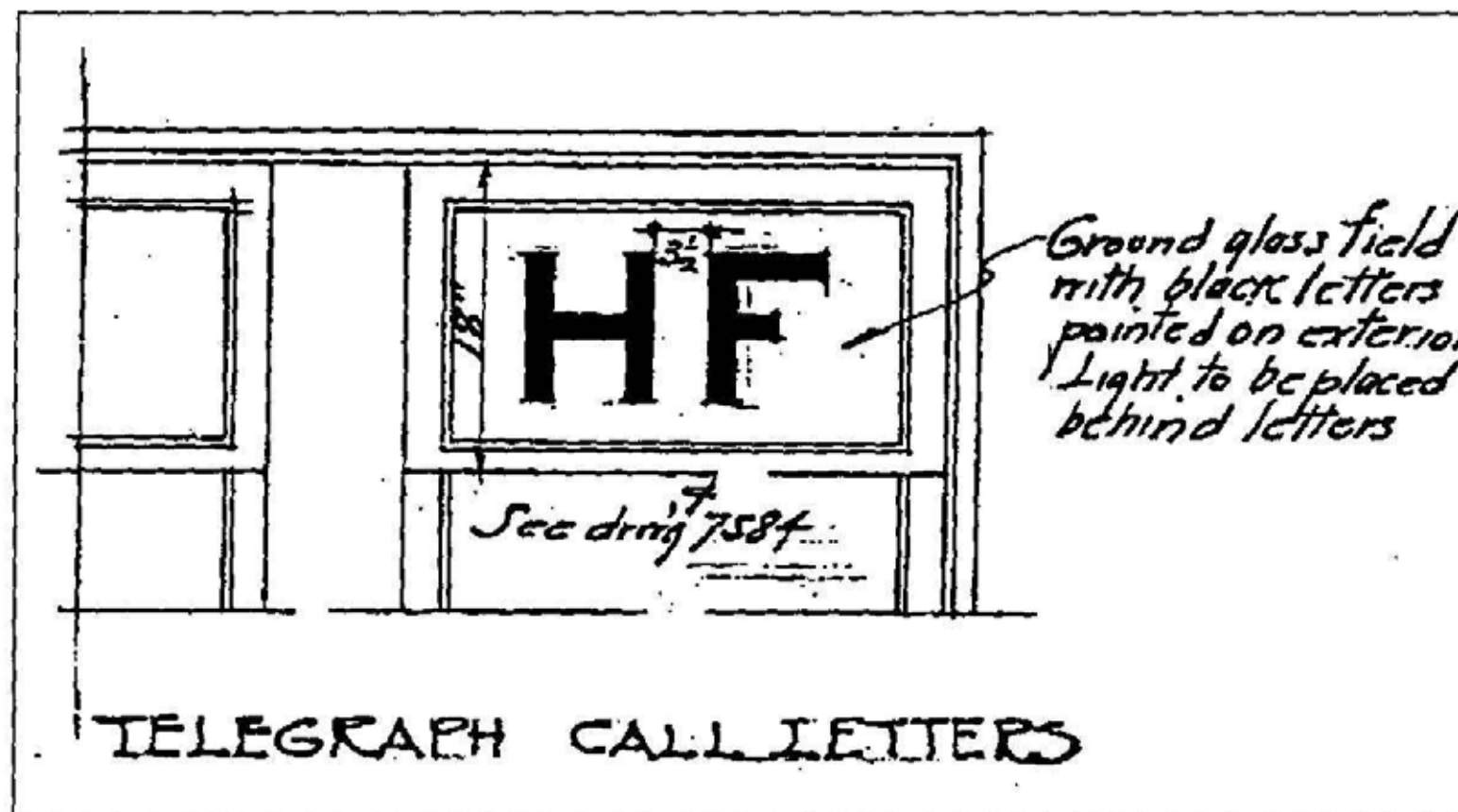
Circa 1970s (John King collection).

Baltimore & Ohio Railroad, Harpers Ferry Station  
HAER No. WV-86  
(Page II-22)

APPENDIX III - Drawings of Proposed Station, 1913.

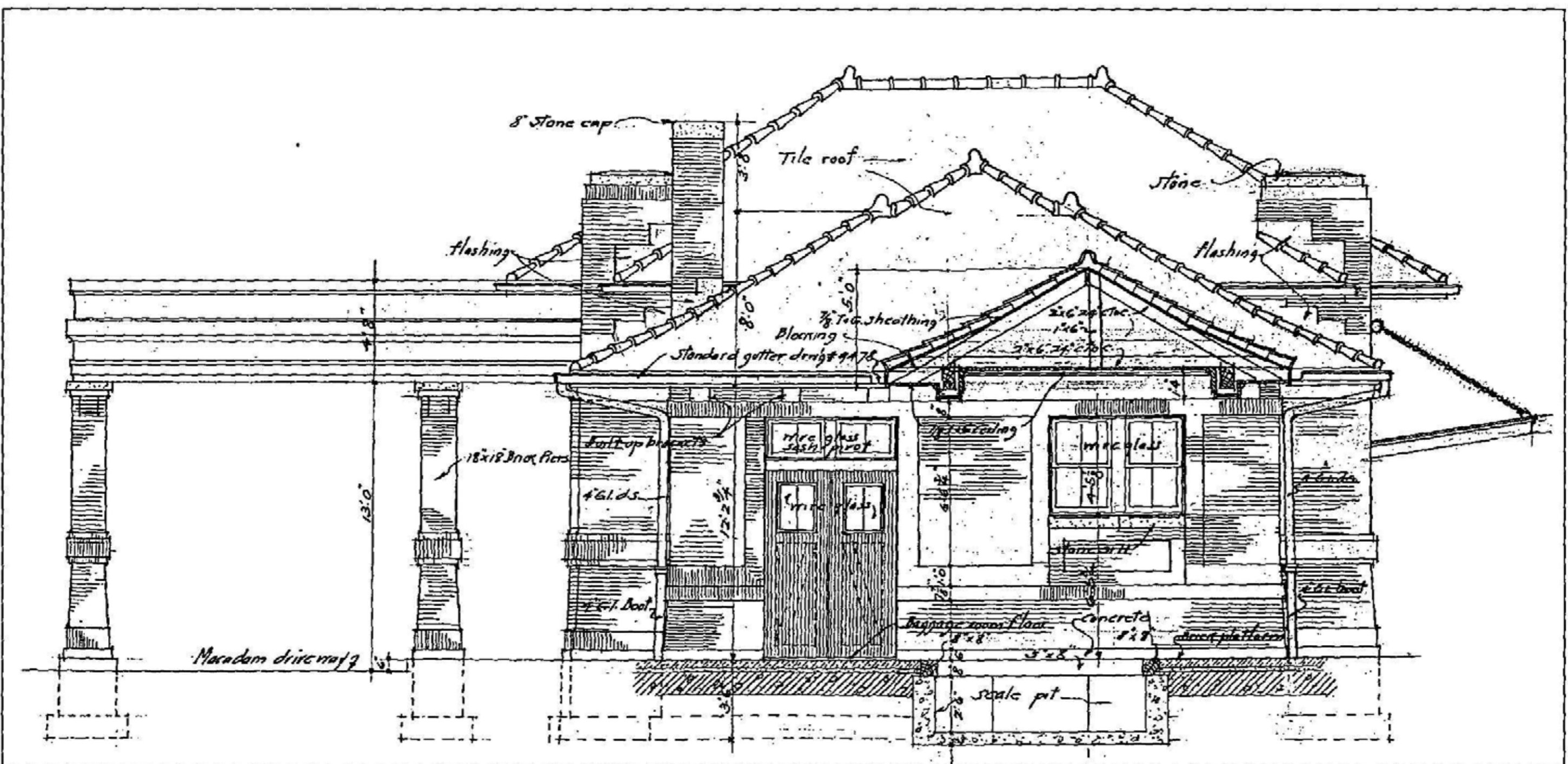


1913 Proposed Station Location Plan.



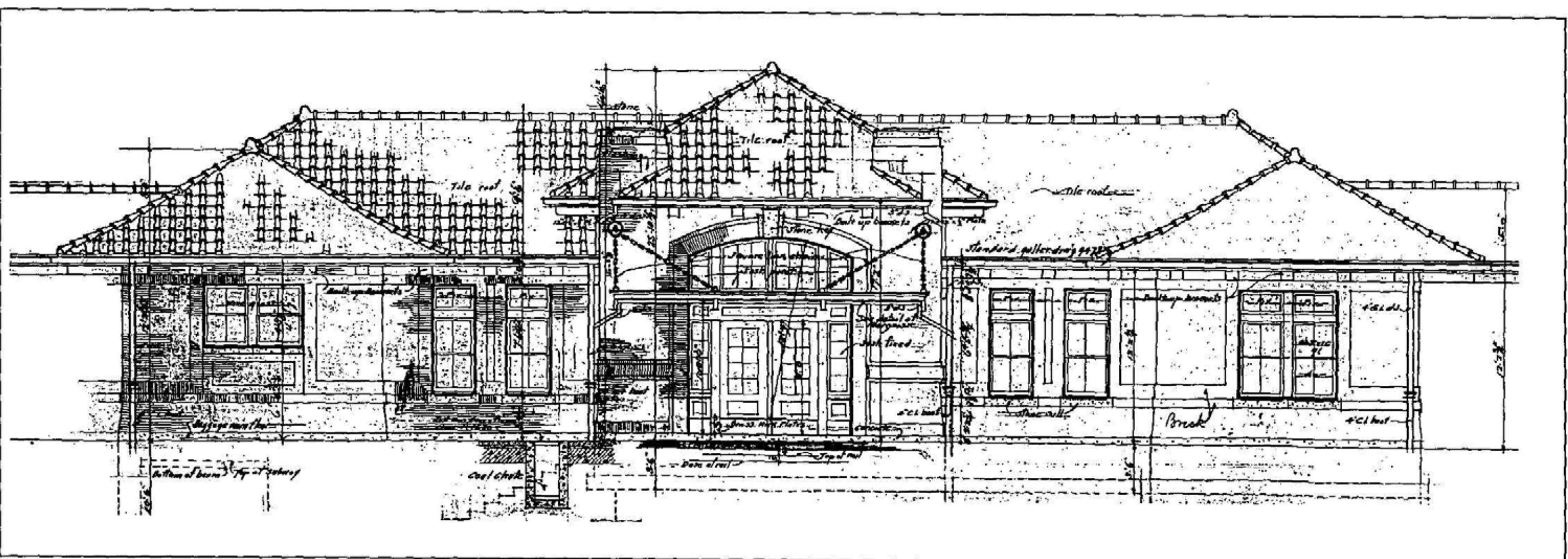
Detail of Telegraph Call Letters.

East Elevation of Proposed Train Station.

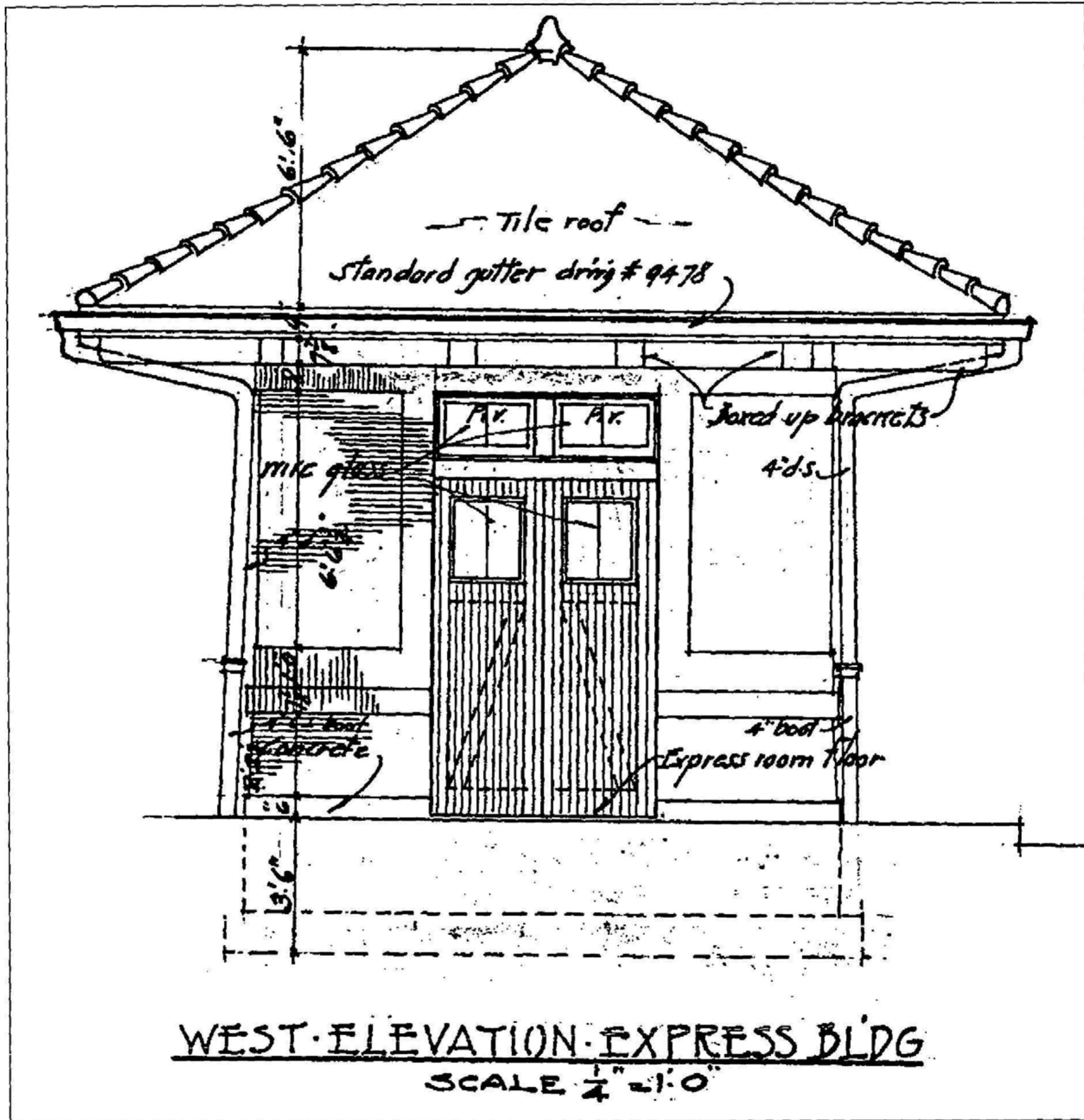


Baltimore & Ohio Railroad, Harpers Ferry Station  
HAER No. WV-86  
(Page III-2)

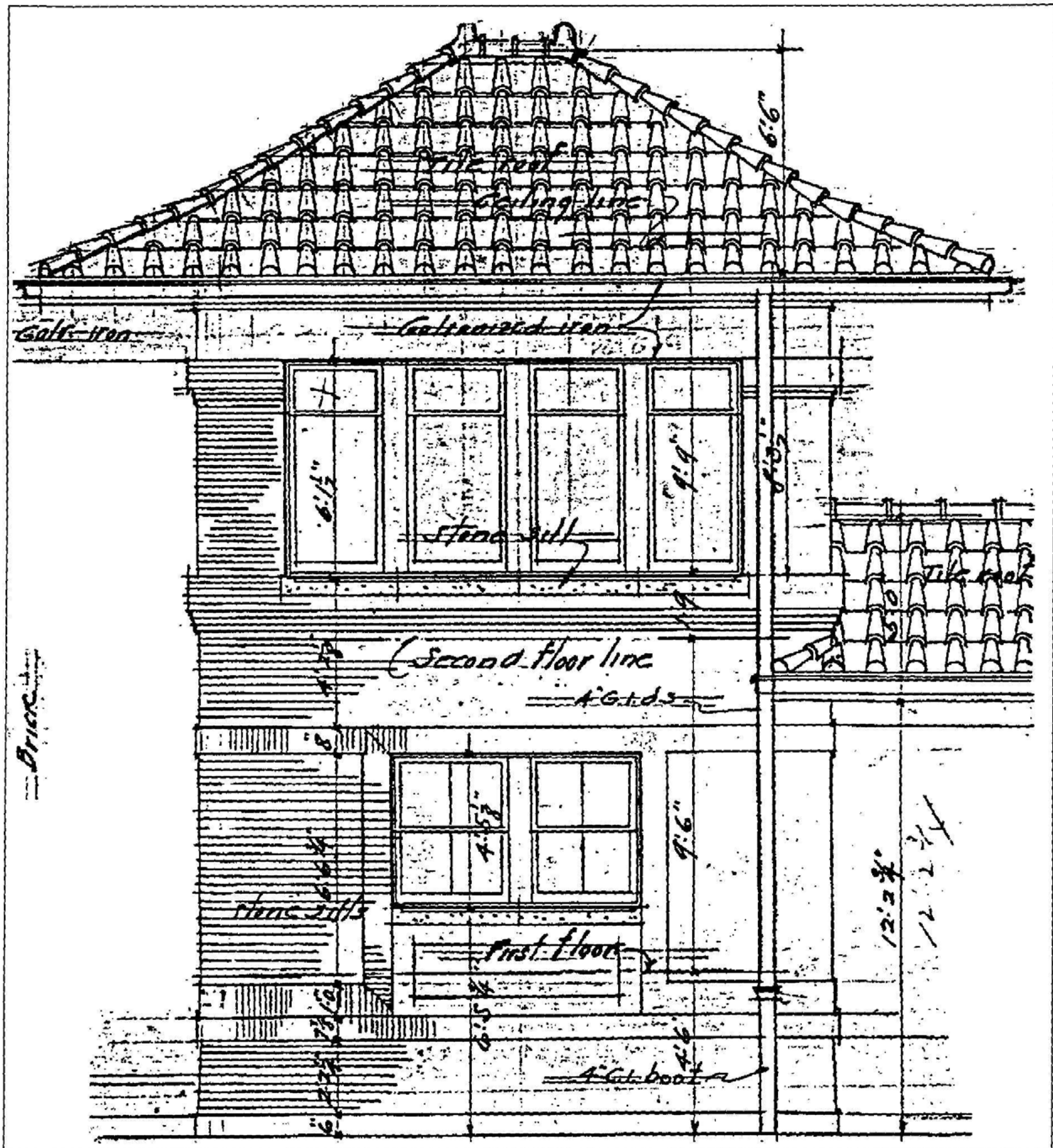




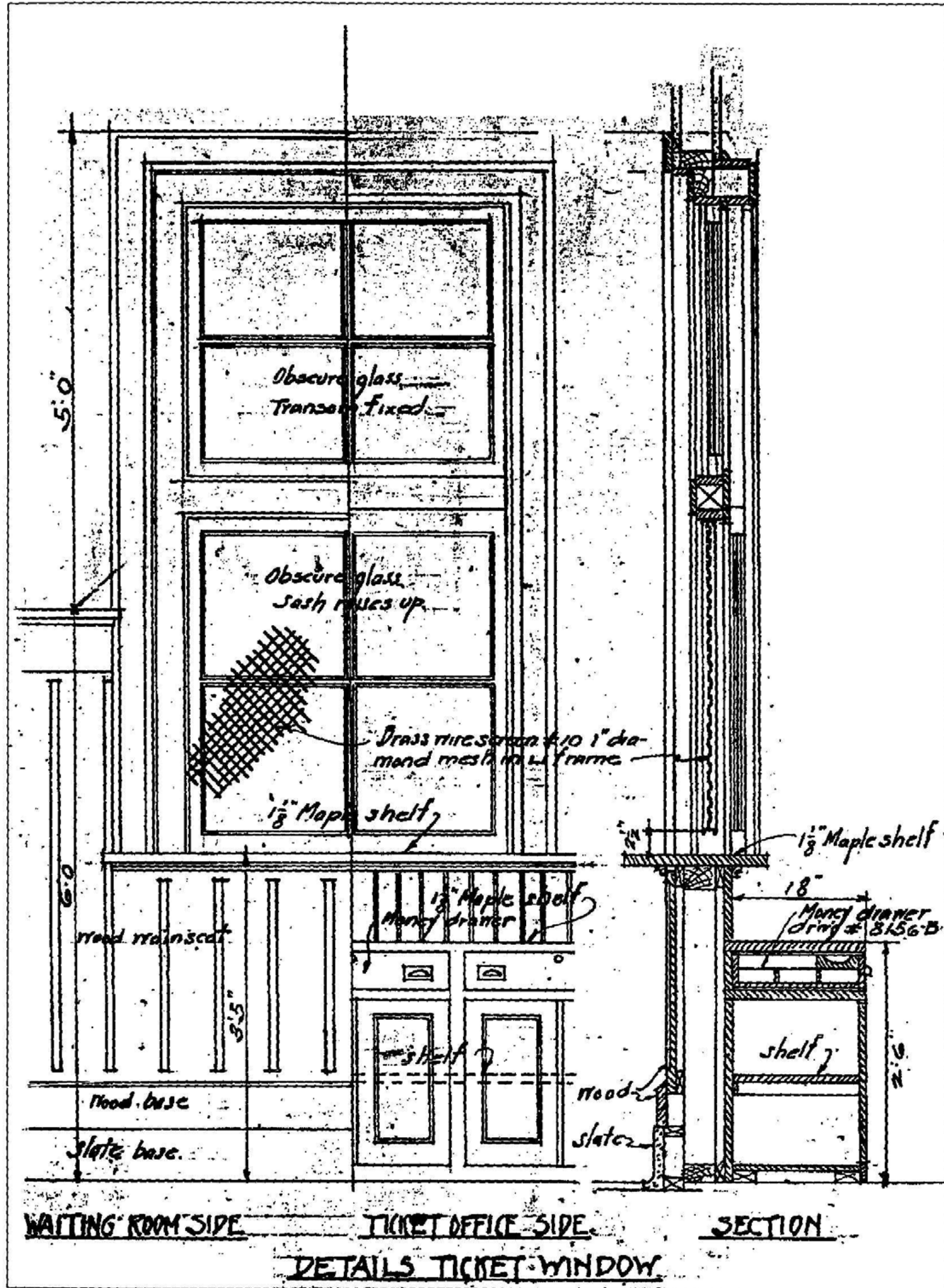
Track Elevation of Proposed Train Station.



West Elevation of the Express Building.



North Elevation of the Signal Tower.



Detail of Ticket Window.

**APPENDIX IV - ICC Valuation Survey, Harpers Ferry Station, 1919.**

Appendix IV consists of a transcription of valuation records created by the Interstate Commerce Commission (ICC), Bureau of Valuation. ICC records provide detailed documentation pertaining to all aspects of the railroads of the United States from the agency's creation in 1887 until the 1960s. Most of the valuation records were created during the period 1915-20 by ICC and railroad employees who undertook a massive project to inventory almost every aspect of the railroad system.

The valuation records are in the custody of the College Park, Maryland facility of the National Archives and are part of Record Group 134, *Records of the Interstate Commerce Commission*. They are arranged by name of the railroad, thereunder by types of records, thereunder by valuation section number, and finally by volume number. The general subject categories of the records are land, engineering, and accounting reports and supporting documentation. The engineering field notes are particularly valuable for researchers because of the detailed information they often contain: written notes concerning construction specifications of bridges and buildings, drawings and blueprints, and photographs. The records utilized in this report are engineering field notes for the period 1914-29, contained in section WV 36.1 of the Baltimore and Ohio Railroad group, Volume 61.

The inventory of the B&O's facilities at Harpers Ferry, West Virginia was made August 14-21, 1919. The bridge and building notes cover all B&O property in the town, including the passenger station, subway, shelters, freight storage building, as well as miscellaneous structures such as a cattle pen and pump house. Another portion of these records details the B&O's facilities at Island Park, a twenty-acre resort and amusement park on Byrnes Island in the Potomac. Following is a transcription of pages 1-7, that portion of the records covering the passenger station and features of the immediate depot area. Unfortunately, no key or legend was provided in the original document to decipher the abbreviations used in the survey.

**Interstate Commerce Commission  
 Bureau of Valuation**

**Date:** August 19, 1919  
**Carrier:** Baltimore & Ohio R.R.  
**Station:** 3746+0      **Account No.:** 16  
**Location:** Harpers Ferry, W. Va.

**Character and Description of Property**

Pass. Station & Tower      Age: 1894      Remaining Service Life: 36  
 Maintenance: N      Source of Data: Carrier

See Plans – Sheets 2, 3, 4  
 on file Office of Chief Engr – Balt. Md.  
 File #1058 for details  
 No copies available for I.C.C. File

Station similar to Type W-4    Exceptions:

Pass.	62.9' x 21.7' x $[(14.5' + 21.5') \div 2]$	
Tower:	13.8' x 8.4' x $[(31.5' + 39.5') \div 2]$	
Tower:	13.8' x 5.4' x $[(14.5' + 23') \div 2]$	C.F [Cubic Feet]: <u>43596</u>
Toilet:	10.2' x 4.6' x 13.8' A	
Bay:	$[(12.5' + 6.7') \div 2]$ x 4.8' x 13.8' A	
Baggage & X'press:	30.6' x 21.7' x $[(14.5' + 21.5') \div 2]$	
Dormers (2):	12' x 5' x 8/3'	

1.    12 – V (Rubble) D = 10' under area 33' x 21.7'      CF ?????  
       Floor of brick – No stairway – Longit. rubble wall  
       instead of piers
- 1c8 – D = 4' (Rubble) under remainder      CF 6545
- 2 – 3. As type – except the dado.
4.    4e – Draining as type except on chamfered  
       brackets – outplate & rafters (cont.)

[page 2]

- Pole gutters all around – G.1 downspouts  
G.1 finial      C.1 box protection on downspouts
5. As type – G.1 diamond mesh guards on Bay & X'room windows
  6. As type except Rafters are 3" x 8" – 2'      Joists 3" x 12"  
on 16" – Upper joists 3" x 10" – See filed plans for details.
  7. 7g. Maple in Tower
  8. As type thru-out except T.9 HB (?) ceilings in  
Waiting Room supported on Exposed dressed &  
chamfered rafters – Mansard ceiling  
Two additional partitions of type 8c  
See filed plans for details.
  10. 2 of 10b, 1 of 10d
  11. 11a2R
  12. 21 of 12a1
  15. 8 of 15f, 4 of 15g – oak  
Signs – 2 of Type WS – 1

C.F: 34836

Furniture – Station – Type PS 550	\$550.00
Furniture – Tower – Type T80	\$80.00

[page 3]

Subway at Pass. Sta.            Age: 6            Remaining Service Life: 94  
Maintenance: N            Source of Data: Carrier

Clerks Carrier Plan 9867

1 sheet

Note – Clerks Plan in all respects

Compute Subway	73.5' long
Compute Covered Stairway	23.5' long
Compute Landing, etc.	9' long
Compute Drainage	

12. 5 of 12a1 in subway

Note – Three sided & Four sided  
shelters shown in above  
plan have been typed  
and are inventoried  
in Notes





[page5]

Misc. Structures – Sta. Grounds

Platforms – Type PB – 4      Age: 8      Remaining Service Life: 42  
    Maintenance: N      Source of Data: Carrier  
    1037' x 8' + 110' x 22'  
    59.5' x 36'      } S.F.: 20219  
    156' x 16' + 75' x 42' + 30' x 95'  
    50' x 4' + 26' x 30' + 30' x 15'

Type 2PW – 1      32' x 4' + 16' x 9' + 42' x 55'      S.F.:  
    23' x 12' + 2 pcs upon 3' x 3.5' x 1/4"      lbs: 214  
    Age: 3      Remaining Service Life: 5  
    Maintenance: N      Source of Data: Carrier

Curbing      Type CC – 2      1057 lin. ft.      L.F.: 1057  
    Age: 8      Remaining Service Life: 42  
    Maintenance: N      Source of Data: Carrier

Type CC – 1      813 lin. ft.      L.F.: 813

Fences      Type P – 3      680 lin. ft.      L.F.: 680  
    1 Gate      No.: 1  
    Age: 8      Remaining Service Life: 62  
    Maintenance: N      Source of Data: Carrier

Type 6P – 2      1002 lin. ft.      L.F.: 1002  
    4 Gates      No.: 4  
    Age: 8      Remaining Service Life: 62  
    Maintenance: N      Source of Data: Carrier

Mail Crane      1 of Type B      No.: 1  
    Age: 8      Remaining Service Life: 62  
    Maintenance: N      Source of Data: Carrier

Lighting      13 of 12ab      No.: 13  
    Age: 8      Remaining Service Life: 62  
    Maintenance: N      Source of Data: Carrier

Signs      Type CS – 4 thus      No.: 4  
    Age: 8      Remaining Service Life: 62  
    Maintenance: N      Source of Data: Carrier

[page 6]

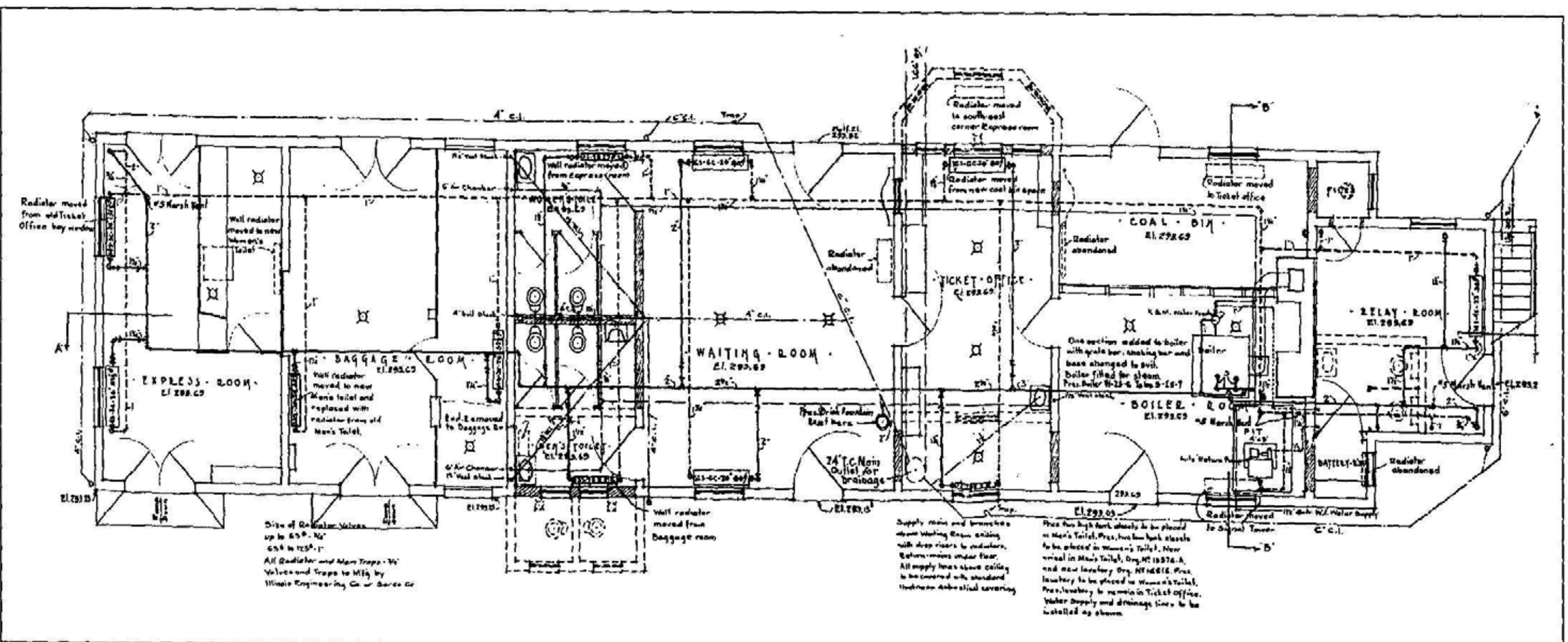
Misc. Structures – Cont.

<u>Steps</u>	Type WS – 2	36 risers x 10' wide Age: 3 Maintenance: N	L.F.: 360 Remaining Service Life: 4 Source of Data: Est.
<u>Railing</u>	Type 2R – 1	123 Age: 3 Maintenance: N	L.F.: 123 Remaining Service Life: 9 Source of Data: Est.
<u>Walk</u>	Type PC – 1 (Bluestone)	110' x 7' Age: 15 Maintenance: B.N.	S.F.: 770' Remaining Service Life: 5 Source of Data: Est.
<u>Curbing</u>	Type CS – 2	110' Age: 15 Maintenance: B.N.	L.F.: 110' Remaining Service Life: 15 Source of Data: Est.
<u>Driveways &amp; Walk</u>	Type PS – 1	90% Cond.  175' x 10' 150' x 52' 150' x 6'	}S.Y.: 1161
<u>Grass – (Sodded)</u>	150' x 30'		S.F.: 4500
<u>Hedge (Privot)</u>	150' long x 3' high		L.F.: 150
<u>Fence</u>	Type [illegible]	60 lin. ft. Age: 15 Maintenance: N  60 of sq. mesh wire skirting in angle framing skirting = 12"	S.F.: 60 Remaining Service Life: 45 Source of Data: Carrier



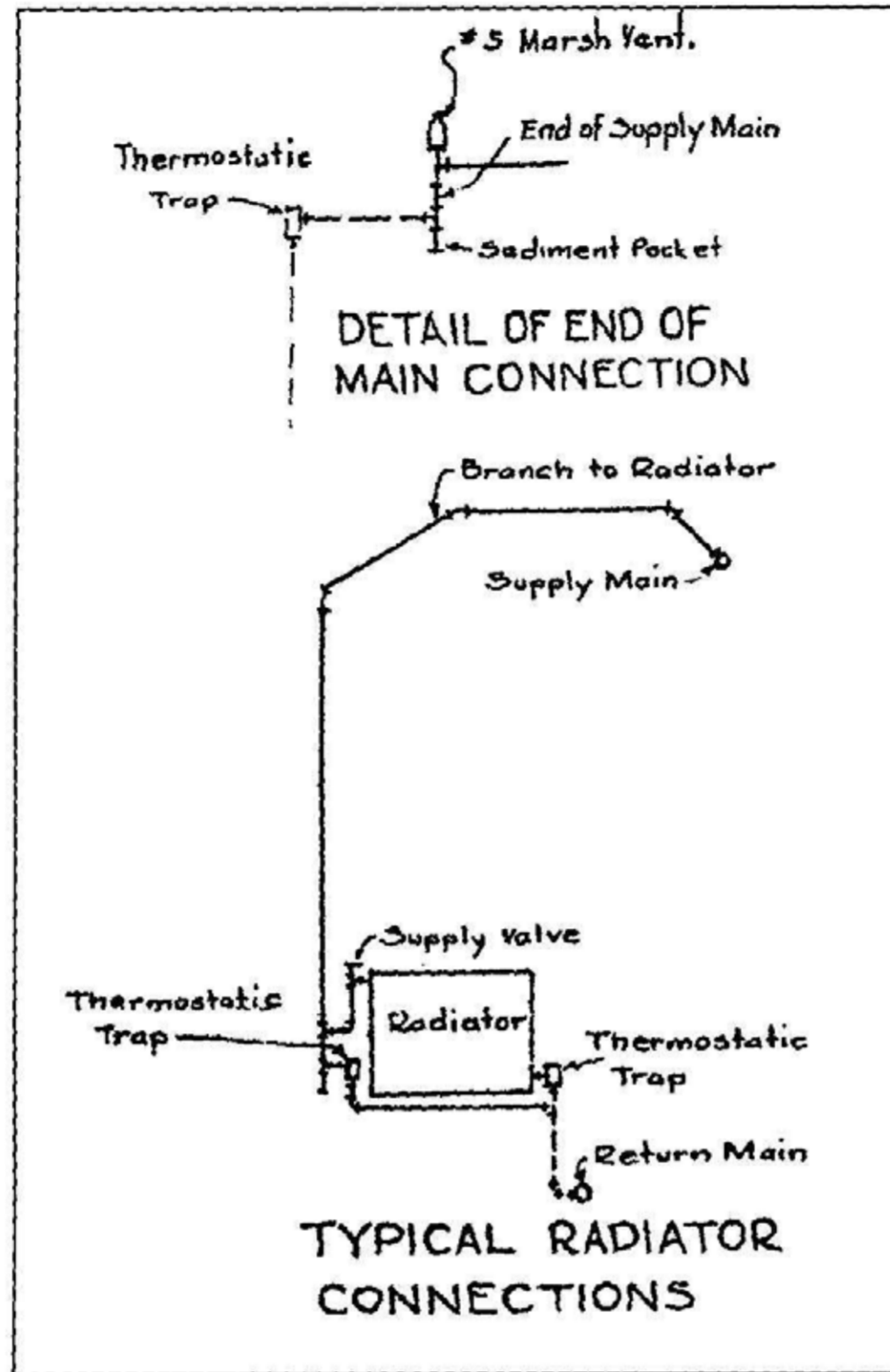
Baltimore & Ohio Railroad, Harpers Ferry Station  
 HAER No. WV-86  
 (Page V-1)

APPENDIX V - 1930-31 Alterations.

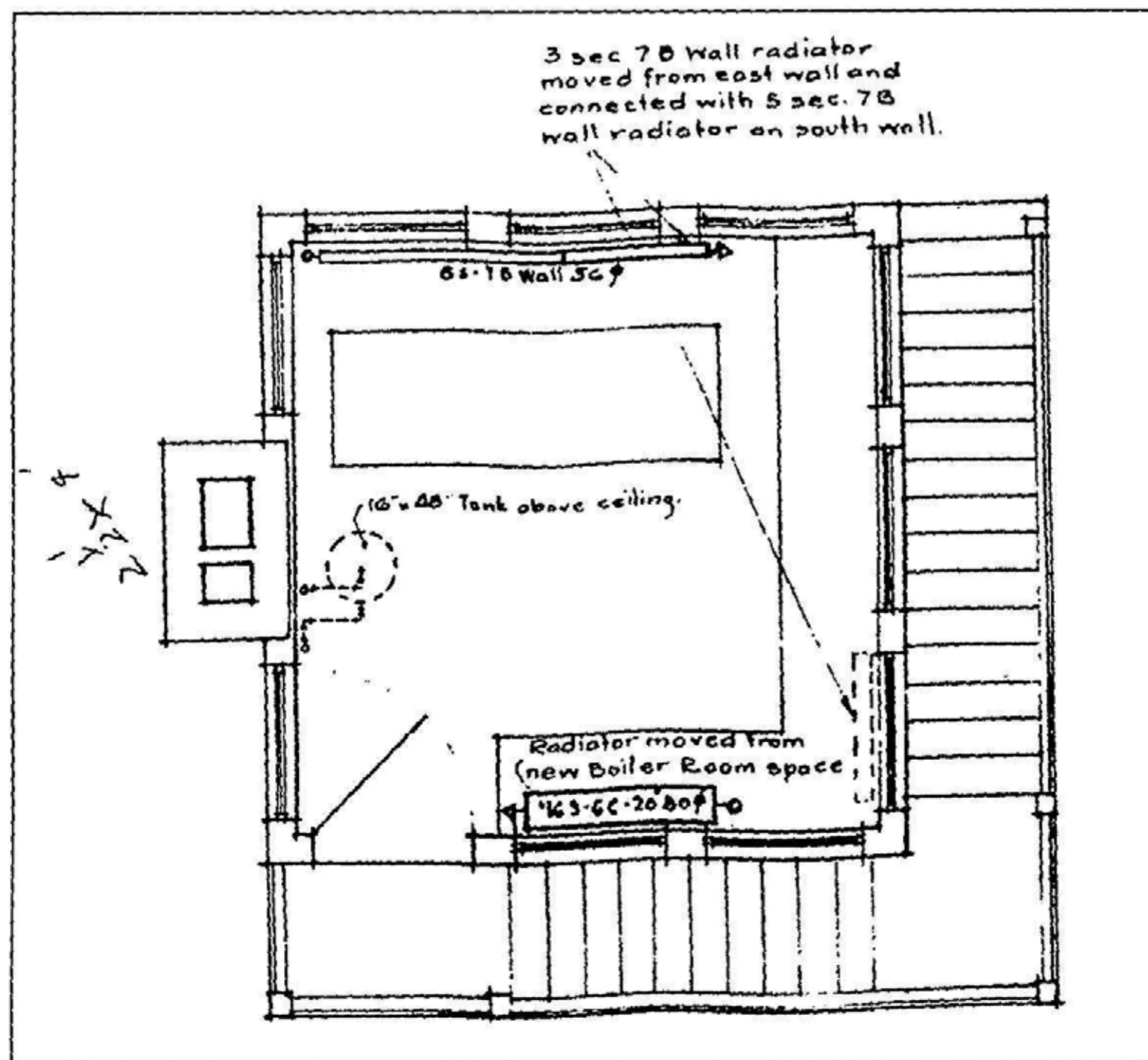


B&O drawing no 16689, heating and drainage plan (3-6-1931).



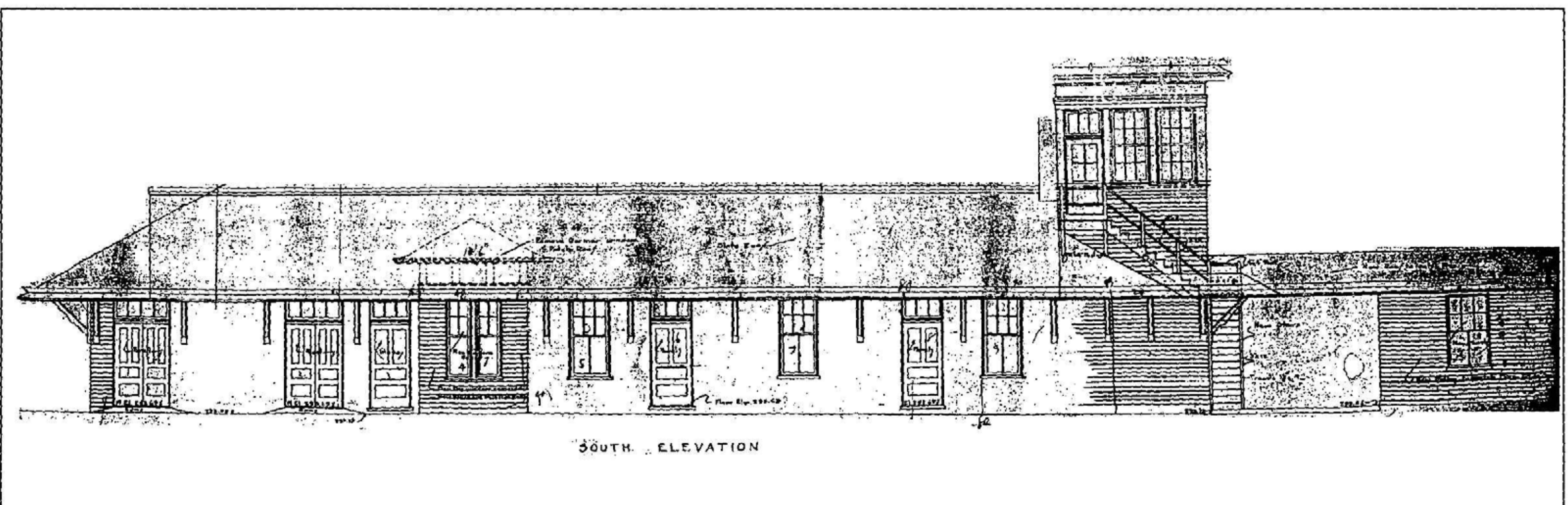


B&O drawing no 16689, typical radiator connections (3-6-1931).



B&O drawing no 16689, tower details (3-6-1931).

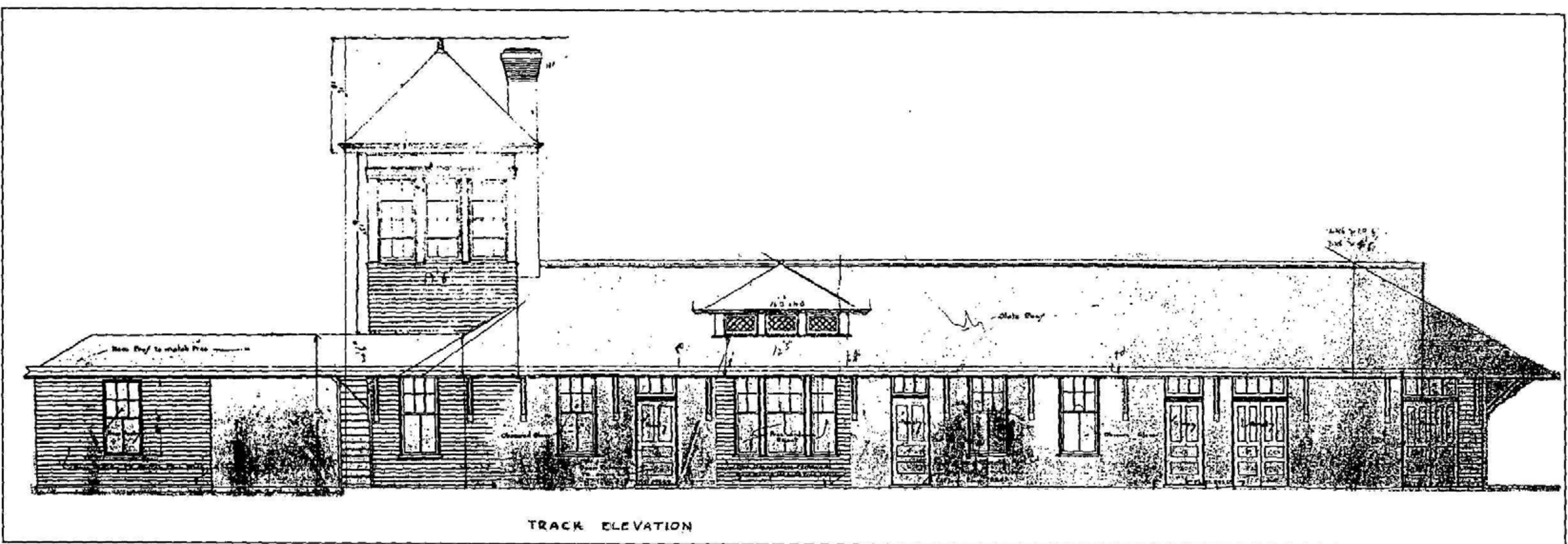
Baltimore & Ohio Railroad, Harpers Ferry Station  
HAER No. WV-86  
(Page V-4)



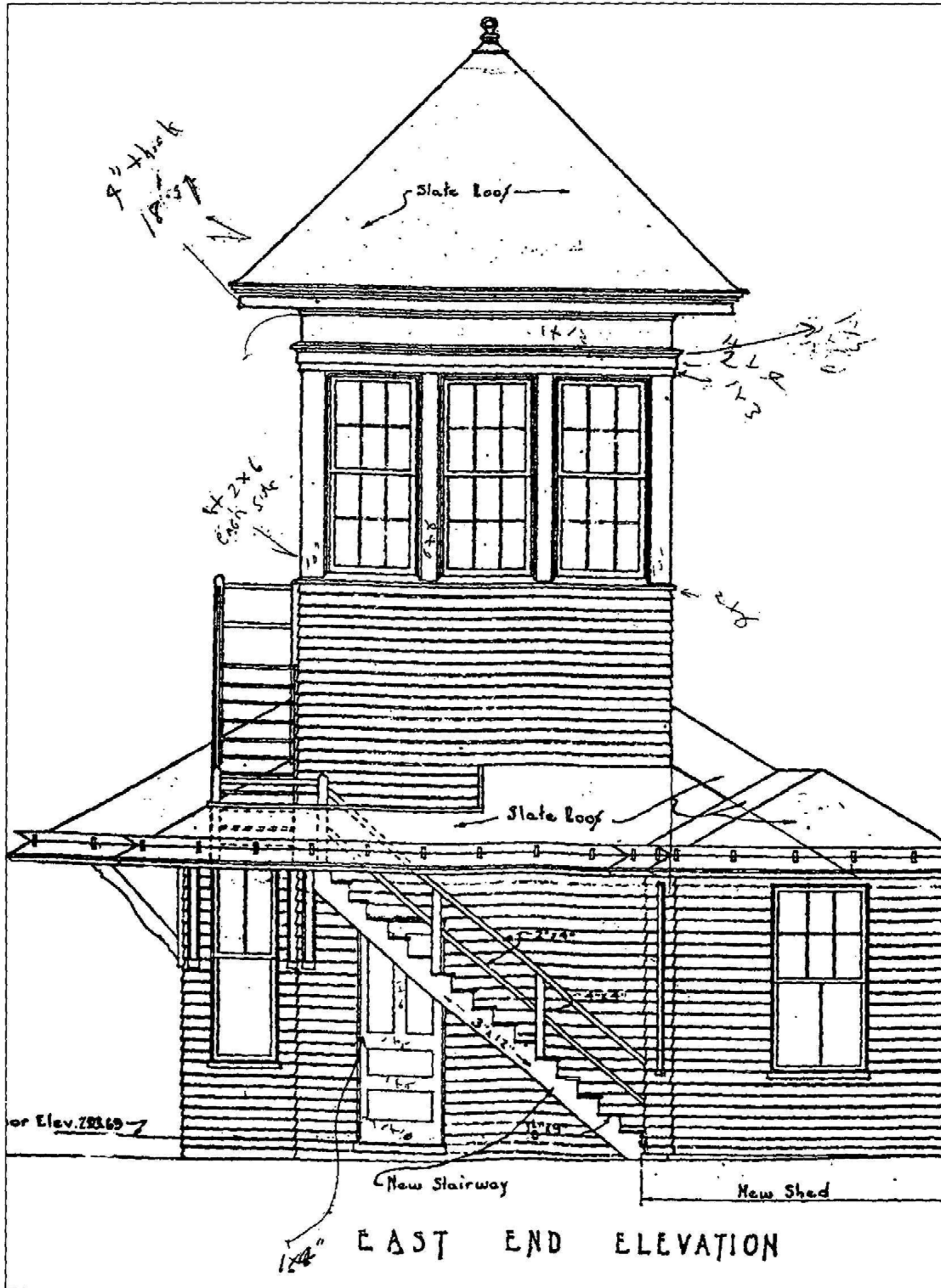
B&O drawing no 16690, south elevation (3-6-1931).



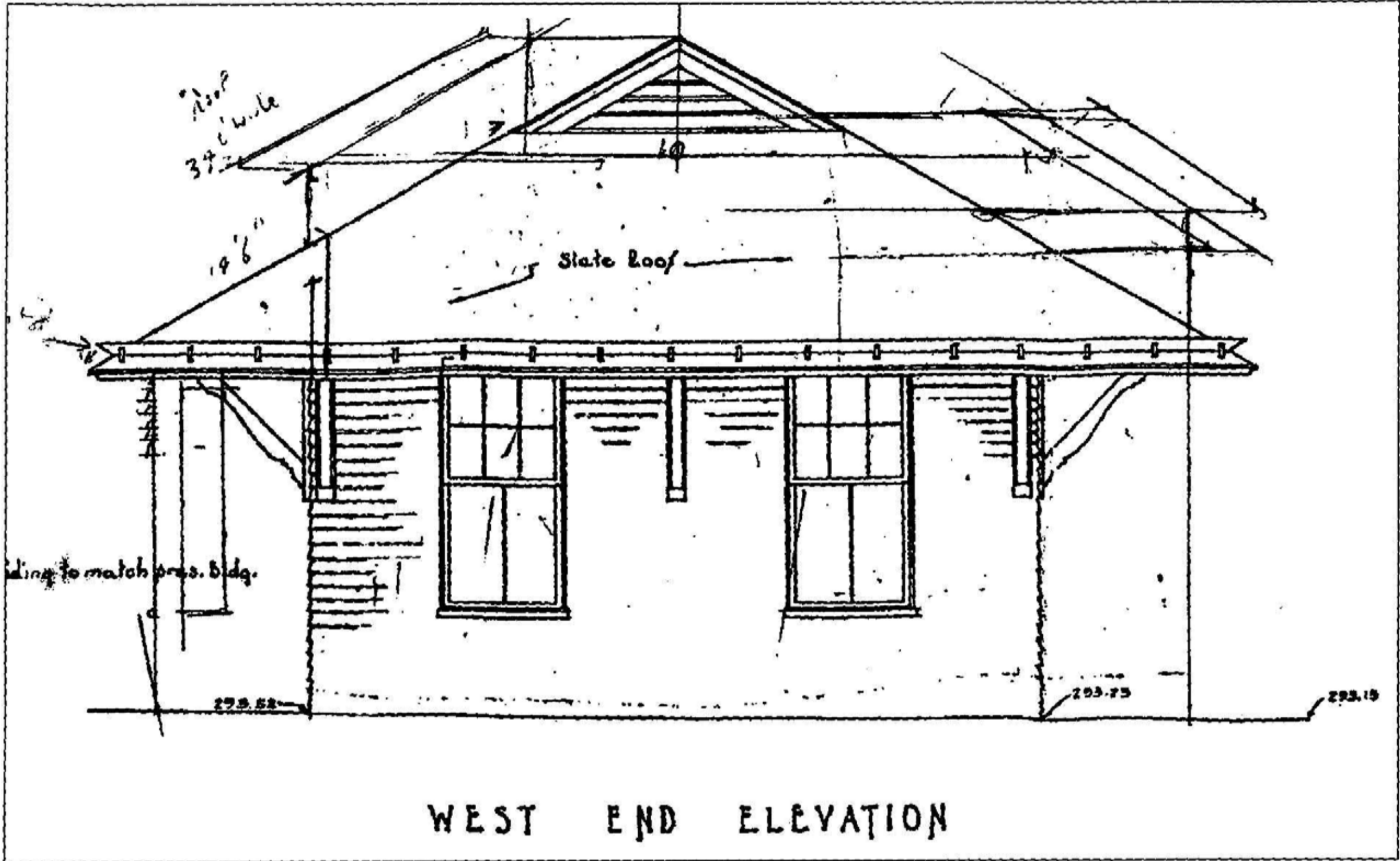
Baltimore & Ohio Railroad, Harpers Ferry Station  
HAER No. WV-86  
(Page V-5)



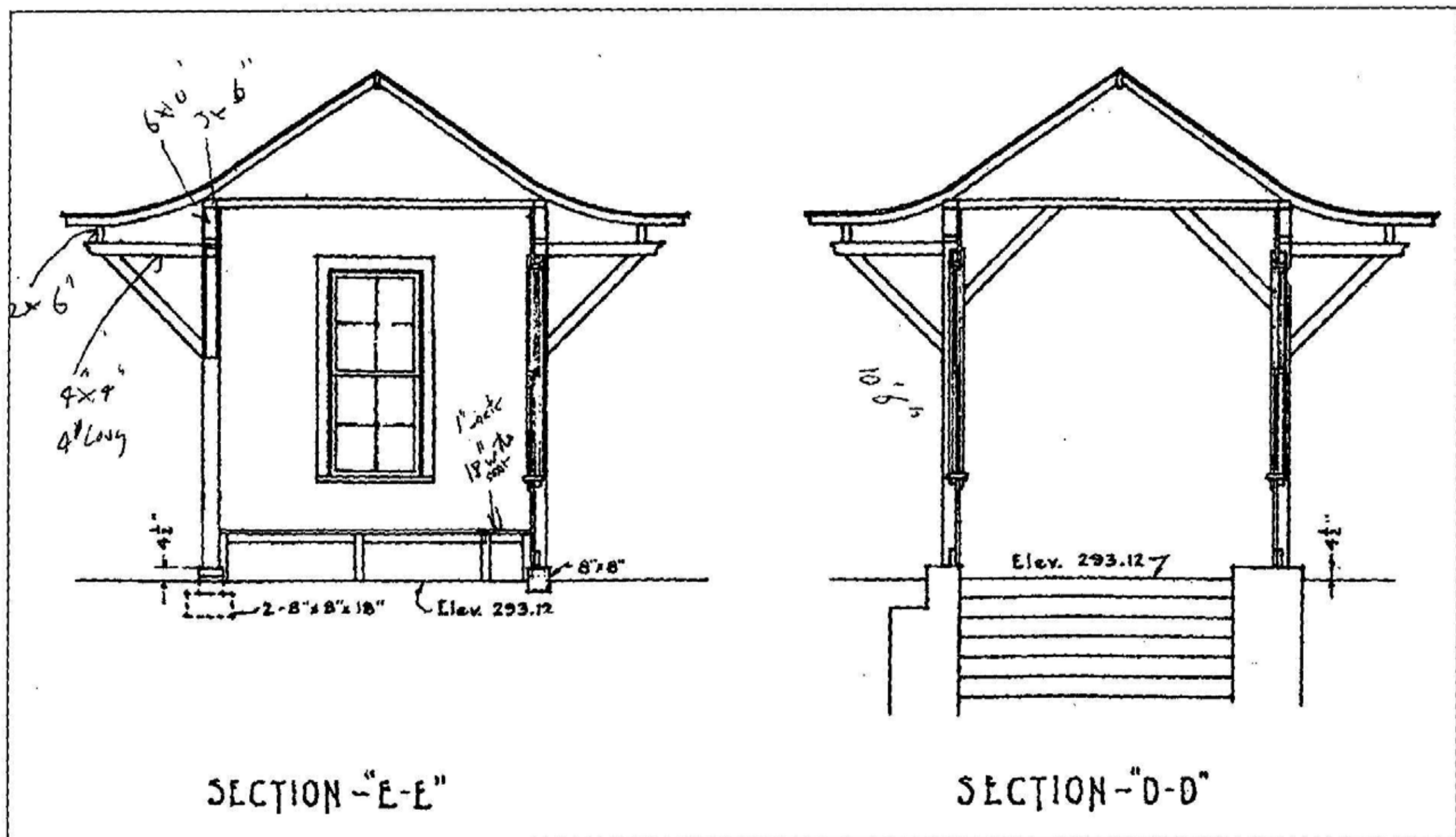
B&O drawing no 16690, track elevation (3-6-1931).



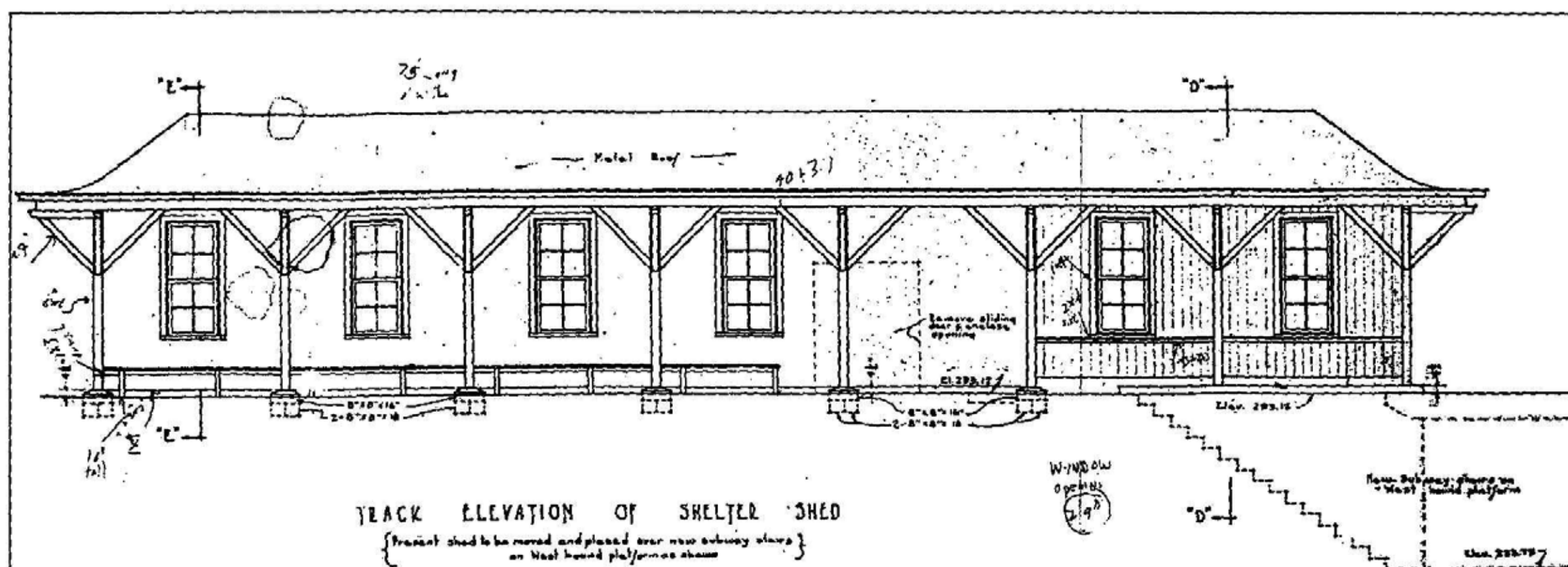
B&O drawing no 16691, east end elevation (3-6-1931).



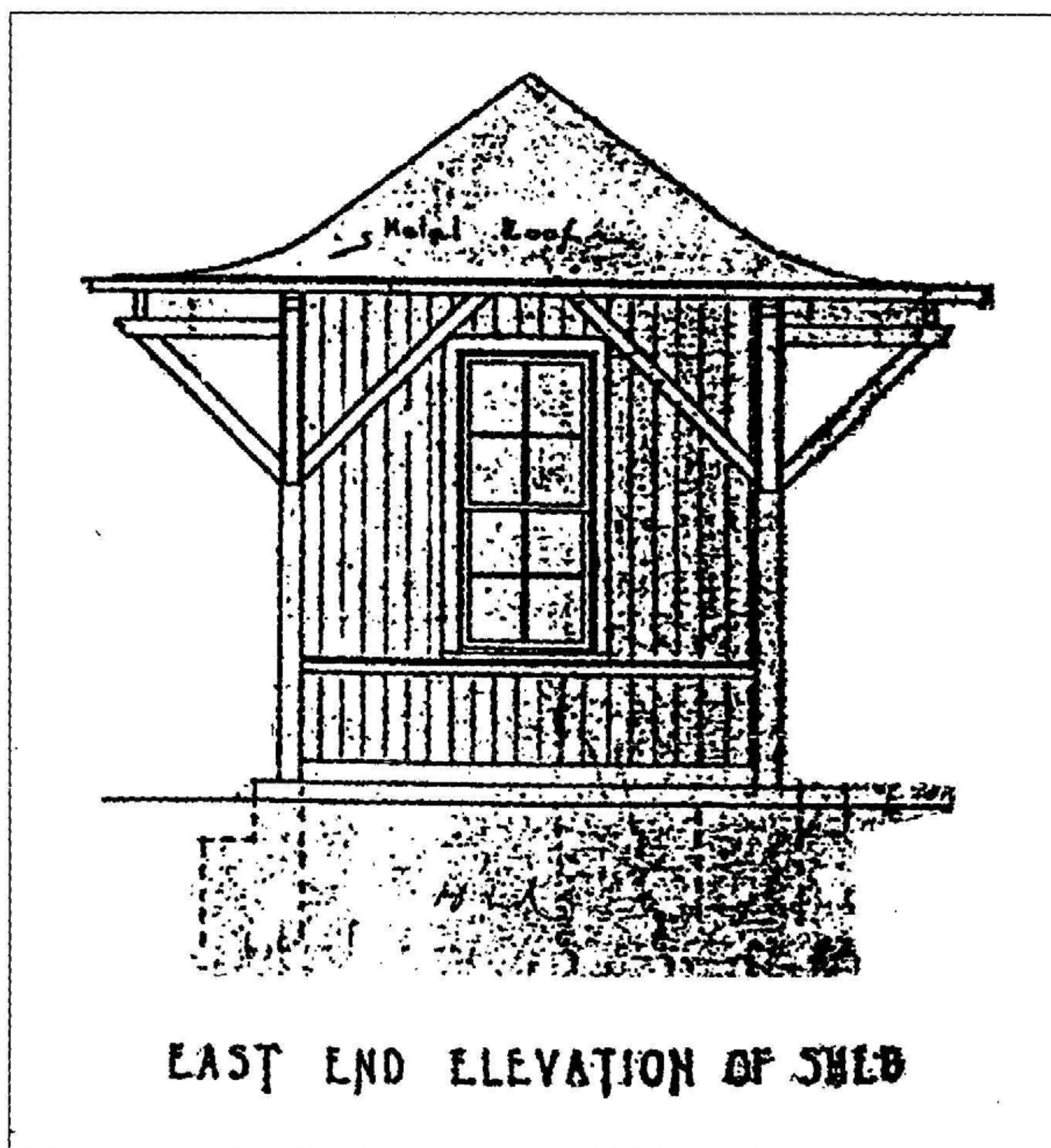
B&O drawing no 16691, west end elevation (3-6-1931).



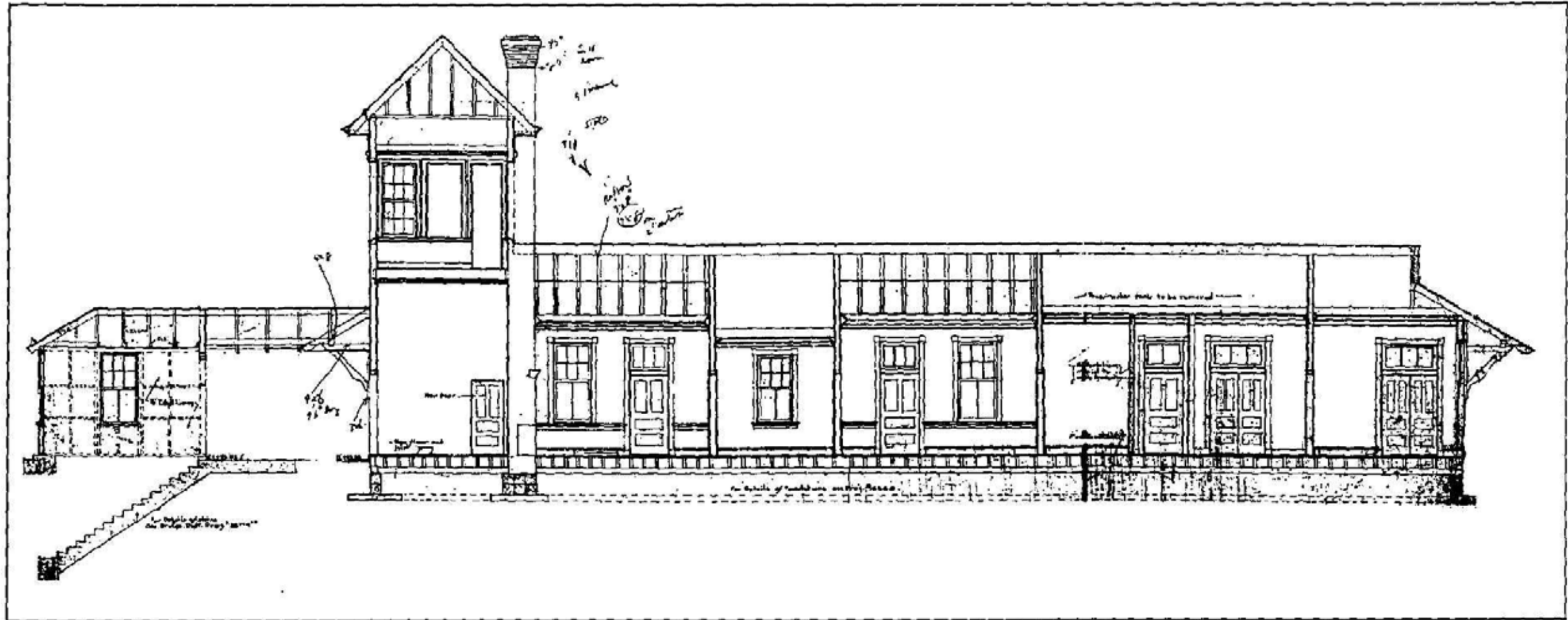
B&O drawing no 16691, waiting shelter sections (3-6-1931).



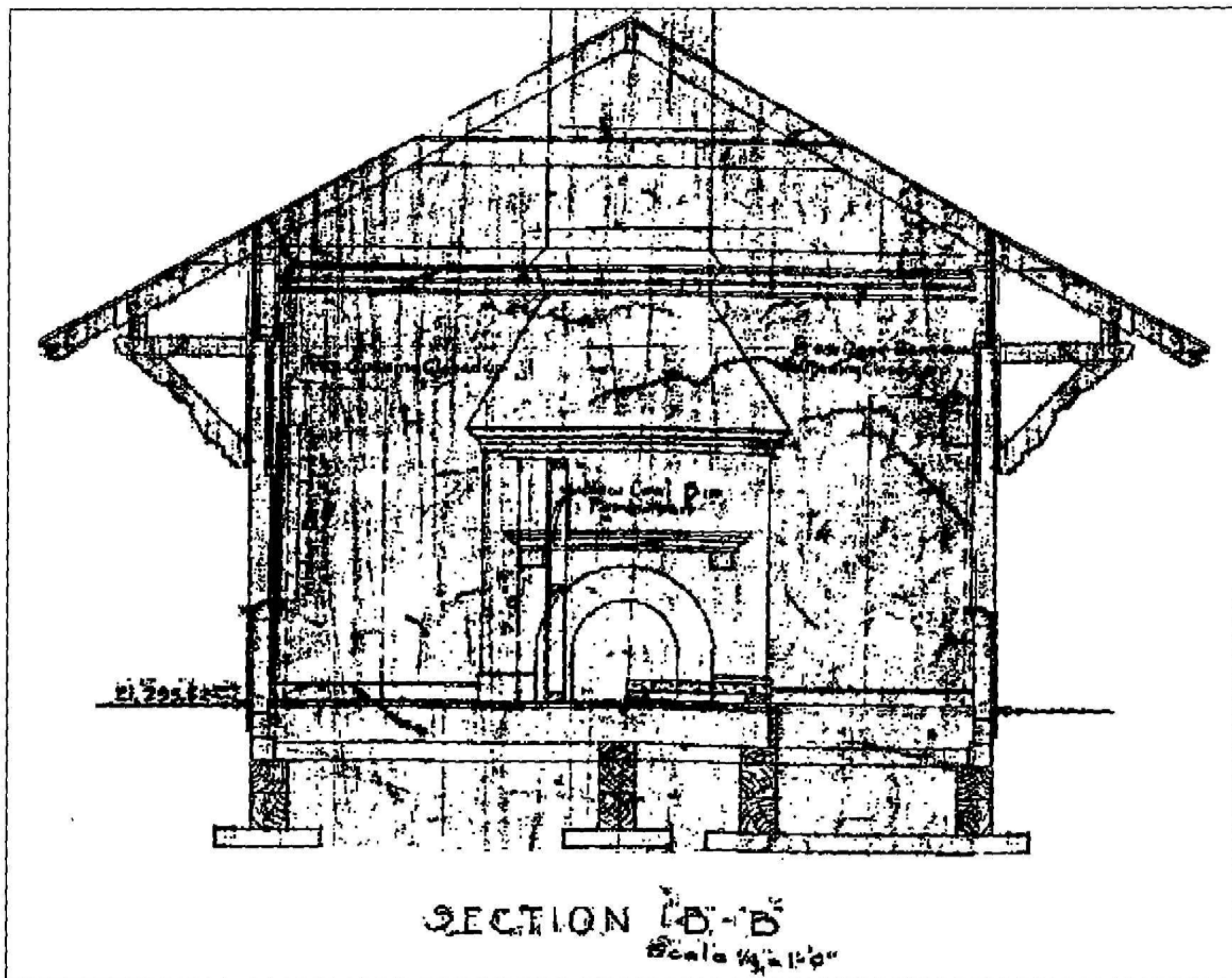
B&O drawing no 16691, track elevation shelter shed (3-6-1931).



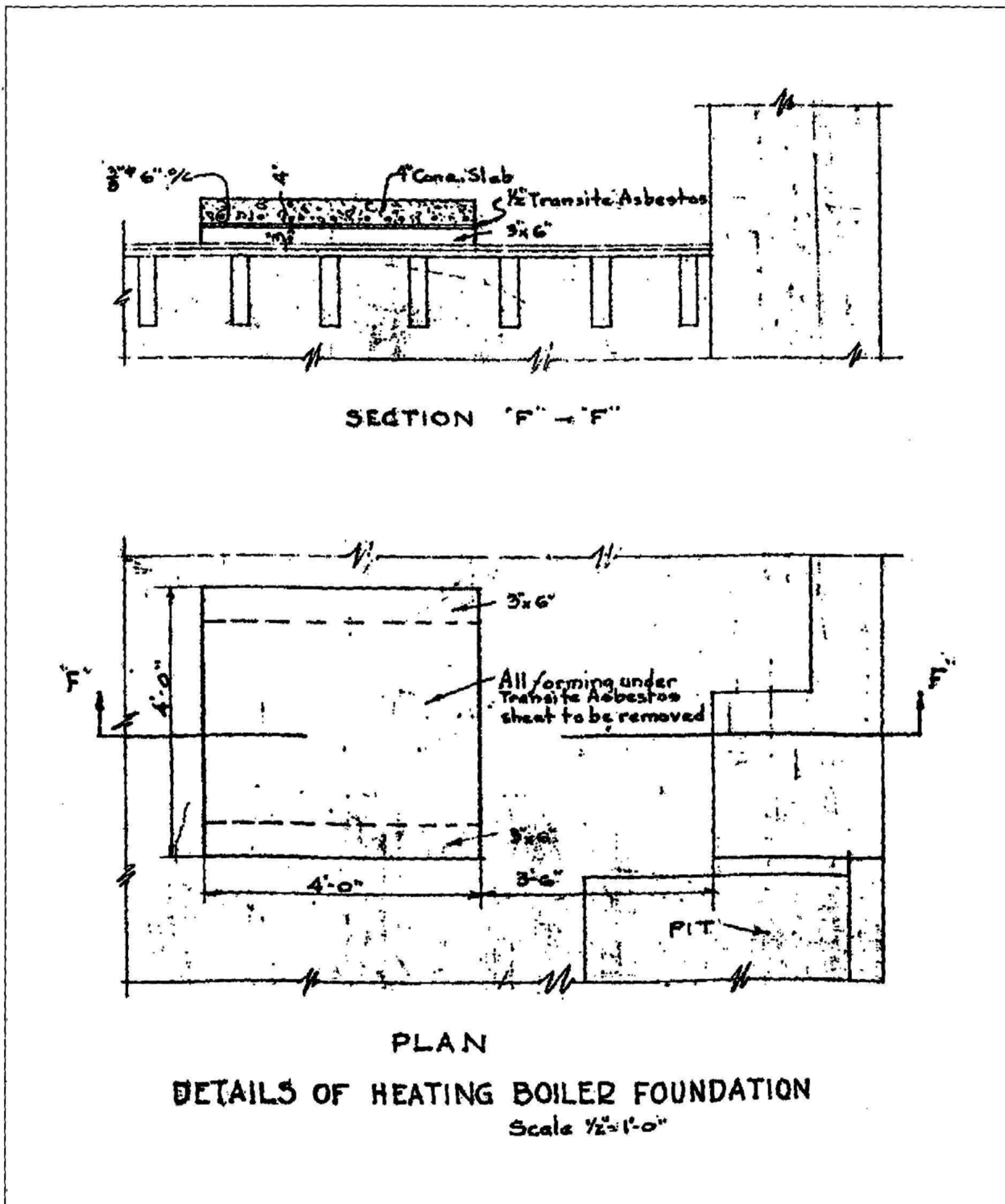
B&O drawing no 16691, east elevation of shed (3-6-1931).



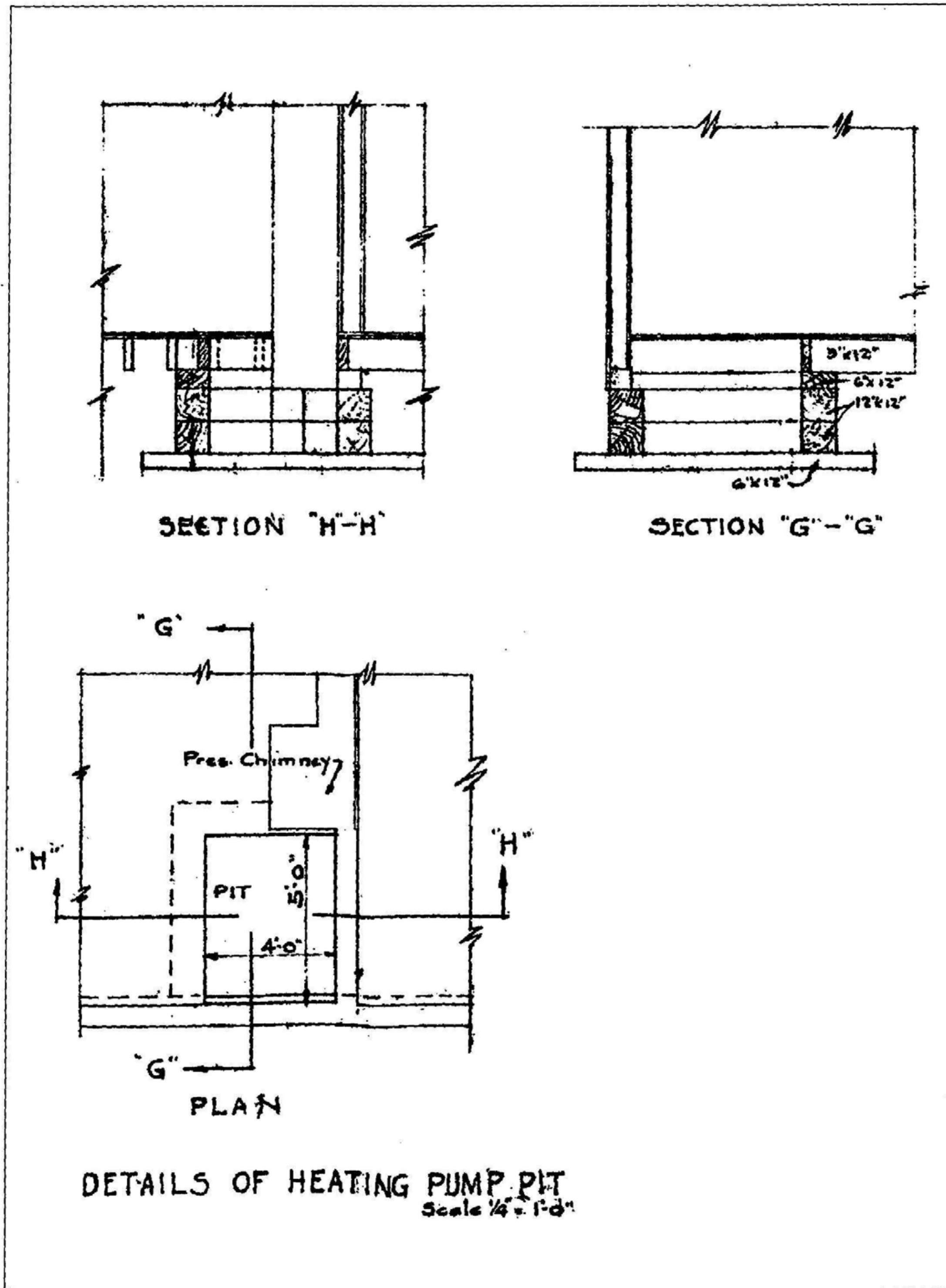
B&O drawing no 16692, long section (3-6-1931).



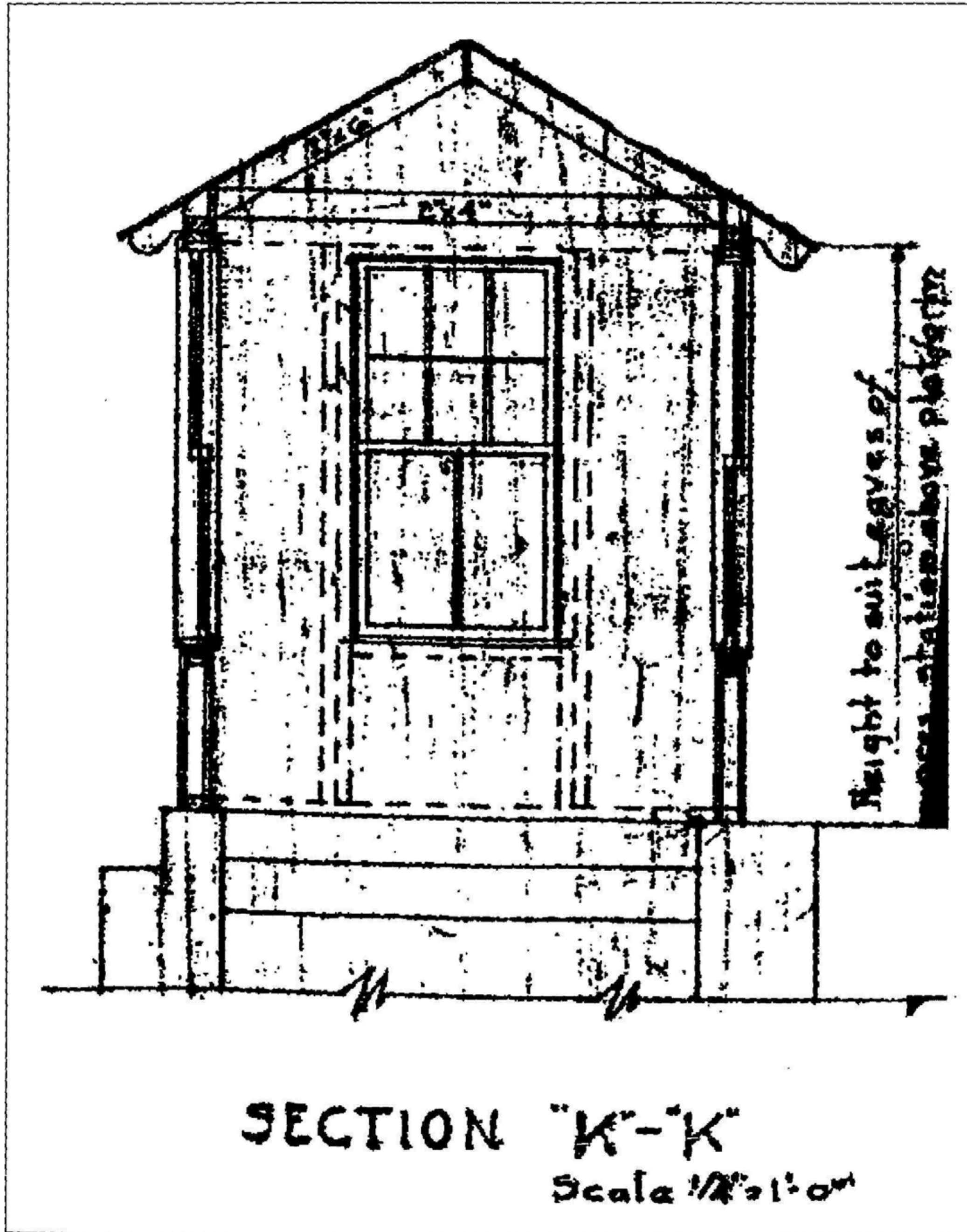
B&O drawing no 16692, waiting room section (3-6-1931).



B&O drawing no 16692, details of heating boiler foundation (3-6-1931).



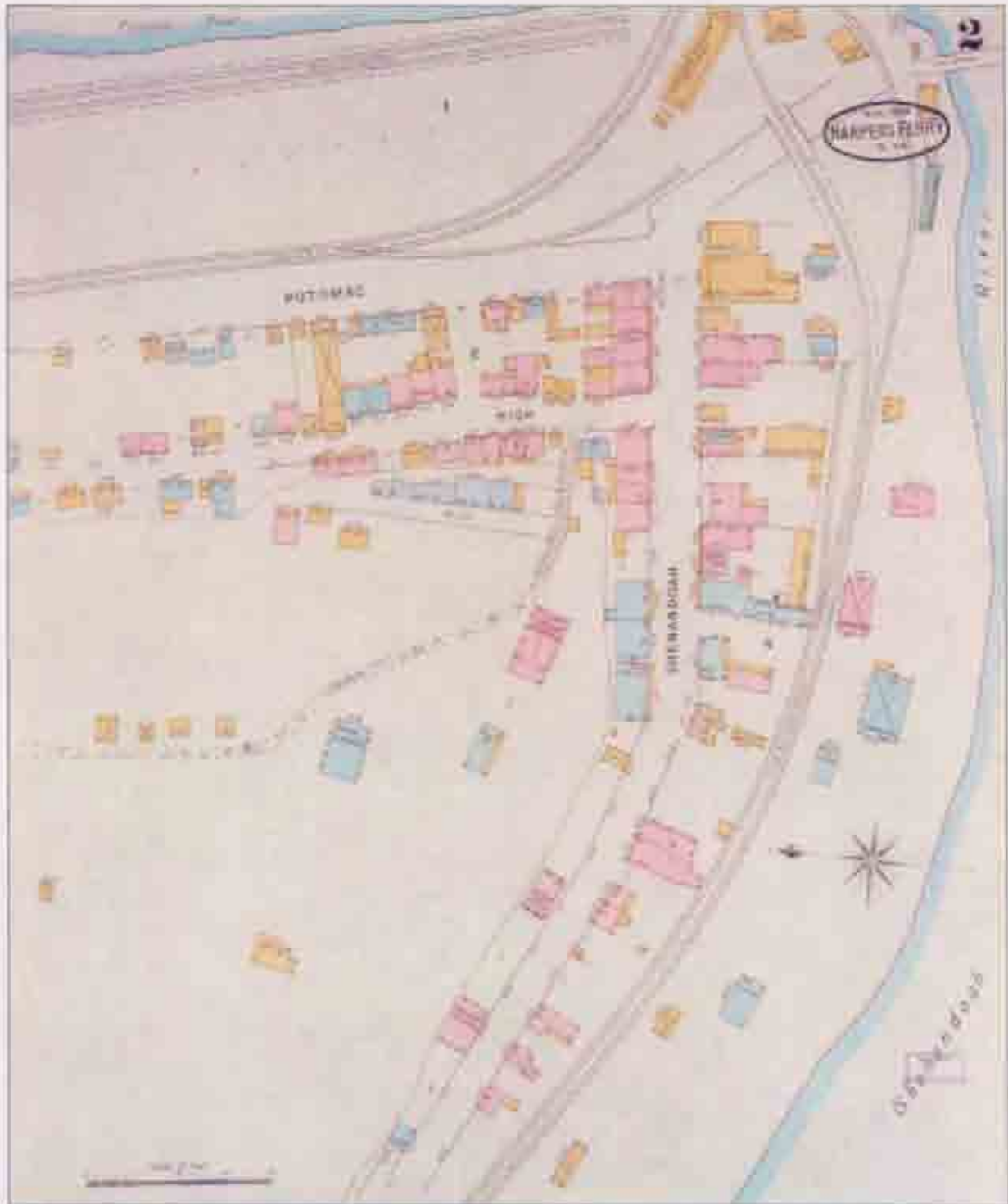
B&O drawing no 16692, details of heating pump pit (3-6-1931).



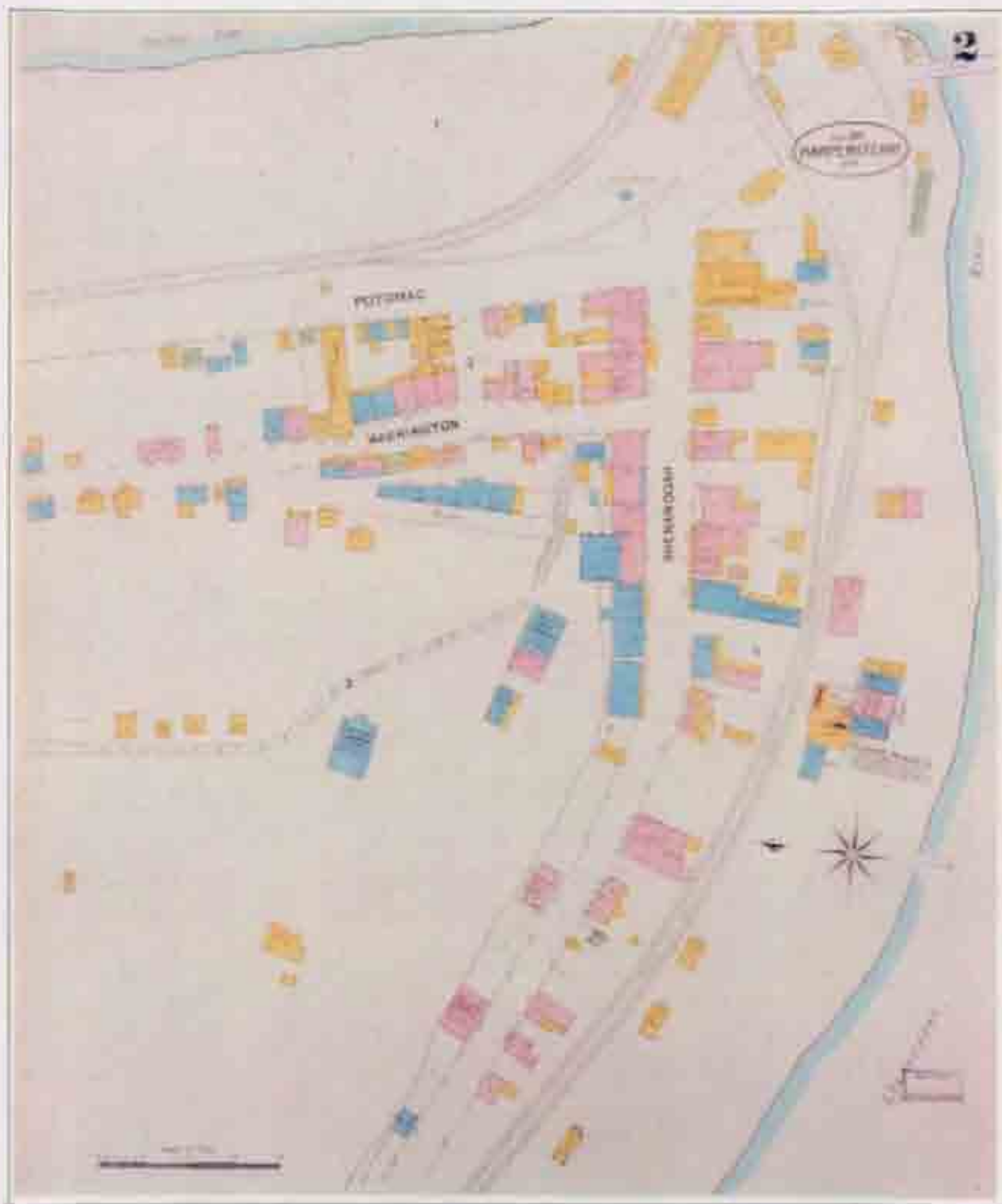
B&O drawing no 16692, subway covering shed (3-6-1931).



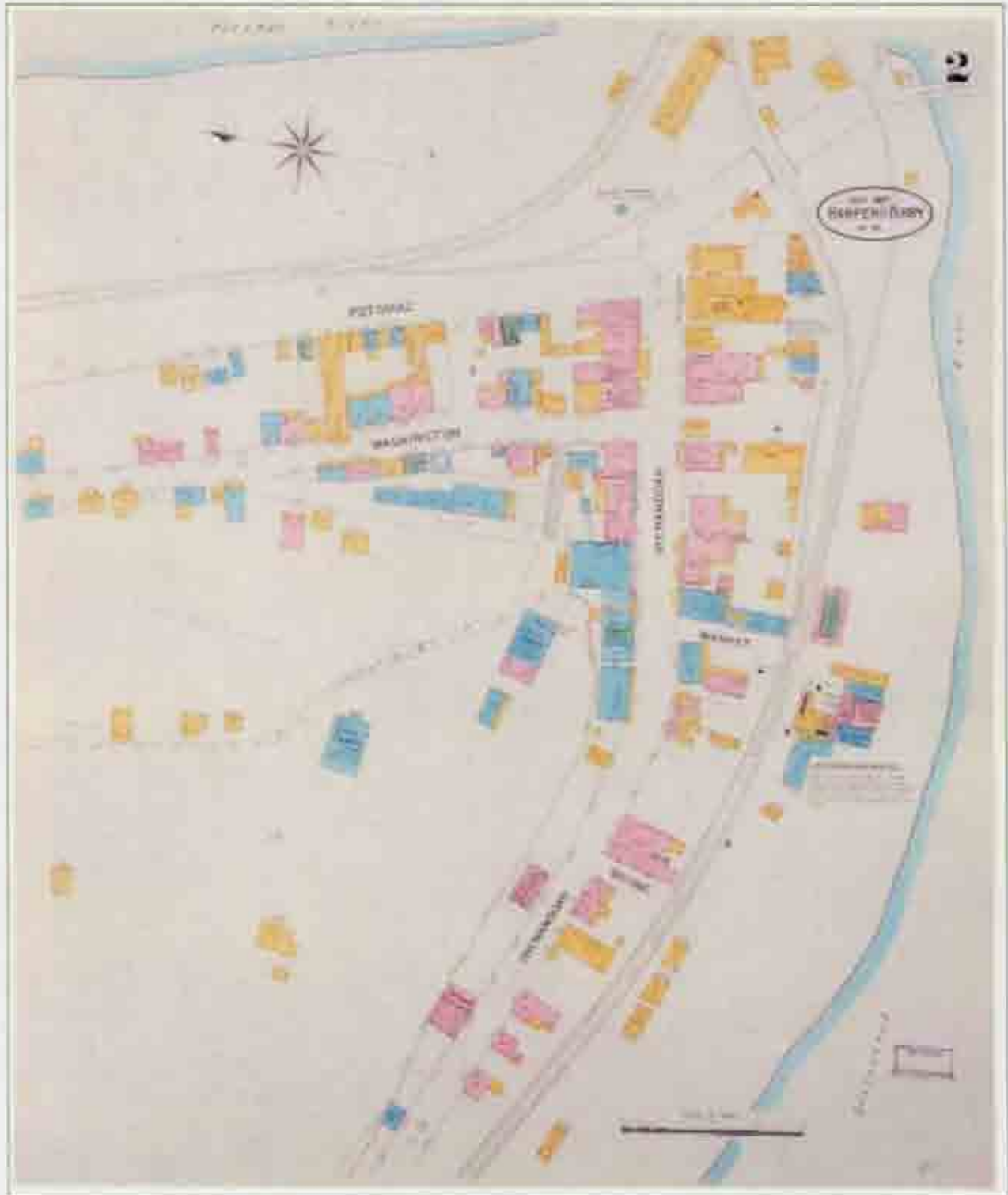
APPENDIX VI— Sanborn Fire Insurance Maps, Harpers Ferry, West Virginia.



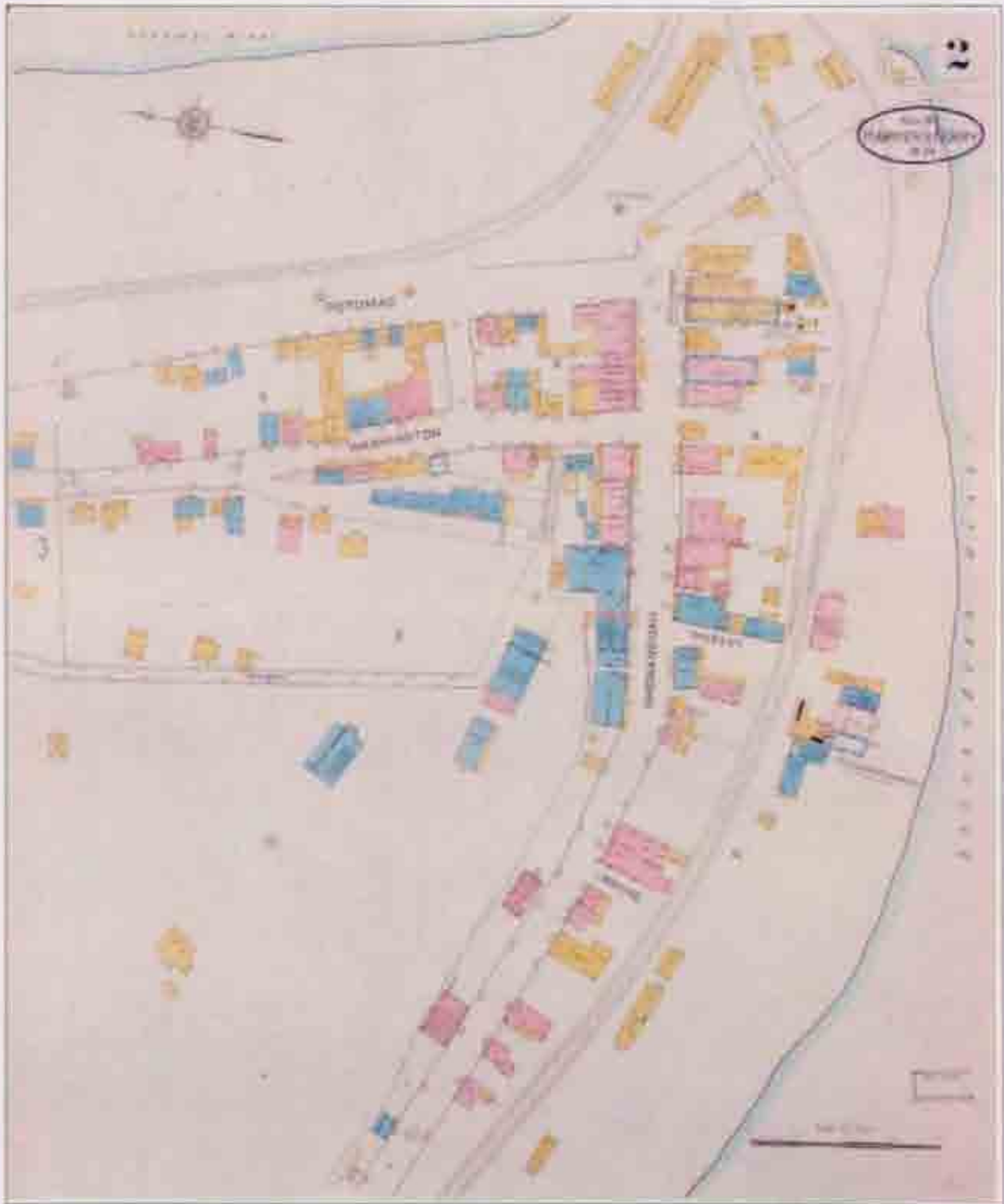
1894 Sanborn Fire Insurance Map.



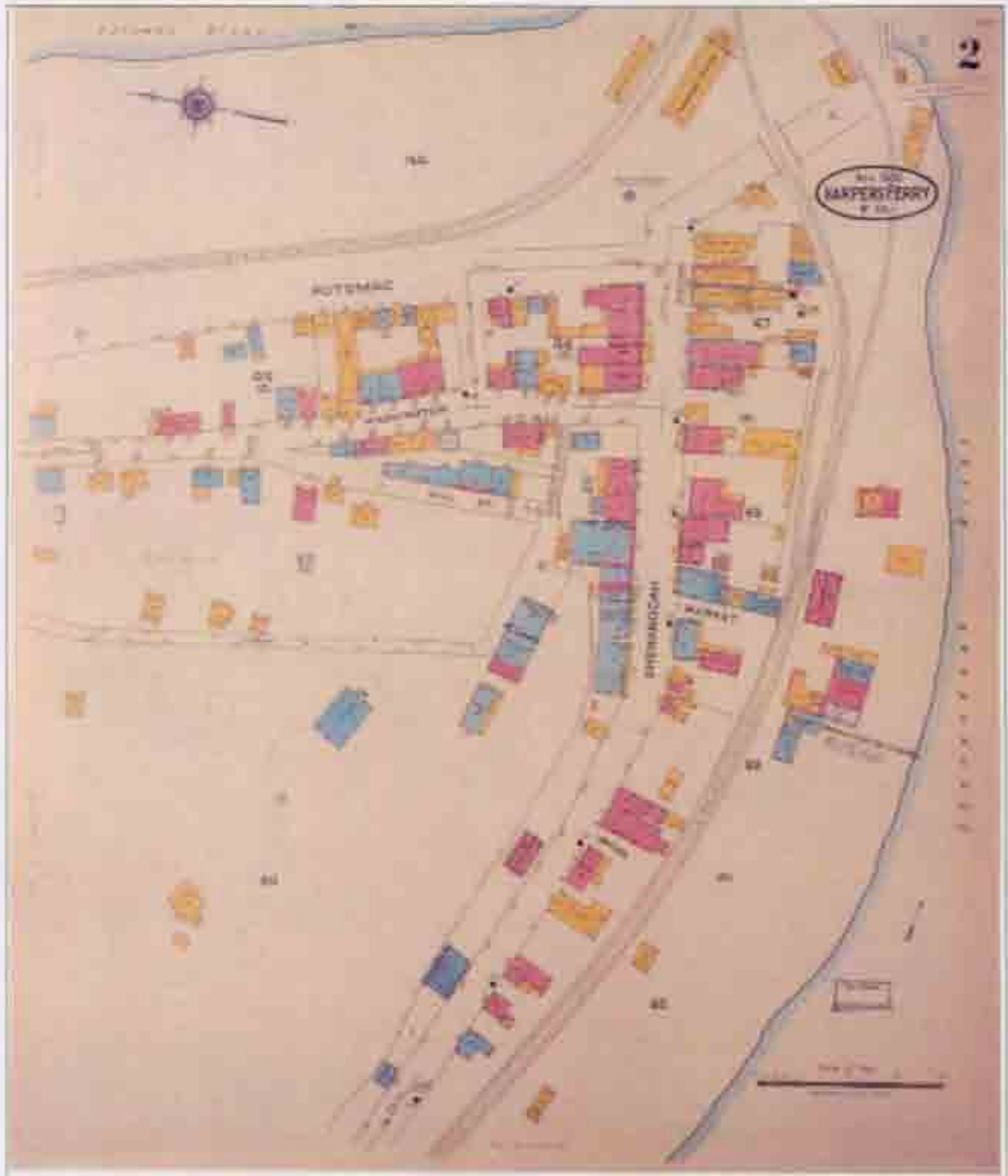
1902 Sanborn Fire Insurance Map.



1907 Sanborn Fire Insurance Map.



1912 Sanborn Fire Insurance Map.



1922 Sanborn Fire Insurance Map.



1933 Sanborn Fire Insurance Map.

**APPENDIX VII** –2002 HAER Drawings of the Harpers Ferry Station.

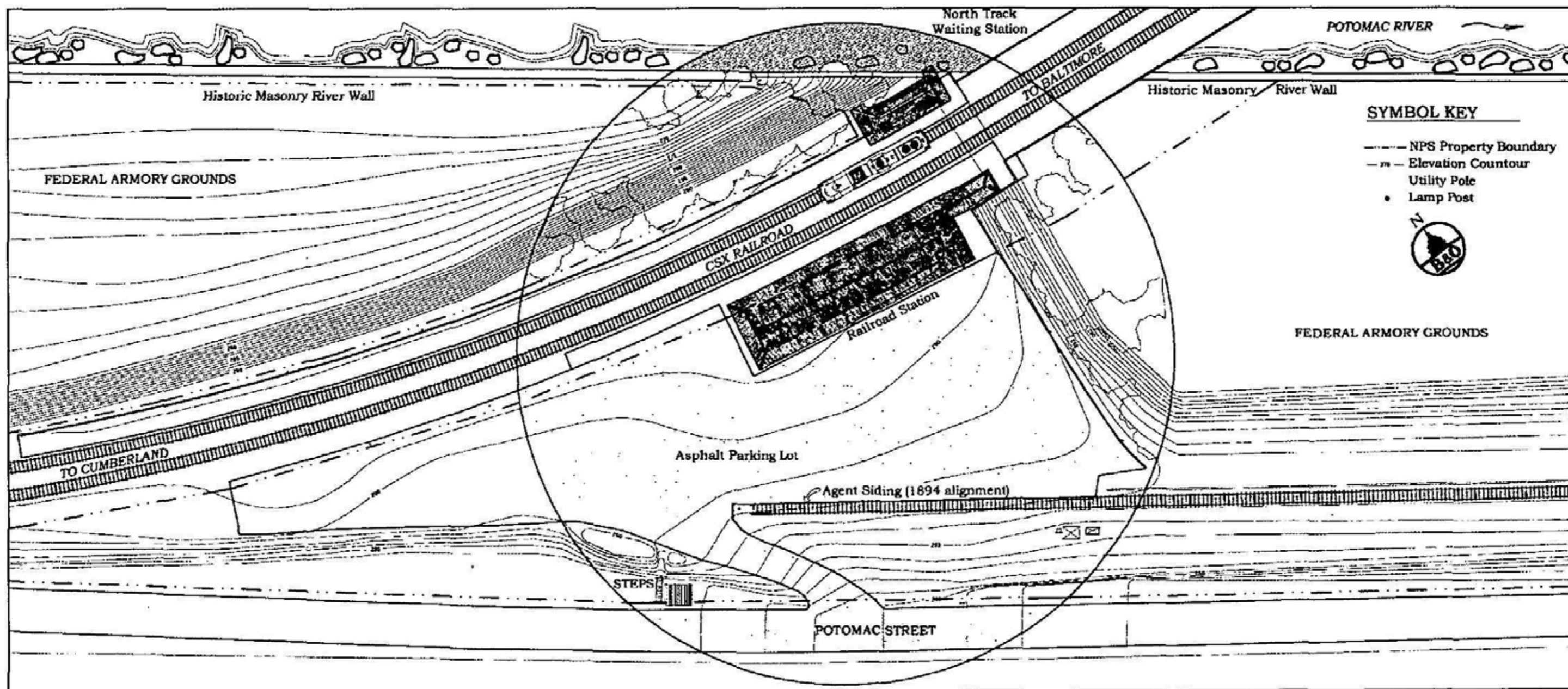
Baltimore & Ohio Railroad, Harpers Ferry Station  
HAER No. WV-86  
(Page VII-2)











Bench Mark M-1: 1927, 1929: Elevation 286.49 USCG&GS  
 Brass Disk set in concrete headwall, west end of B&O Trestle  
 at the confluence of the Shenandoah and Potomac Rivers.

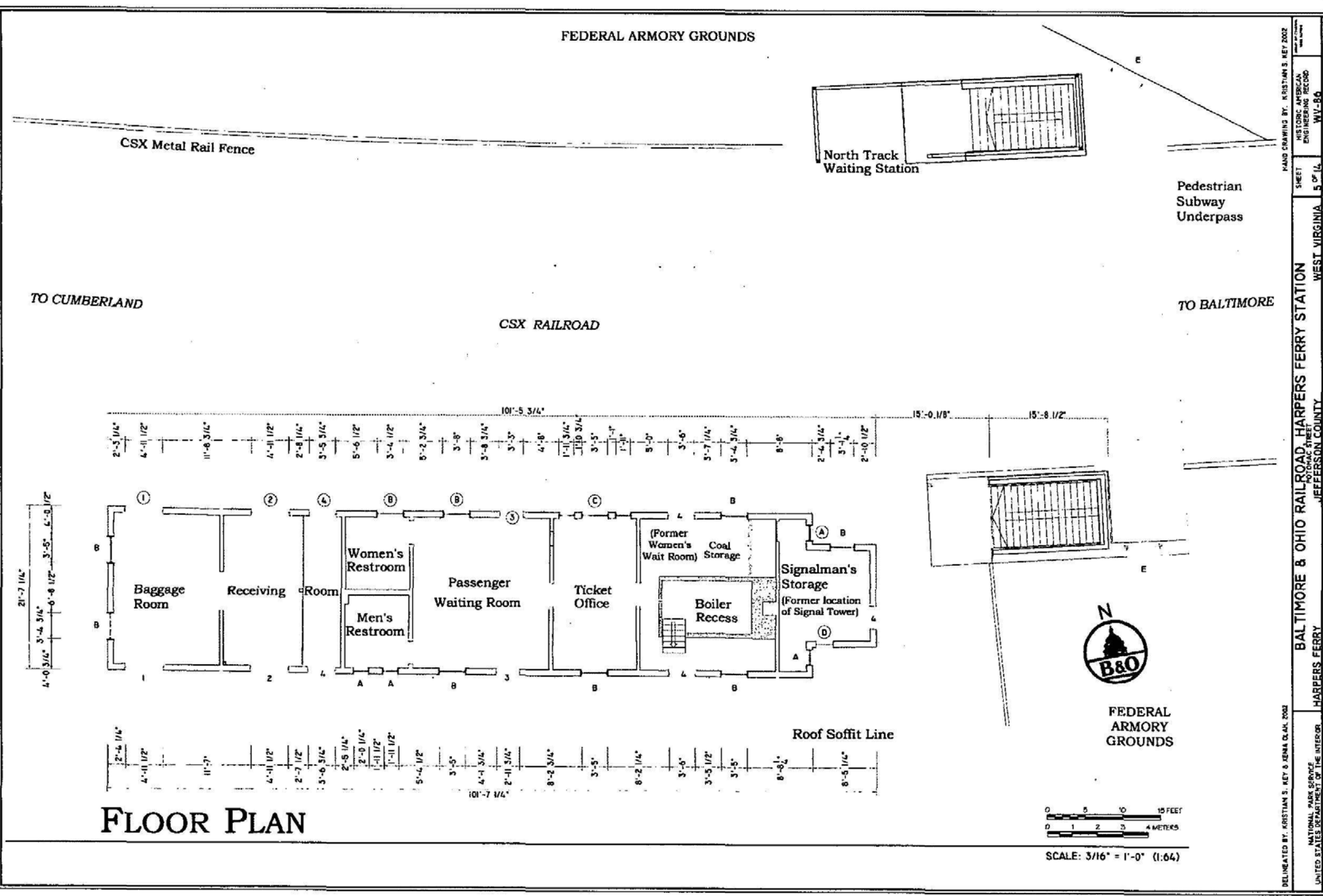
Fieldwork conducted July 2002

0 5 10 20 40 FEET  
 0 2 4 8 12 METERS  
 SCALE: 1/300

# SITE PLAN

SURVEYED BY JOHN RAVENHURST & ROB BRZOSTOWSKI  
 DELINEATED BY JOHN RAVENHURST & SENA OLAK 2002  
 HAND DRAWING BY KRISTINA S. KEY  
 HISTORIC AND SCENIC  
 ENGINEERING RECORD  
 WV-56  
 SHEET  
 4 OF 14  
 WEST VIRGINIA  
 JEFFERSON COUNTY  
 BALTIMORE & OHIO RAILROAD, HARPERS FERRY STATION  
 POTOMAC STREET  
 HARPERS FERRY

FEDERAL ARMORY GROUNDS



TO CUMBERLAND

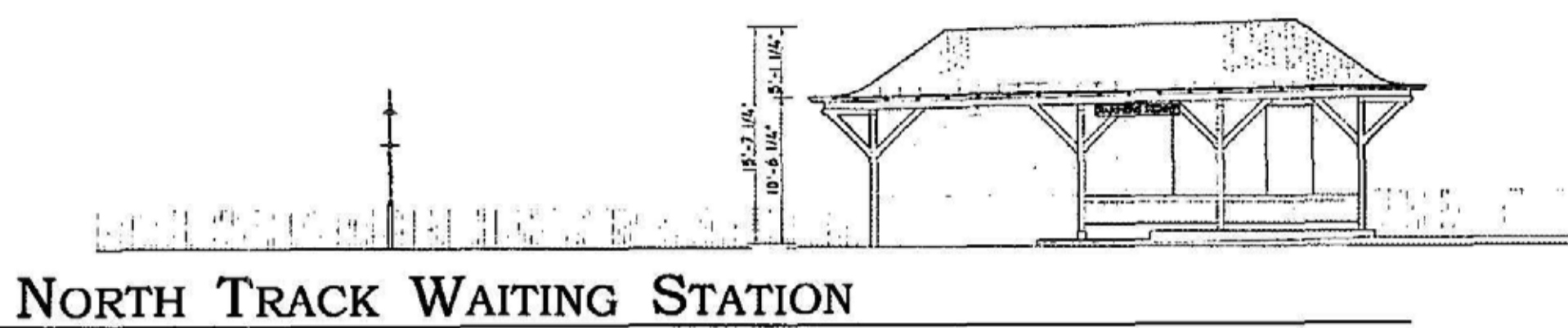
CSX RAILROAD

TO BALTIMORE

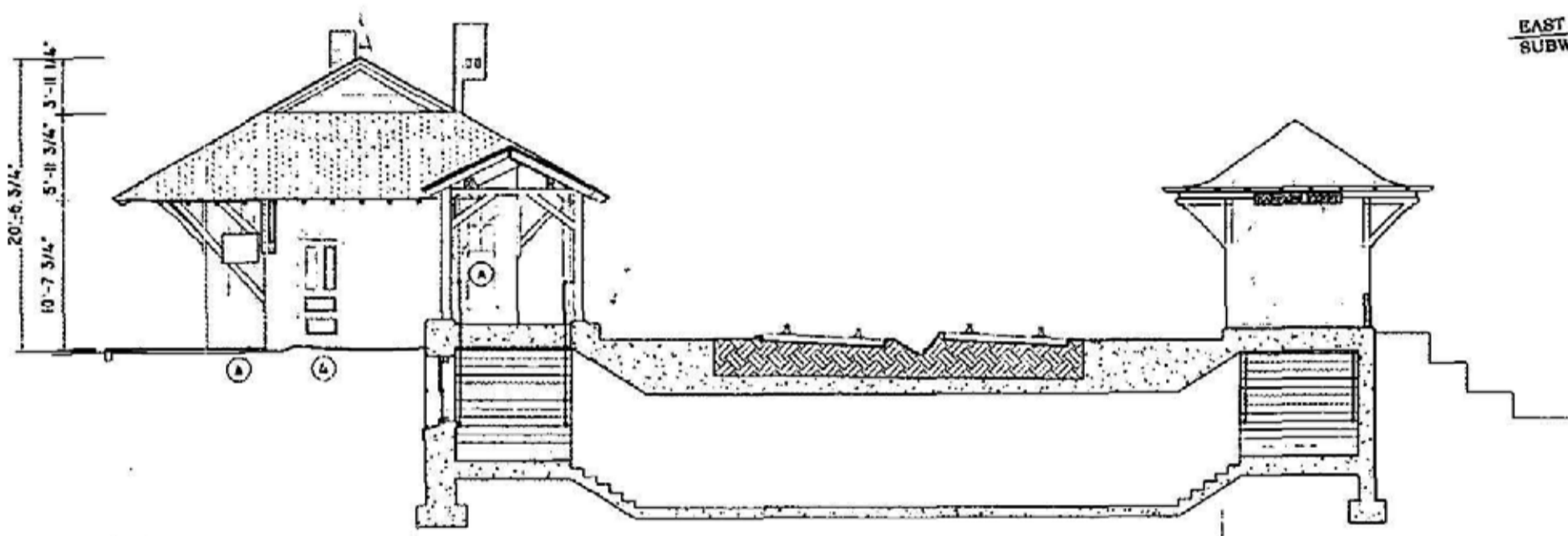
FLOOR PLAN

SCALE: 3/16" = 1'-0" (1:64)

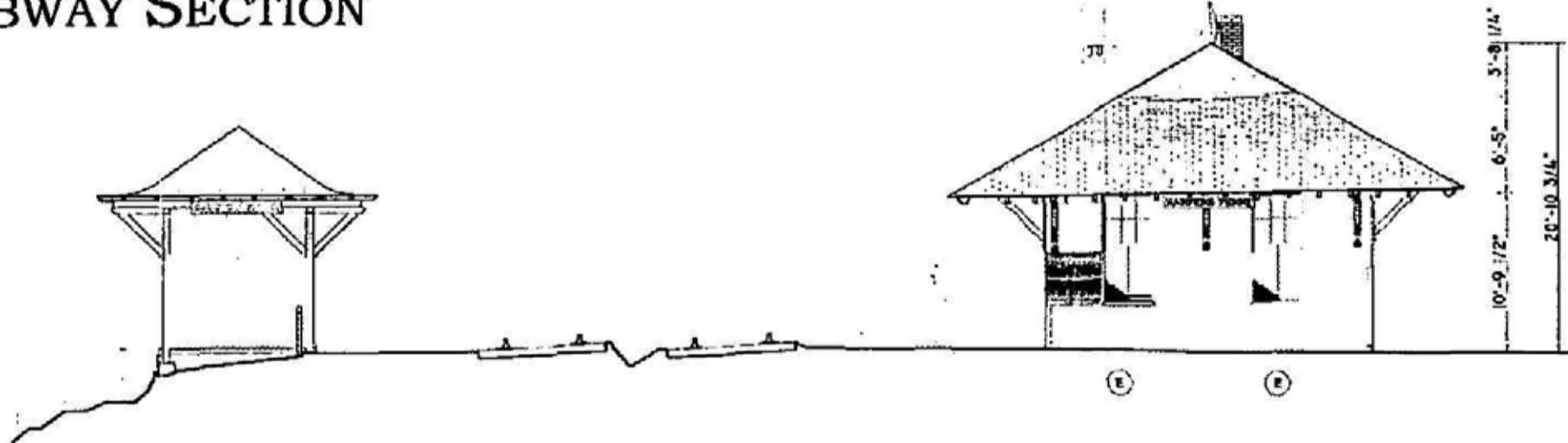
HAND DRAWING BY: KRISTIAN S. KEY 2002  
 HISTORIC AMERICAN ENGINEERING RECORD  
 WEST VIRGINIA 5 OF 14 WV-88  
 BALTIMORE & OHIO RAILROAD, HARPERS FERRY STATION  
 HARPERS FERRY, JEFFERSON COUNTY, WEST VIRGINIA  
 DELINEATED BY: KRISTIAN S. KEY & JENNA OLAK 2002  
 NATIONAL PARK SERVICE  
 UNITED STATES DEPARTMENT OF THE INTERIOR



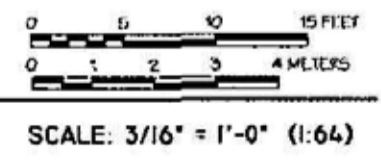
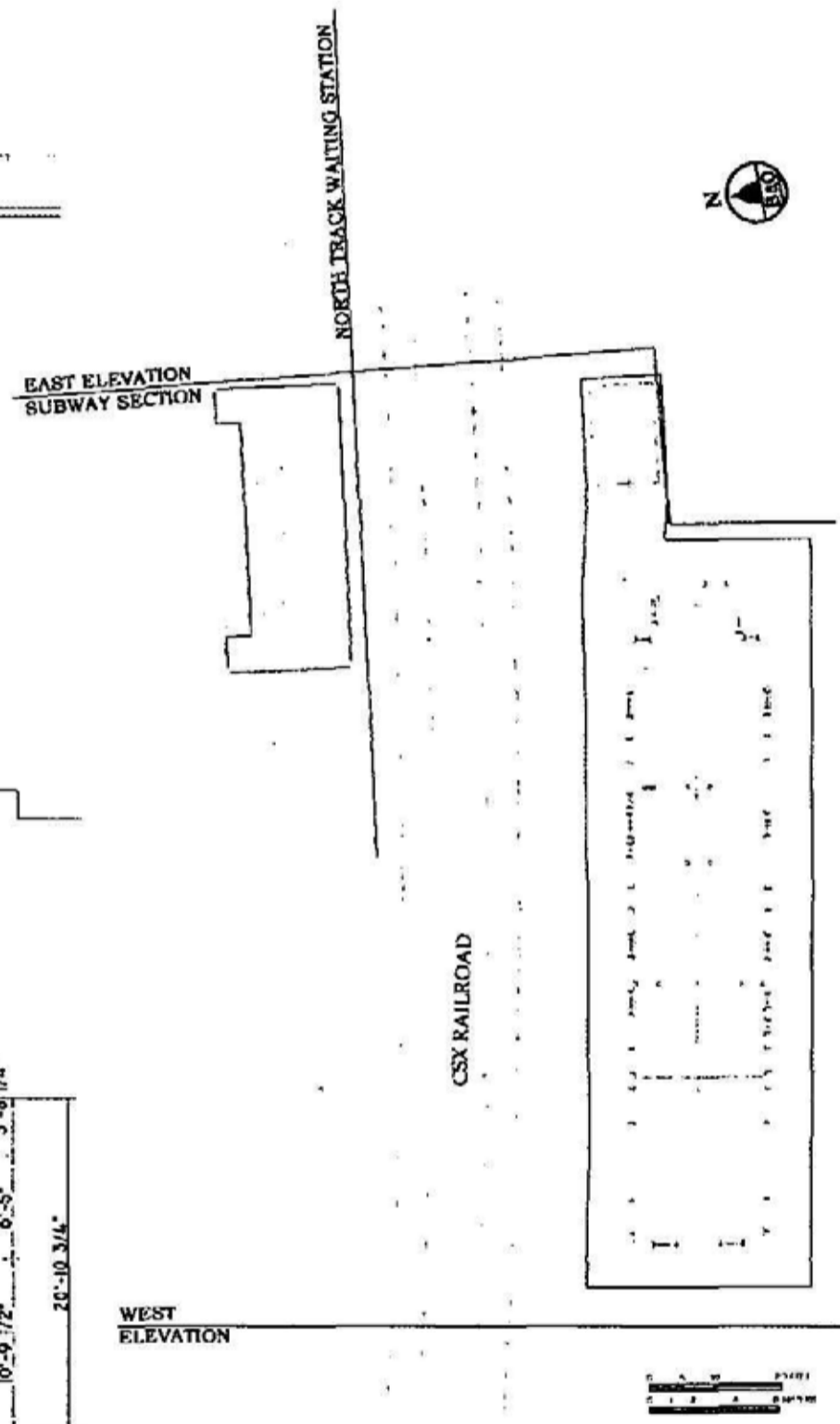
NORTH TRACK WAITING STATION



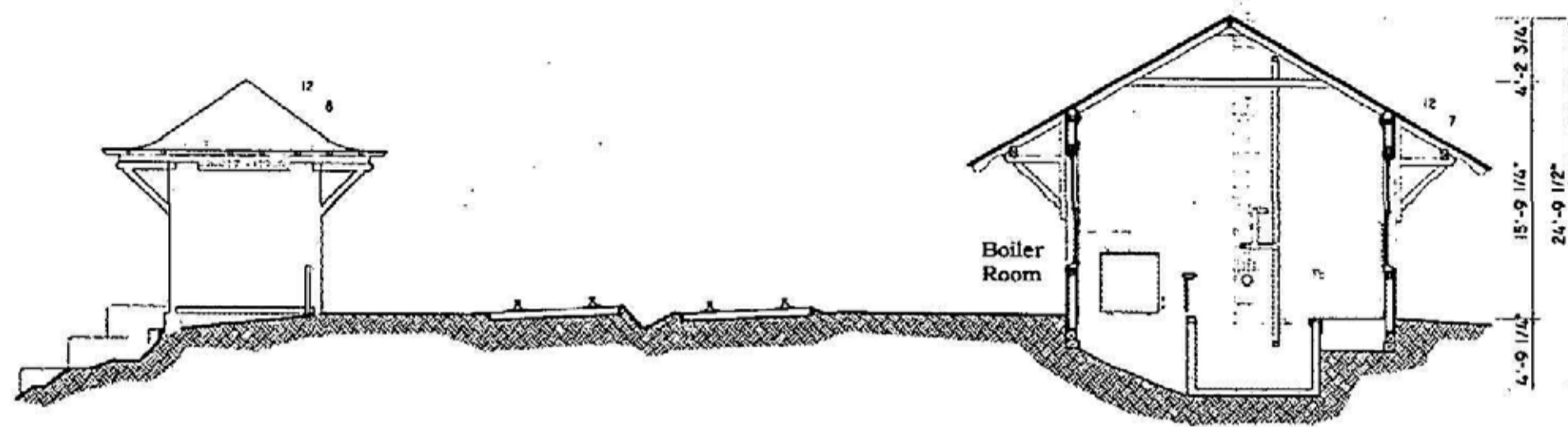
EAST ELEVATION  
SUBWAY SECTION



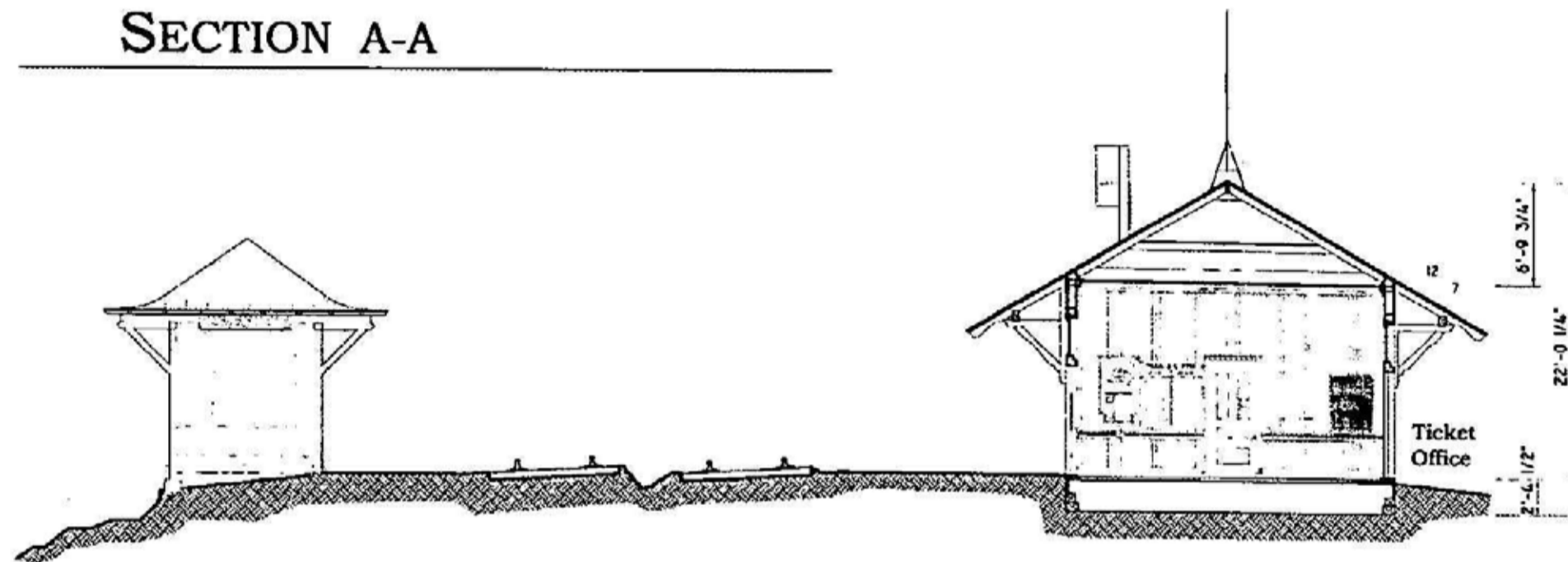
WEST ELEVATION



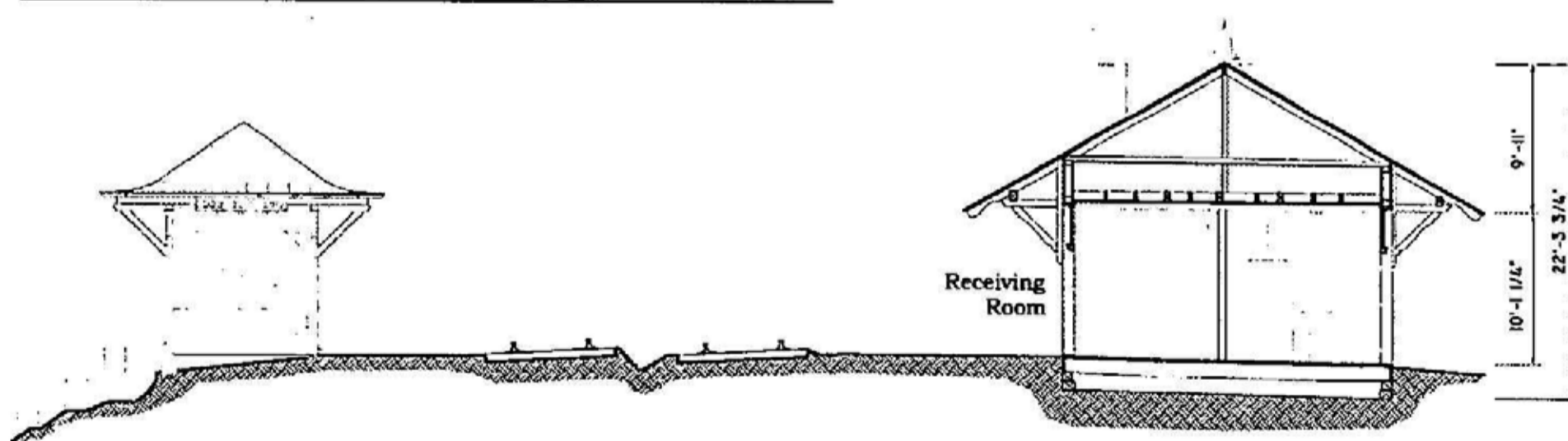
DELINEATED BY: WALTON STOWELL, III, PAUL M. SIRCARD, XENIA OLAH, KRISTIAN S. KEY, & CHRISTOPHER MARSTON, 2002  
 NATIONAL PARK SERVICE  
 UNITED STATES DEPARTMENT OF THE INTERIOR  
 HARPERS FERRY  
 BALTIMORE & OHIO RAILROAD HARPERS FERRY STATION  
 NATIONAL HISTORIC LAND  
 JEFFERSON COUNTY  
 WEST VIRGINIA  
 SHEET  
 6 OF 14  
 HISTORIC AMERICAN  
 ENGINEERING RECORD  
 WV-86



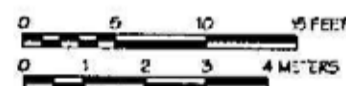
SECTION A-A



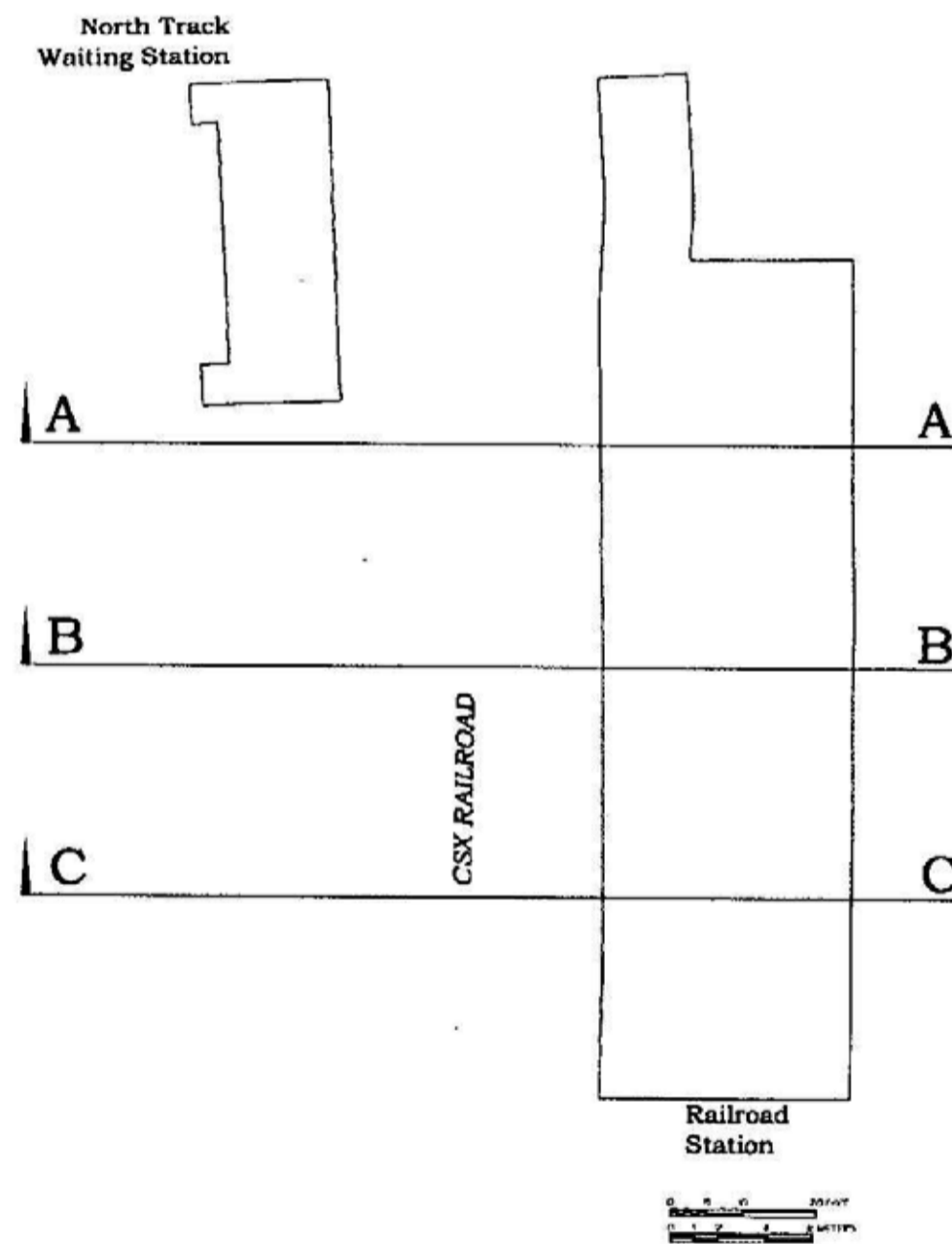
SECTION B-B



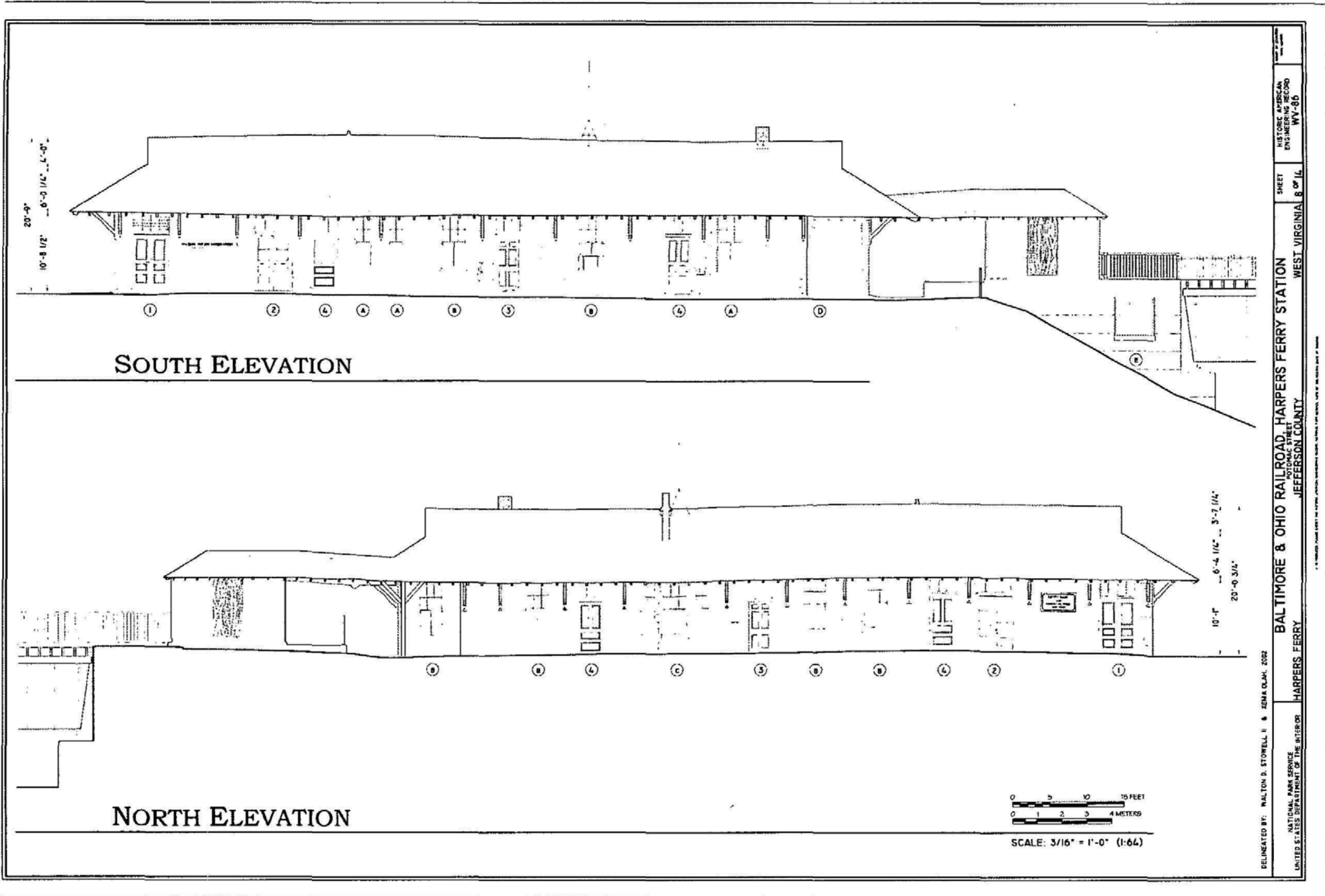
SECTION C-C



SCALE: 3/16" = 1'-0" (1:64)



DELINEATED BY: PAUL H. GIRAUD, KENNETH CLARK, ERIC KEY, & MALCOLM STORRELL, II, 2002  
 NATIONAL PARK SERVICE  
 UNITED STATES DEPARTMENT OF THE INTERIOR  
 BALTIMORE & OHIO RAILROAD, HARPERS FERRY STATION  
 POTOMAC STREET  
 JEFFERSON COUNTY  
 WEST VIRGINIA 7 OF 14  
 HISTORIC AMERICAN  
 ENGINEERING RECORD  
 WV-86



DELIMITED BY: WALTON D. STOWELL, I & KENA OLPH, 2002

NATIONAL PARK SERVICE  
UNITED STATES DEPARTMENT OF THE INTERIOR

HARPERS FERRY

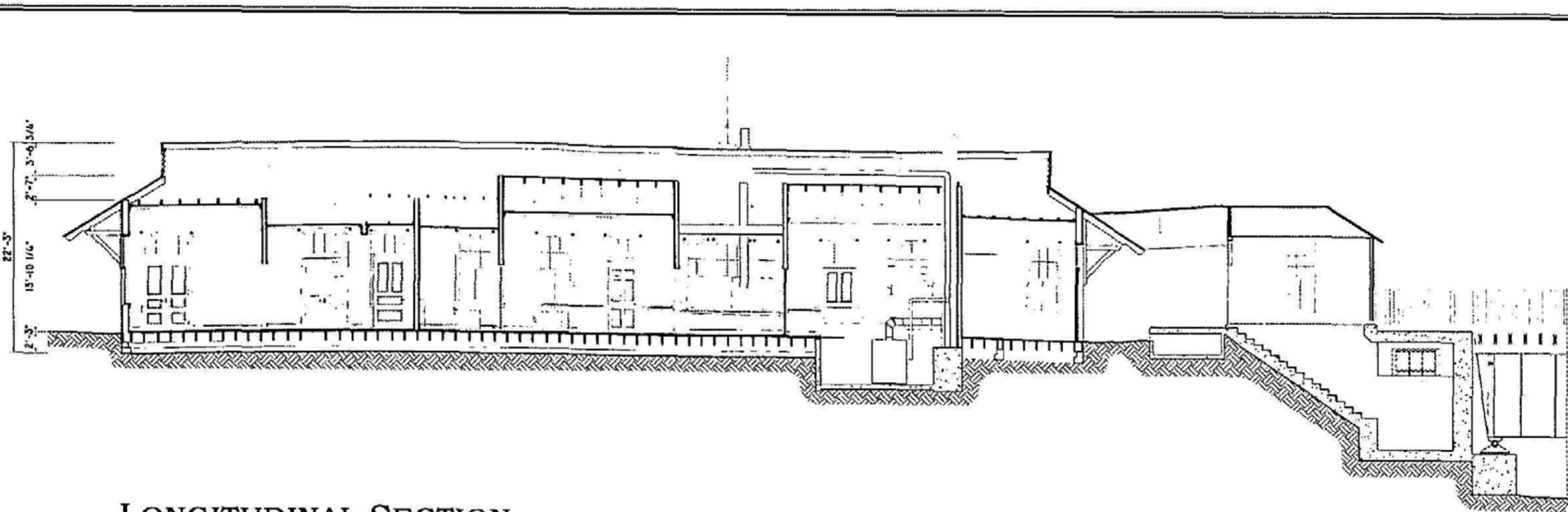
BALTIMORE & OHIO RAILROAD HARPERS FERRY STATION  
NATIONAL PARK SERVICE  
JEFFERSON COUNTY

WEST VIRGINIA 8 OF 16

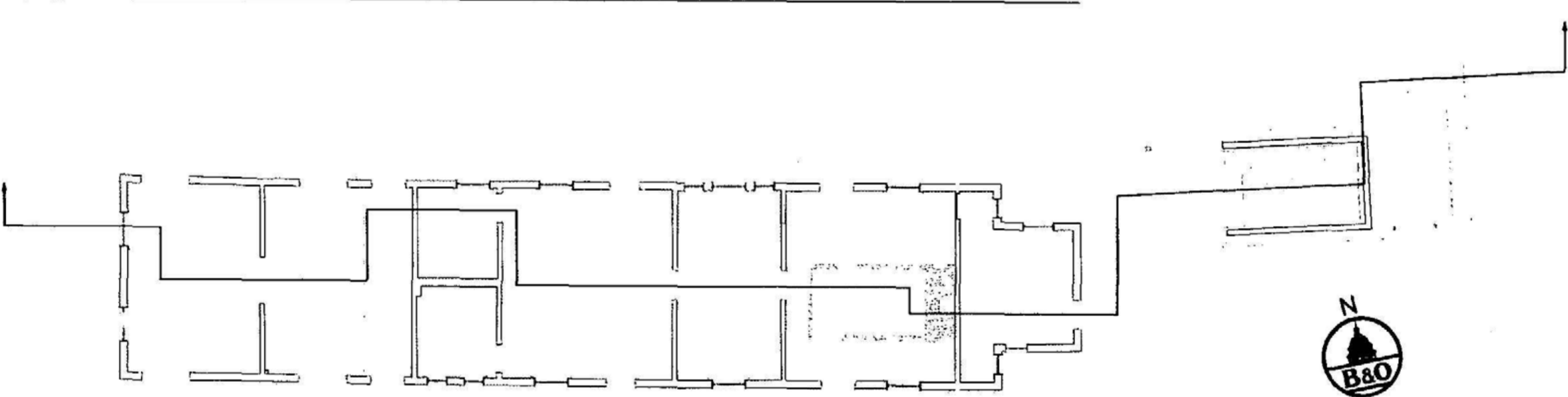
SHEET

HISTORIC AMERICAN  
ENGINEERING RECORD  
WV-86

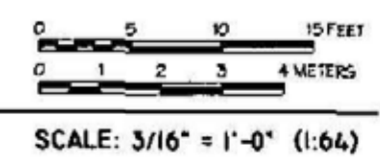




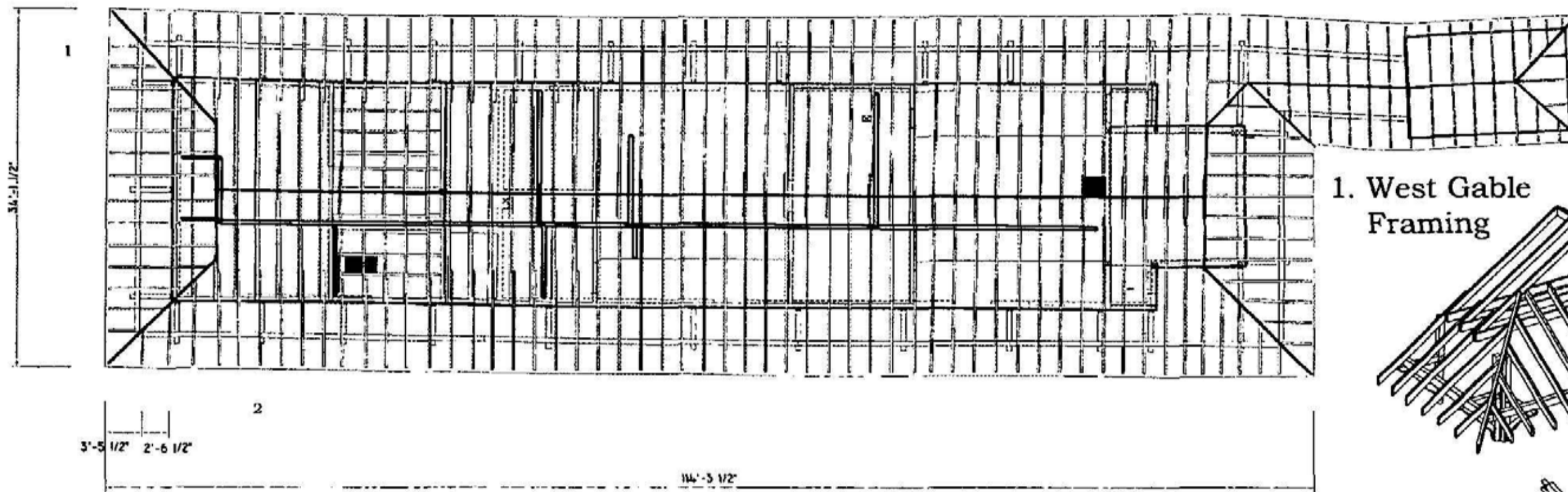
LONGITUDINAL SECTION



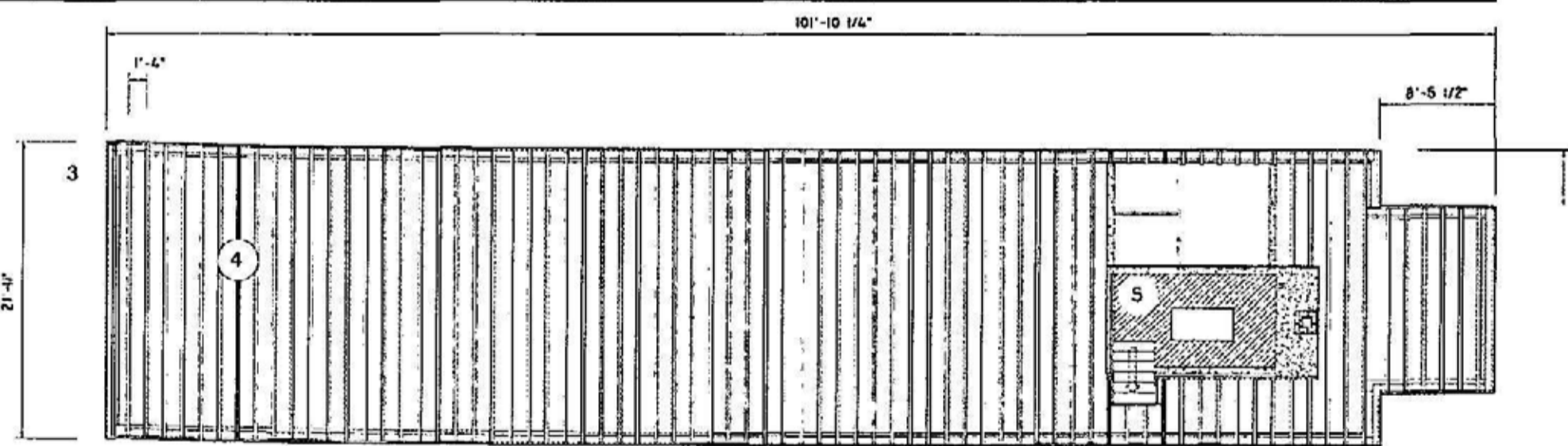
FLOOR PLAN



DELINEATED BY KRISTIAN S. KEY, 2008  
 NATIONAL PARK SERVICE  
 UNITED STATES DEPARTMENT OF THE INTERIOR  
 BALTIMORE & OHIO RAILROAD HARPERS FERRY STATION  
 HARPERS FERRY  
 WEST VIRGINIA  
 SHEET 9 OF 14  
 HISTORIC AMERICAN  
 ENGINEERING RECORD  
 WV-84



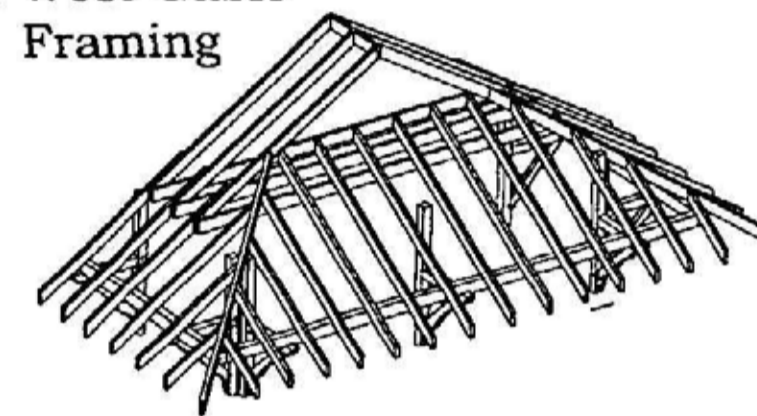
ROOF PLAN



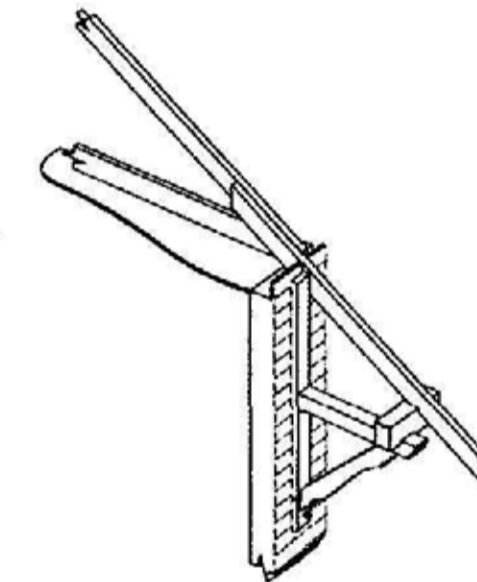
FOUNDATION PLAN

4. Floor joist spacing is 16" o.c. based upon several viewpoints located along the length of the building.  
 5. Concrete boiler pit recesses below floor level 5'-0". Currently houses a modern oil heating unit. Directly to the north of the concrete housing is a dirt floor dugout area, possibly for coal storage.  
 It is evident that extensive modifications have been made to this area on numerous occasions throughout the history of the building.

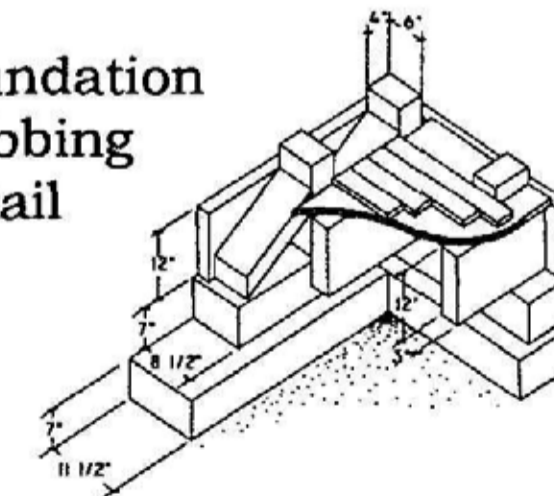
1. West Gable Framing

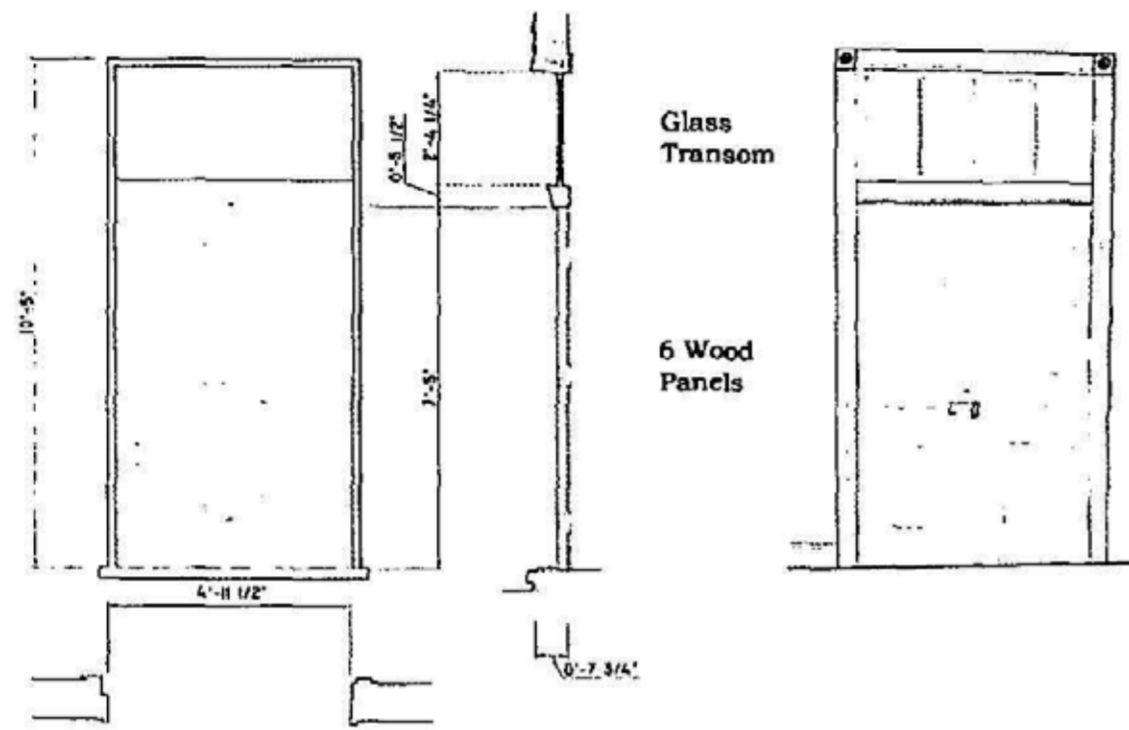


2. Typical Bracket

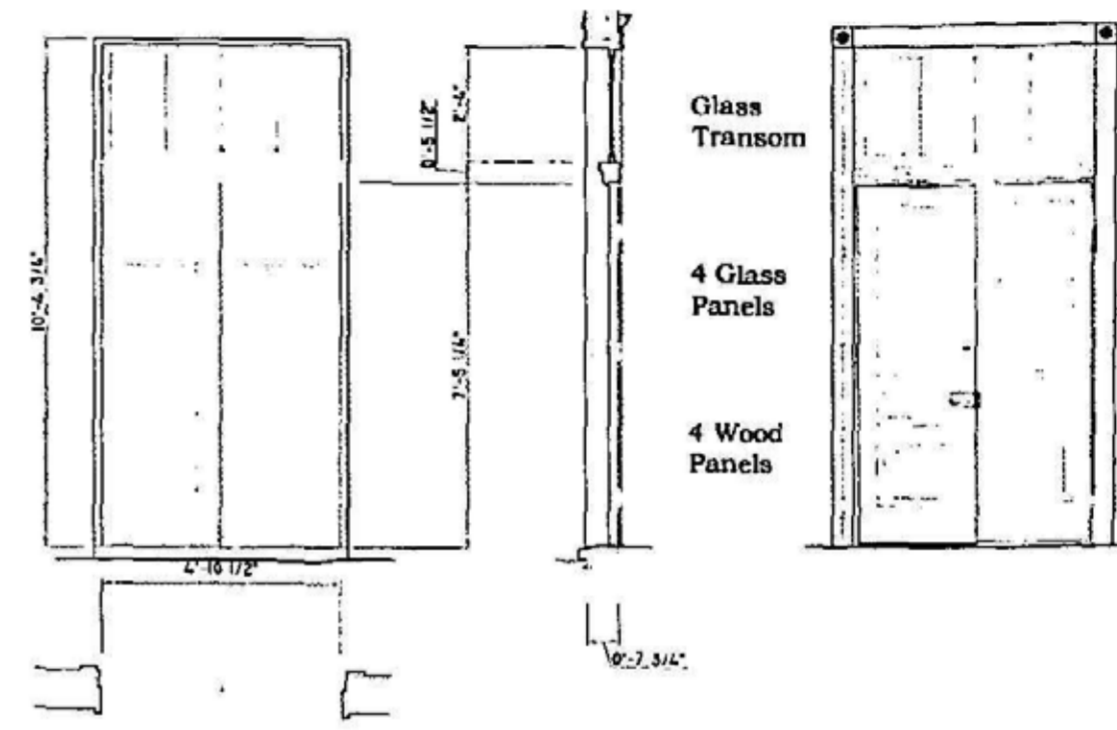


3. Foundation Cribbing Detail

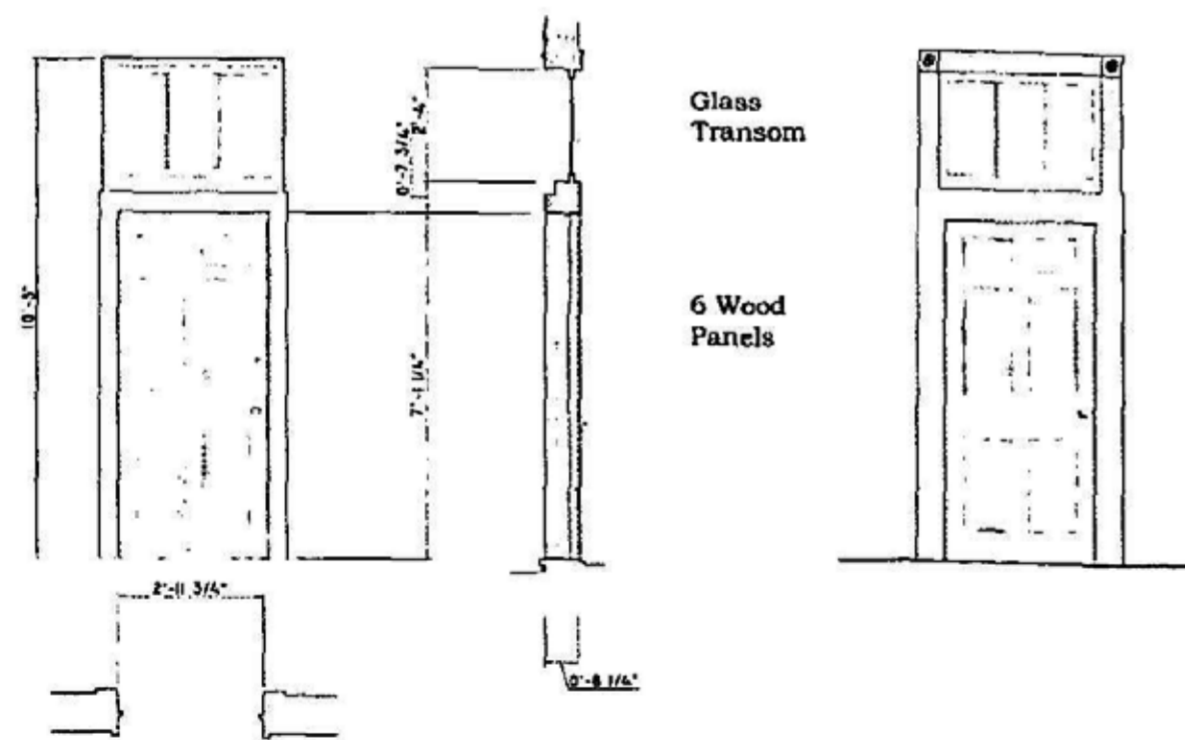




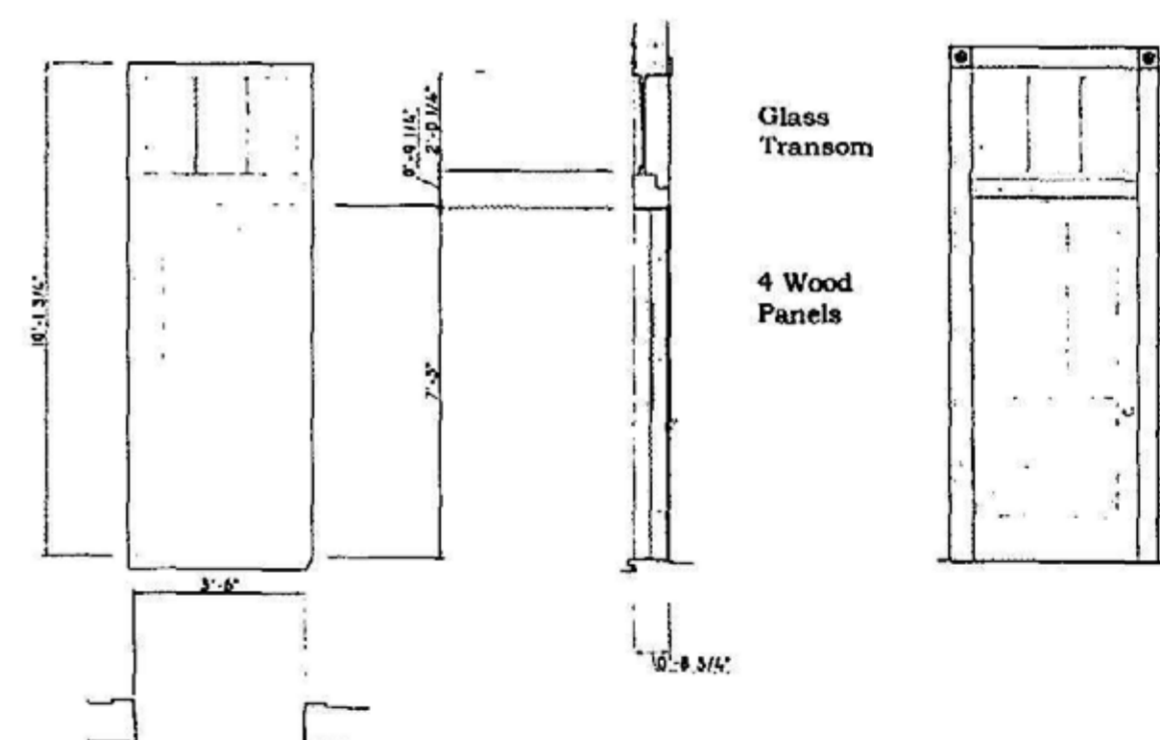
DOOR TYPE 1



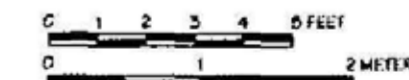
DOOR TYPE 2



DOOR TYPE 3

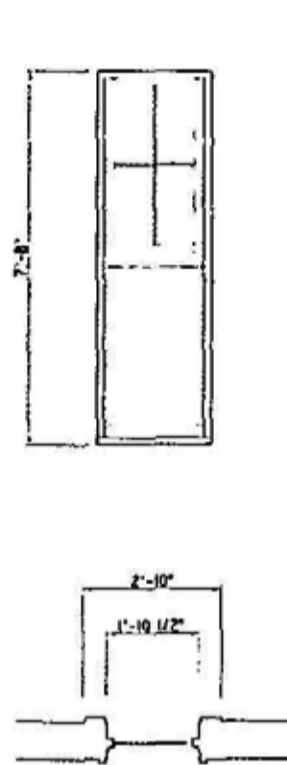


DOOR TYPE 4

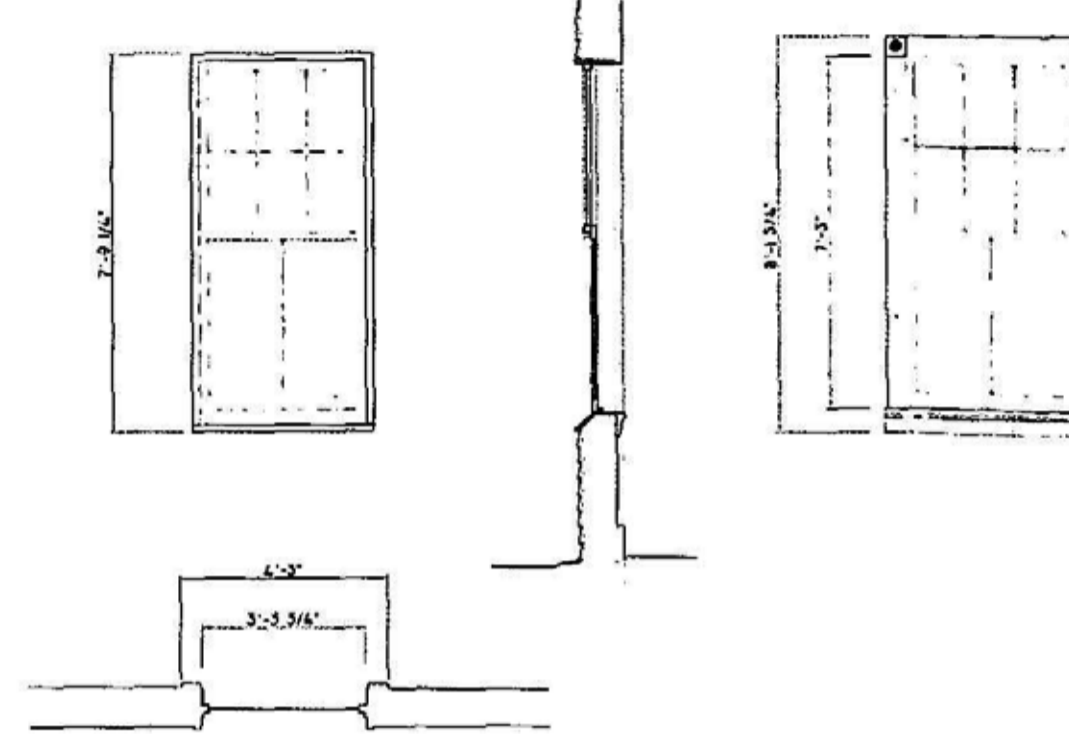
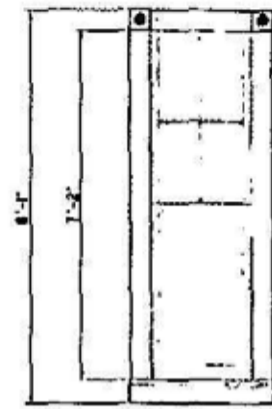


SCALE: 1/2" = 1'-0"

DELINEATED BY: WALTON D. STOWELL, II, 2002  
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 BALTIMORE & OHIO RAILROAD, HARPERS FERRY STATION  
 POTOMAC STREET  
 WEST VIRGINIA 25401  
 SHEET 11 OF 14  
 HISTORIC AMERICAN  
 ENGINEERING RECORD  
 WV-80

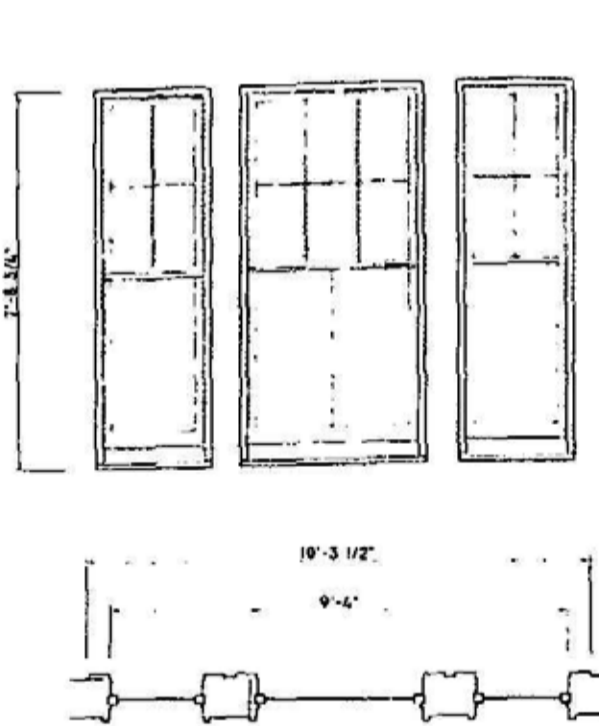


WINDOW TYPE A (4 TOTAL)

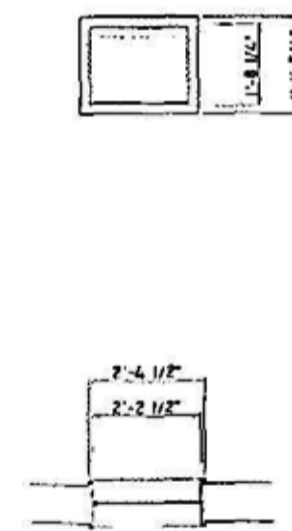
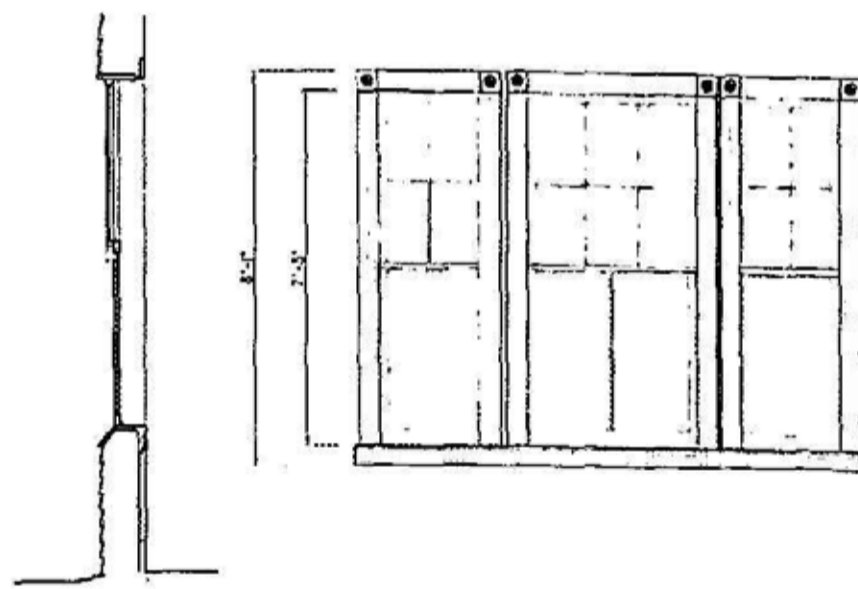


WINDOW TYPE B (9 TOTAL)

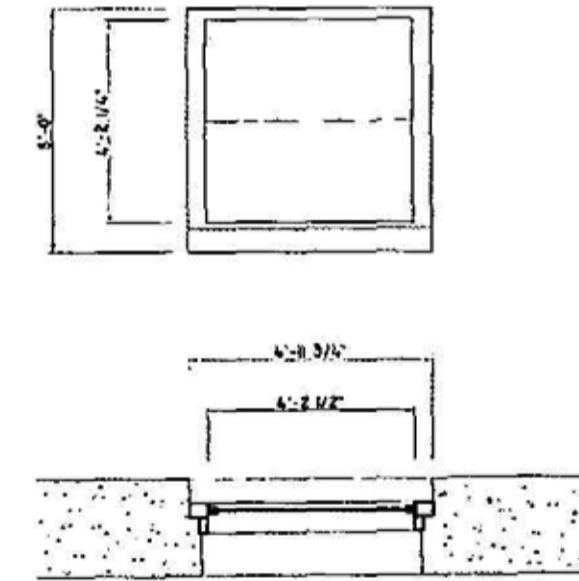
Notes  
 1. The Type C window is a grouping of Types A & B.  
 2. Many windows have been removed from the original structure. Missing windows include: 11 interlock tower windows, dormer windows, and many waiting shed windows.



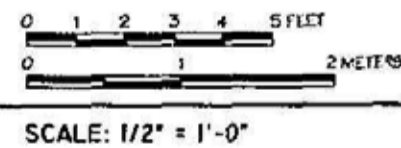
WINDOW TYPE C (1 TOTAL)

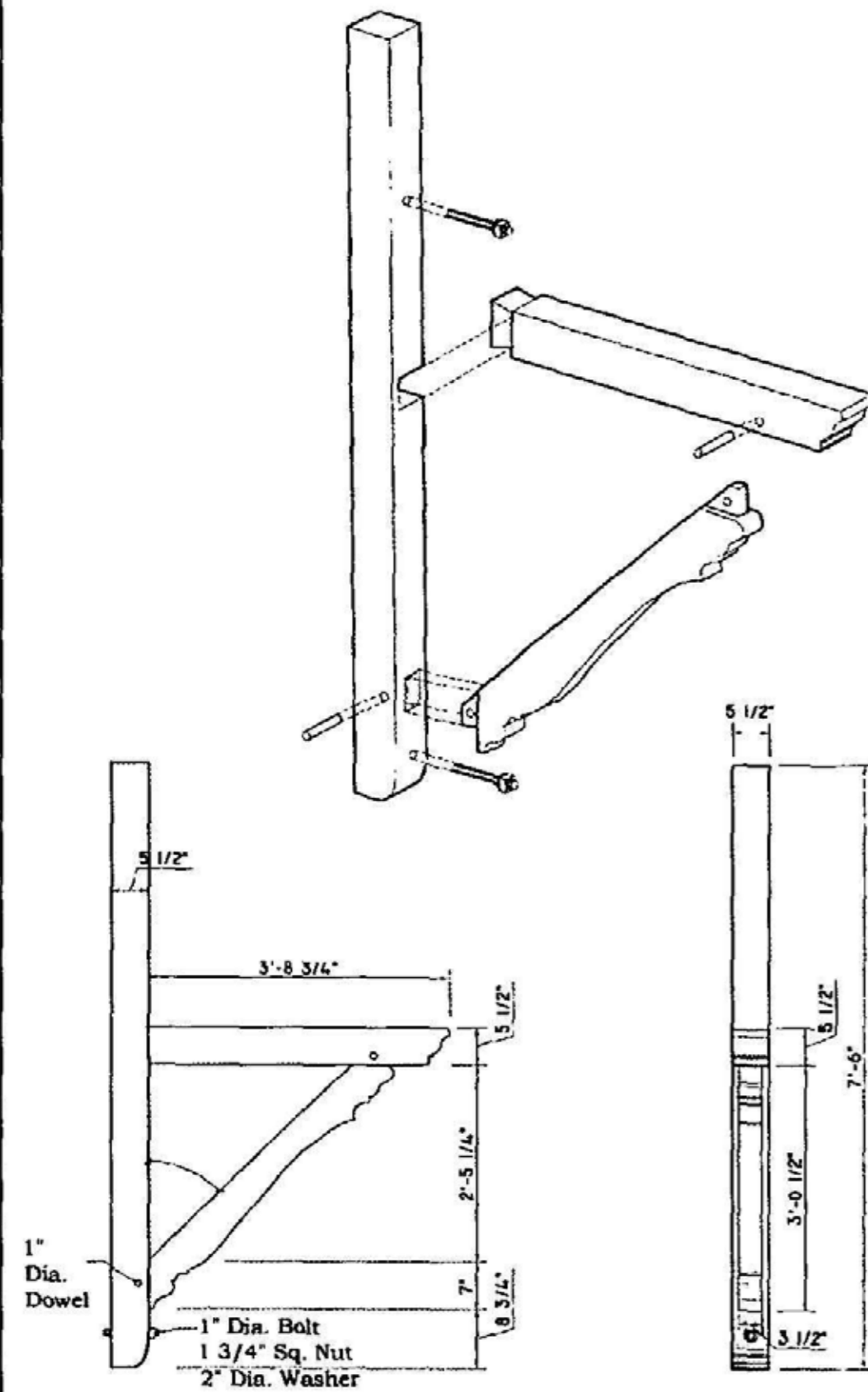


WINDOW TYPE D (1) & TYPE E (2)

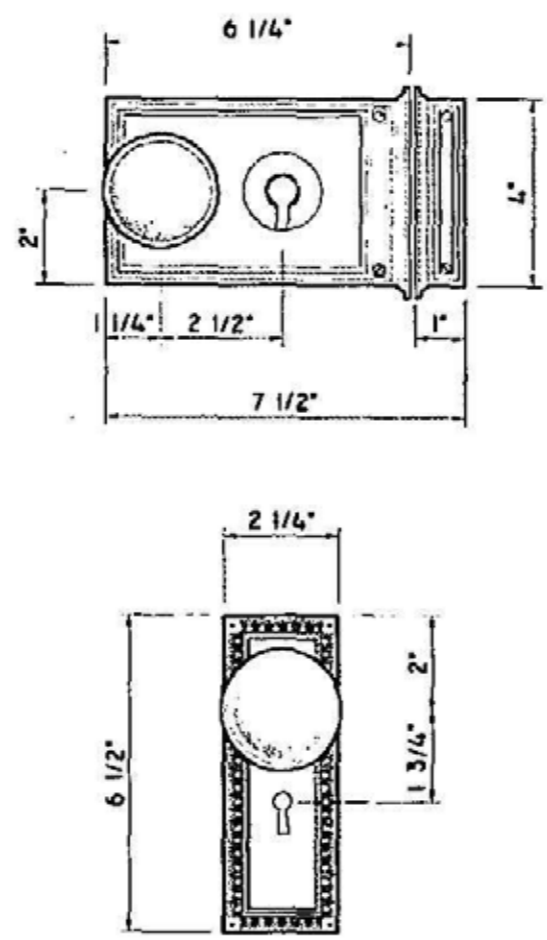


Type E windows found on the pedestrian subway.

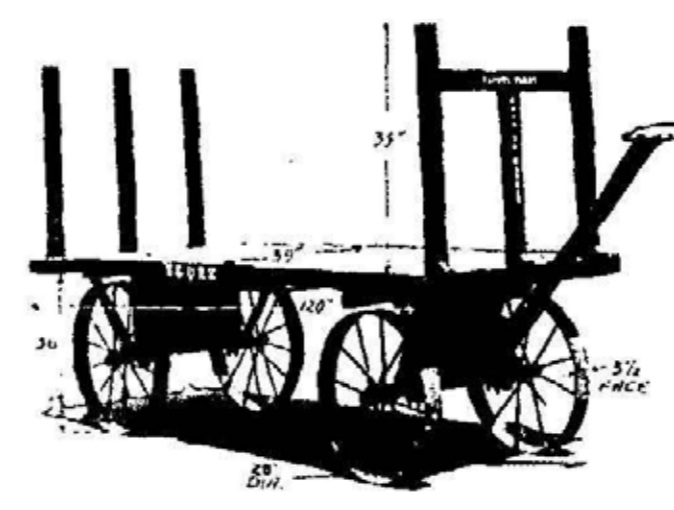




SUPPORT BRACKET DETAIL

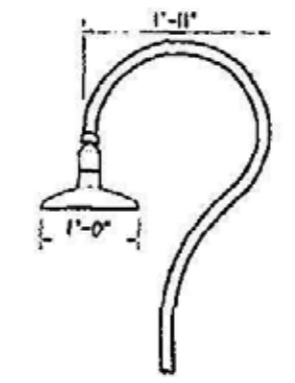


DOOR HARDWARE DETAIL  
SCALE: 6" = 1'-0" (1:2)

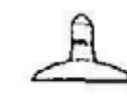


Photograph from Rob Brzotowski Collection

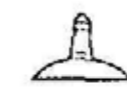
BAGGAGE CART DETAIL



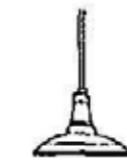
Lamp Support  
Dates: 1896 - 1950s



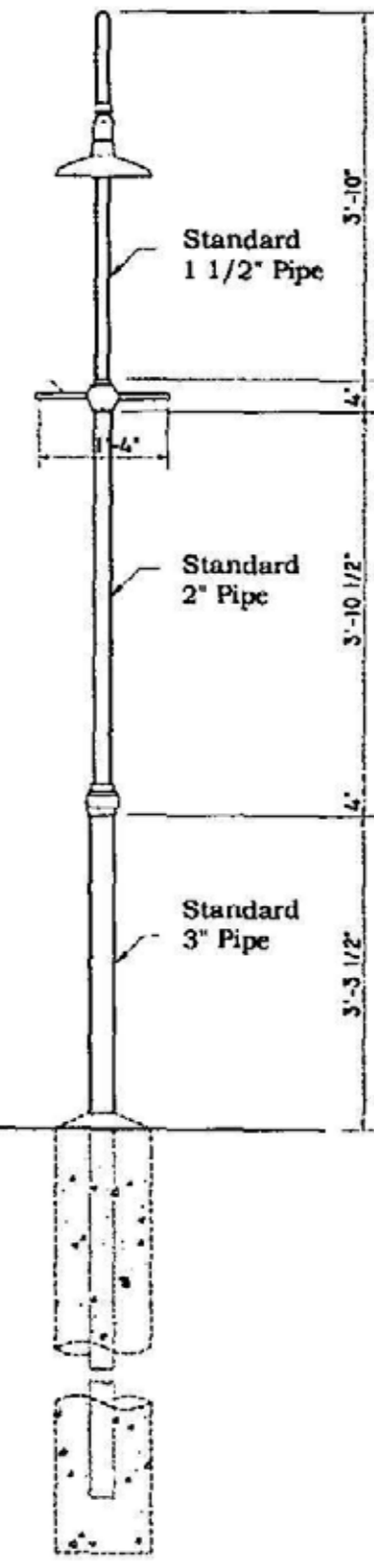
Main Station Lamp Shade



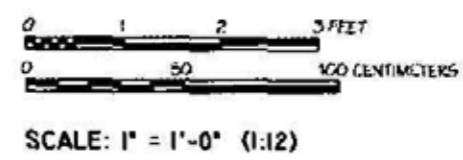
North Shed Lamp Shade



Subway Stair Lamp Shade

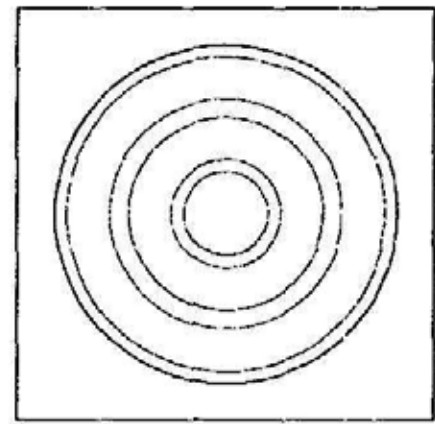


LAMPOST DETAIL

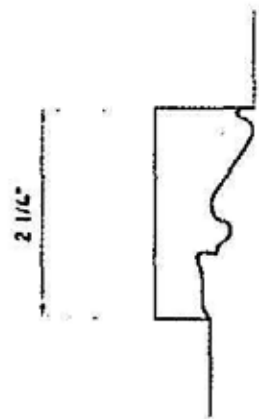


SCALE: 1" = 1'-0" (1:12)

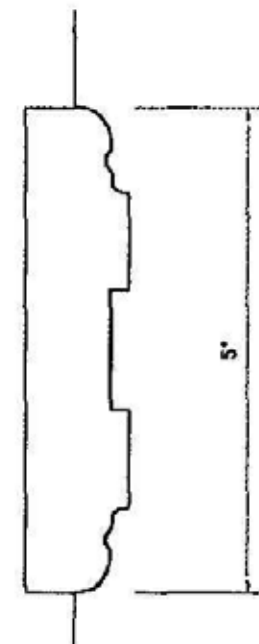
HAND DRAWING BY: KRISTIAN S. KEY  
 SHEET: 13 OF 14  
 WEST VIRGINIA  
 BALTIMORE & OHIO RAILROAD, HARPERS FERRY STATION  
 HARPERS FERRY  
 JEFFERSON COUNTY  
 DELINEATED BY: KRISTIAN S. KEY & WALTON D. STOWELL, III, 2002  
 NATIONAL PARK SERVICE  
 UNITED STATES DEPARTMENT OF THE INTERIOR



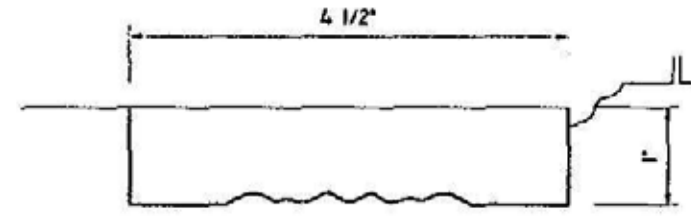
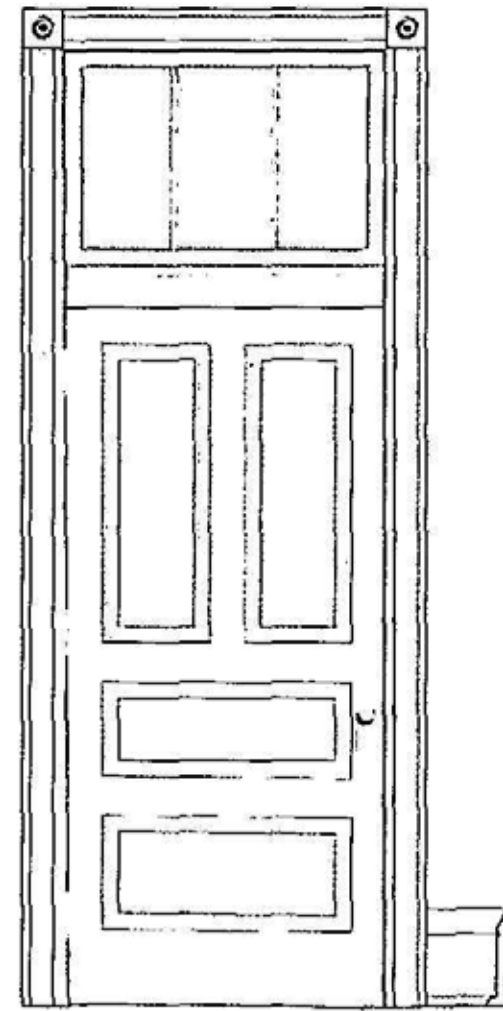
**CABINET TRIM**  
Square Block w/ Bullseye



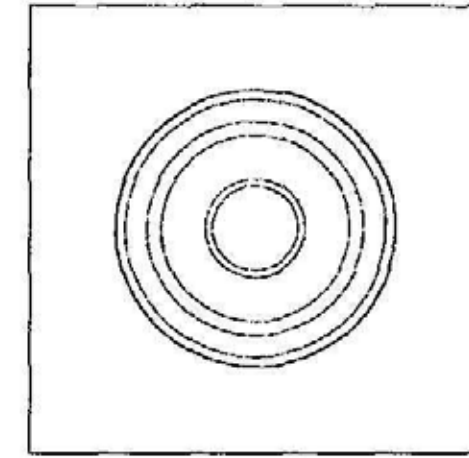
**DOOR PANEL TRIM**



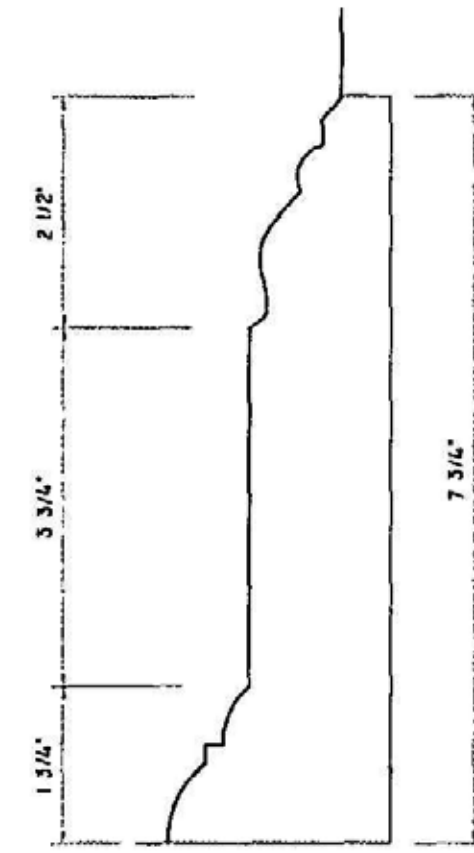
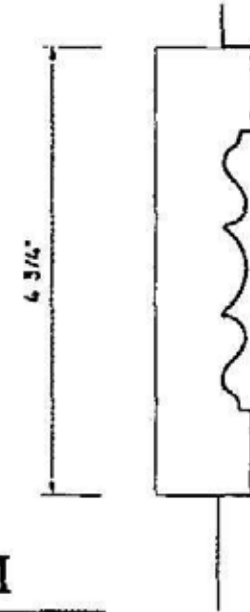
**DOOR HEADER TRIM**



**DOOR FRAME TRIM**

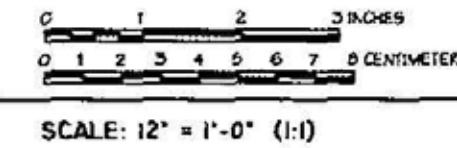


**DOOR FRAME TRIM**  
Square Block w/ Bullseye



**BASEBOARD**

**MOULDING PROFILES - Baggage Room**



DELINEATED BY: WALTON D. STONELL, II, 2002  
NATIONAL PARK SERVICE  
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HARPERS FERRY  
BALTIMORE & OHIO RAILROAD, HARPERS FERRY STATION  
JEFFERSON COUNTY  
WEST VIRGINIA 16, OF 16  
SHEET  
HISTORIC AMERICAN  
ENGINEERING RECORD  
WV-86